



The Endless End

The 9th International
European Academy of Design
Conference.

University of Porto, School of Fine Arts
Porto, Portugal
May 4-7, 2011

Conference Proceedings



EAD9

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University of Porto
School of Fine Arts
Portugal, 2011

www.endlessend.up.pt

There is a sense of vertigo permeating contemporary culture as a whole, and design in particular. So much so, that we often find ourselves wondering if design as we have known it still matters. Design seems to have lost its universe of focus, branching exponentially into a multitude of concerns and activities formerly situated well beyond its scope. Likewise, design seems to be the new interest of so many professionals situated outside its area of expertise; not long ago it seemed like design was being courted, and maybe even actively cultivating, a territorial ambiguity that has kept its professionals worried, to say the least. Design now speaks of street culture and cutting-edge technology, museums and iPhone apps, just as it has spoken of campaign posters, haute couture, heavy industries, exercises in kitsch and typography.

This dissipation of a discernible territory of practice could seem like a loss at first, until we gradually came to understand that Design is, after all and despite the contextual noise, a deeply human activity, and, as such, any circumscription of its potential would, in itself, be an artifice, an operational and transitory device; and that, rather than being devalued by this apparent dilution of its area of expert operation, Design suddenly has the opportunity to expand and mature as far as its context, content and purpose are concerned.

CONFERENCE PROCEEDINGS

Note: Papers published in this conference proceedings are displayed as submitted by the authors.

4 MAY

Wednesday

2.30 pm

Involvement

WE MEAN IT, MAAAAN! THE REPRERESENTATION OF 'EXTREME' POLITICS IN PUNK MUSIC GRAPHICS

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Abstract

This paper offers an insight into how political and ideological issues were represented in music graphics in the United Kingdom from 1978 to 1994. The analysis focuses on the music packaging concerning punk and post-punk bands engaged in the political 'extreme' – particularly the anarcho-punk movement and the neo-fascist punk and skinhead scenes, through two of its most representative labels, Crass Records and Rock-o-Rama Records. It aims to present an overview of the way persuasion and messages are articulated within systems of propaganda. It also seeks to deconstruct the propaganda graphic systems of extreme ideologies, and identify aesthetic and formal differences and similarities between contrasting political stances.

As a medium, rock music has been used to express dissent against, and support for, the establishment. However it was not until punk that it became the focus for groups of resistance. Previous subcultures appropriated music made by musicians' external to the subculture, with politics distinct from their own. Punk rock was – and is – made by punks for punks with punk issues expressed in song lyrics. Music depicts the subculture and the subculture depicts the music. Music, the subculture and its politics are one and cannot be divided. Thus, if previous to punk, musicians and bands had engaged in political issues, the means of production with which they acted were limited. A virtual frontier was visible between actions, music and subculture. This analysis focuses on the followers of the punk tradition who were never co-opted by the mainstream, radically developing the proto-political concept that early punk (the Sex Pistols, etc.) suggested, and in so doing narrowing the gap between rhetoric and practice.

Visual media can offer a way of expressing a strong, direct, intelligible message, and therefore it is no surprise that politically engaged bands use music packaging as a propaganda medium (and music and graphics become powerful weapons to attempt to catalyze change). In this context, graphics have the function of informing and persuading, and iconic visual allegories become a representation of loyalty and allegiance. The music graphics reveal and divulge the political agenda. This paper addresses how content and stylistic devices – such as illustration and photography – are used for specific purposes, such as recruiting new supporters and strengthening the scenes, presenting a critique of contemporary realities or portraying utopian environments. It focuses particularly on music graphics as a propaganda tool and how political communication is achieved through visuals in a subcultural context.

This paper is part of a doctoral research project being developed at University of the Arts London. The doctoral research presents two main novel contributions to knowledge and to the research community. The first is the development of a methodology oriented towards the analysis of the dissemination of ideological and political content through graphic design objects in a subcultural context. The second is the analysis and interpretation of ‘extreme’ political music packaging produced by artists from the United Kingdom from 1978 to 2008, covering an under-researched field and time span.

Keywords: Design, Music graphics, Propaganda, Punk, Skinhead, Crass Records, Rock-o-Rama Records

Introduction

“Banishing the love song, people discovered what else there was to sing about.”
(Marcus 1997: 77)

One of the first attempts to ally punk and organised politics was Rock Against Racism (RAR). It was explicitly socialist and the organisers “...were all veterans of the 1960s libertarian politics and agit-prop work (now ensconced in the Socialist Workers Party).” (Frith & Street 1992: 68) According to Dave Laing, “...if punk rock’s concerns with political and social topics took its cue from general ideological trends, its achievement was nevertheless to introduce such themes into songs, something which the mainstream of popular music had successfully resisted for a decade.” (1985: 31) RAR acknowledged this attitude and formed an alliance with punk. However, this inter-relationship was never fully achieved as, according to David Widgery, “...the Left thought us too punky and the punks feared they would be eaten alive by communist cannibals.” (1986: 59)

As a reaction to RAR and after previous subtler attempts to use punk, in 1978, a division of the National Front formed the Punk Front. Eddy Morrison, organiser for the National Front, stated: "I could also see that punk was becoming a powerful weapon for anyone who could turn it politically. The reds were already attempting to do this with their newly formed 'Rock Against Racism', and many teenagers went to their concerts, not because they were anti-racist but simply to hear the music. This couldn't be allowed to continue. We either had to condemn punk or use it." (Morrison 2002)

The Punk Front began as a fanzine and swiftly evolved to an organised group of musicians. As a paronomasia to RAR, the National Front launched Rock Against Communism (RAC) in 1979. The Punk Front faded shortly afterwards and it is unknown whether any bands associated recorded material. RAR and RAC – with radically different scales of attendance – ‘used’ punk, but were not an outlet of punk. Both acted as a recruiting and propaganda tool for the parties and were not a product of the musicians and subcultures involved.

In "The Author as Producer", from 1934, Walter Benjamin claims that "...the best political tendency is wrong if it does not demonstrate the attitude with which it is to be followed" (1984: 306); this definition is used to identify committed musicians. Punk created the new outlets of production advocated by Walter Benjamin. The first band, within the remit of this research, who can be argued to have tracked the path advocated by Benjamin, was the anarchist band/label/commune Crass who spearheaded a movement that was to be called anarcho-punk. According to founder member and group spokesman Penny Rimbaud; "The Pistols released 'Anarchy in the UK', maybe they didn't really mean it ma'am, but to us it was a battle cry. When Rotten proclaimed that there was 'no future', we saw it as a challenge to our creativity – we knew there was a future if we were prepared to work for it. It is our world, it is ours and it has been stolen from us. We set out to demand it back, only this time they didn't call us 'hippies', they called us 'punks'." (Rimbaud 1982: 12) The do-it-yourself ethos proclaimed by punk provided a stage for politically aware individuals to express themselves. Many, disappointed with the superficial approach taken so far, narrowed the gap between rhetoric and practice.

In 1982, the National Front reinvested in music as a recruitment tool, with the creation of the White Noise Club – an organisation created for the dissemination and production of white power rock – providing an outlet for emerging and latent fascist audiences in the punk subculture.

A new political awareness had emerged, creating a schism in the punk and skinhead subcultures. This schism had its utmost visibility in the skinhead subculture, forcing a distinction between apolitical or traditional skinheads; SHARP – Skinheads Against Racial Prejudice; RASH – Red Anarchist Skinheads; and neo-fascist skinheads. In regard to the use of the swastika by punks, Dick Hebdige had claimed in 1978 that "...the symbol [had] lost its 'natural' enemy – fascism." (1979: 116) and it "...was worn because it was guaranteed to shock." (1979: 116). Only four years later, he stated that "...in 1981, you couldn't pass off wearing a swastika as a sick joke. (...) To wear a swastika in 1981 was to say that something real was on the march again." (1982: 29)

This paper focuses on two of the most representative labels of contrasting political stances burgeoning in the late 1970s and early 1980s: Crass Records of the anarcho-punk movement and Rock-o-Rama Records of the neo-fascist punk and skinhead scenes.

Crass Records operated from 1979 to 1986 out of Crass's open house in Essex – Dial House. Producing records by previously unknown bands, its aim was to give a public platform for unrecorded bands and provide them with the experience necessary to do-it-themselves; successfully so, since some of the bands set their own labels up afterwards. Crass Records released individual records by over twenty bands, together with more than one hundred bands included in the *Bullshit Detector* compilations, which served as an output for the publication of demos frequently sent to Dial House. The compilations aimed to create a "...document of what people are doing, how they're doing it and the places (from bedrooms to small commercial studios) in which they're doing it" (Crass 1982b) promoting the 'do-it-yourself' ethos of punk.

Rock-O-Rama Records, located in Germany, was one of the main producers of RAC during the 1980s and early 1990s in Europe. The first bands released were either apolitical or left leaning German punk. The first overtly RAC release from Rock-O-Rama was *Der Nette Mann* by the Böhse Onkelz in 1984. Later that year, the album *Hail the New Dawn* was the first release by Skrewdriver on Rock-O-Rama and marks the transition of the label to far-right rock. Ian Stuart Donaldson, lead singer of Skrewdriver and then organiser of the British White Noise Club, signed a contract with the label, and the majority of British neo-fascist rock production moved to Rock-O-Rama and its sub-labels.

Over thirty records of British far-right rock were produced through Rock-O-Rama from 1984. In the early 1990s, the German government initiated an investigation that would lead to closing the label in 1994.

ANOK in the UK

From the moment of Crass's inception, the dissemination of written and graphic information was radical and central to their intentions. During the early gigging stage, Crass were failing the mission they had set for themselves – to disseminate their beliefs. According to Penny Rimbaud, "...no-one seemed able to understand what we were about, and the words of our songs were so fast as to be incomprehensible, how were we going to let people know what the message was? The ancient Gestetner machine would solve that problem. From then on we would never travel to a gig without boxloads of flyers to explain our ideas and beliefs." (Ratter 1998: 102) Additionally, banners were placed in the background of gigs to clarify stances.

The multimedia approach constructed by Crass in its early appearances was augmented with Crass Records and its releases. Crass Records fully exploited sound, lyrics, graphics and written word to disseminate the political message. The musical packaging constantly offered extra surfaces, from inserts, to inner sleeves, to complex box sets including different media, to the iconic fold-out sleeve – providing six times more printable surface area than standard sleeves. Additionally, the surface of records, such as run-out grooves and centre labels were exploited.

The visual contents targeted: the state, with emphasis on 'the system' or 'them' – involving politicians, the monarchy, organised religion, the military and law enforcement, and capitalism; subcultural values, regarding issues of unity and authenticity, incitement to action and betrayal; environmentalism, with emphasis on animal testing and cruelty, and the meat trade; and the unquestionable conventional roles of society, including patriarchy and moral values. The records had the function of educating and informing.

Exposing their intentions, the sleeve of *The Feeding of the 5000*, released in 1978, displays this shift of Crass – represented by an individual carrying its flag – from background of a degenerate society to a position of action, striding through the field towards a new destiny. The *Second Sitting*, released by Crass Records two years later, was clearer and more brazen [Fig. 1]. A stencil lettering frame surrounding the back sleeve displayed the slogan "Do you really believe in the system? Well. OK. We believe in ANOK [standing for Anarchy is OK] in the UK."

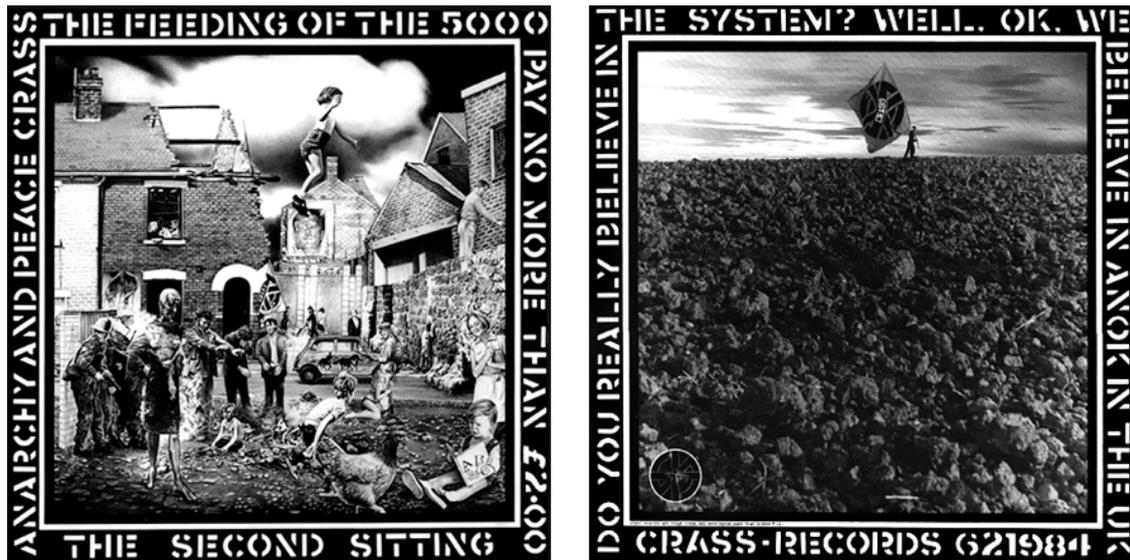


Figure 1 – Crass. *The Feeding of the 5000: The Second Sitting*. 1980. Crass Records 621984. 12" EP. Front and back sleeves

But if *The Feeding of the 5000* presents a sample of society and the system in its cover, no representation of ‘them’ is as complete as the illustration of the poster included in the box set *Christ: The Album* from 1982 [Fig. 2]. The poster shows a congregation of figures of authority. Over a quote from Ralph Waldo Emerson – ‘An institution is the lengthened shadow of one person’ – an illustration, displaying the main characteristics of photo-montage, reveals the figures casting the shadows of the oppressive establishment. National and international politics are represented by politicians, including Margaret Thatcher in a central role – with Dennis collecting her multiple excretions – shadowing Queen Elizabeth II; Ronald Reagan in a display of strength with Leonid Brezhnev, overviewed by the hyena Alexander Haig; or Michal Foot as the jester in the political discourse of Britain. The military and law enforcement are represented by a parade of soldiers raising on high the flags of military and corporate businesses. Different sections of the corporate world are displayed, such as the media by the BBC, financial world by American Express, the pharmaceuticals empire by Bayer, meat consumption by McDonald’s, the music industry by EMI and the sex industry by Playboy. Patriarchy and the suffering of women are represented through the image of a crucified woman hidden behind the body of the crucified Christ. Also represented are the religious authorities and the conventional moral, educational and family roles.



Figure 2 – Crass. *Christ: The Album*. 1982. Crass Records Bollox2u2. Boxset. Inner poster

An additional target of Crass consisted in those within the punk subculture who did not live up to their expectations. Crass's split single with the Poison Girls, *Bloody Revolutions*, made one of the most controversial statements within this field [Fig. 3]. The suggestion of betrayal was achieved through an iconic image from the Sex Pistols, where the faces of these punk spearheads are morphed to those of Queen Elizabeth II, the Pope John Paul II, Lady Justice and Margaret Thatcher; standing for the establishment, representing the monarchy, church, law and state. The single raised polemic on both the music industry and the punk subculture. Not only was it banned by HMV due to the “inflammatory nature of the cover” (Ratter 1998: 123), but according to Penny Rimbaud, “...more disturbing by far was a phone call we received from a very angry and rather drunk Glaswegian punk. ‘You fucking bastards,’ he slurred, ‘how dare you defile the Sex Pistols like that. Don’t you know they’re fucking sacred?’” (Ratter 1998: 123) However, if pretence was exposed, allegiance was rewarded and often records appealed for unity and authenticity, particularly through the *Bullshit Detector* series.



Figure 3 – Crass/Poison Girls. *Bloody Revolutions*. 1980. Crass Records 421984/1. 7” Single. Inner poster

Crass dedicated one entire album to feminist politics, *Penis Envy* [Fig. 4]. Exclusively sung by women, the record focused on issues such as marriage, sexual repression and patriarchy. A photograph of an inflatable doll in the front sleeve is contrasted with one of a butcher handling animal carcasses in the back, as a metaphor of the sexual exploitation of women.

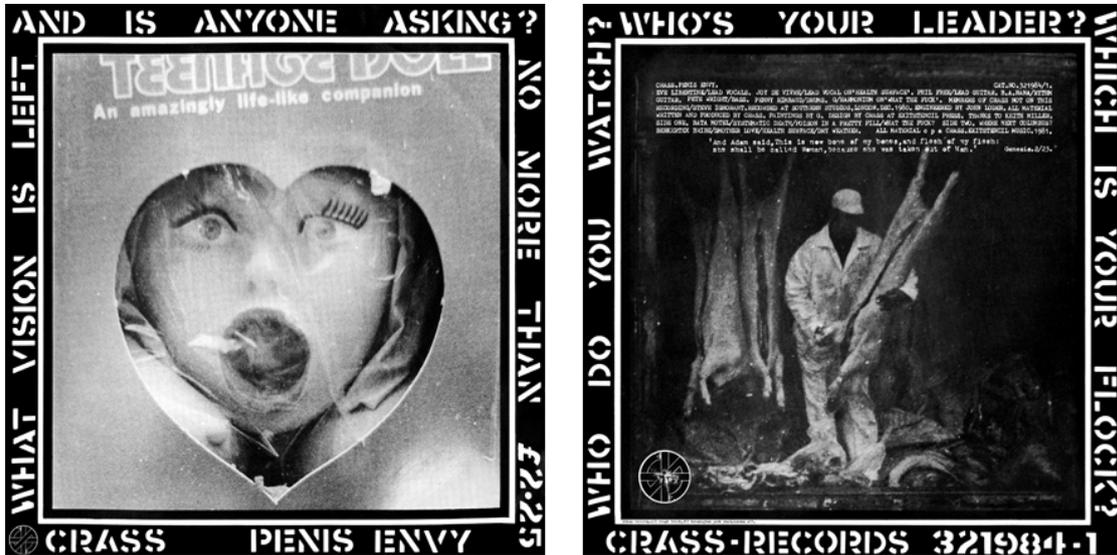


Figure 4 – Crass. *Penis Envy*. 1981. Crass Records 321984/1. LP. Front and back sleeve

Although photography is often used with an illustrational character, either as a support for illustration or as a component of compositions of contrasting images to create metaphors, it is also used with the purpose of documentation. The sleeve of the album *Stations of the Cross* documents the graffiti campaign carried by Crass in the London Underground [Fig. 5]. The photograph is reproduced as it is, without manipulation to capture reality.

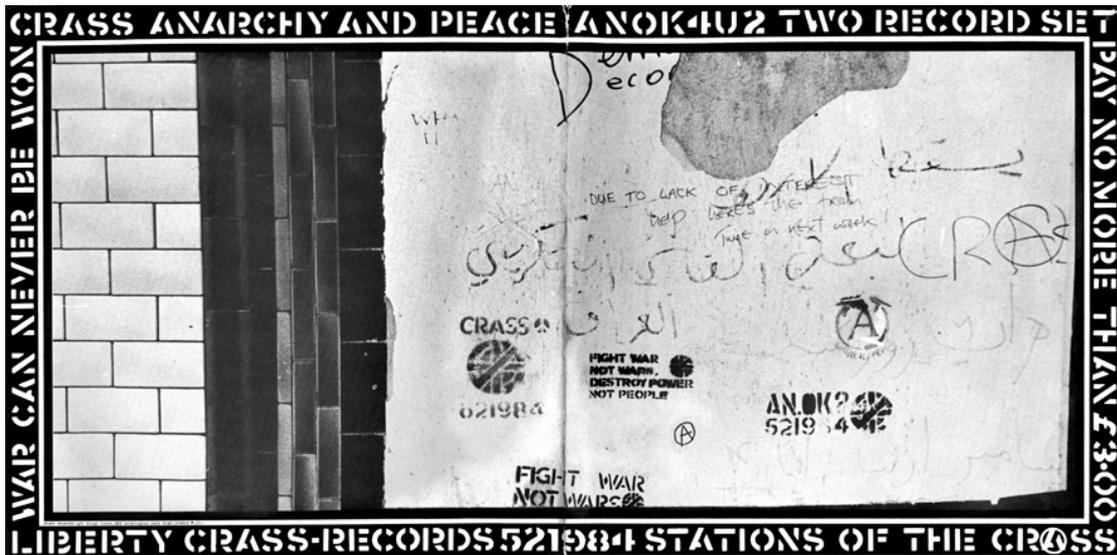


Figure 5 – Crass. *Stations of the Cross*. 1979. Crass Records 521984. LP. Front and back sleeve

Photographs of the bands or its members in the sleeves are scarce. When displayed, they often take the form of live performance photographs and are frequently relegated to a non-prime location of the sleeve. Owing to either rough lighting or editing the images with high contrast levels, individuals are difficult to identify. Banners hung on the background displaying symbols, as the circle A, are as prominent as the individuals themselves.

Hail the New Dawn

Despite Rock-O-Rama's original apolitical position, the covers of the first releases were remarkably aggressive. Thus, it is strange that despite Rock-O-Rama's propensity to visual shock, and its position as one of the major labels of Rock Against Communism, the covers of the RAC releases are some of the least explicit in either the music scene or in Rock-O-Rama itself. Compared to far-right releases on other labels, political symbols are scarce and frequently embedded in a global image. The imagery usually depends on fuller knowledge of the intended consumer for its deciphering.

A common design strategy is the display of live performance photographs, presenting an opportunity to expose three levels of information – the presentation of the band, who frequently display political symbols embedded in the clothing or accessories; the loyal fan base, the crowd, who also exhibit some of the same symbols; and the backdrops behind the stage, consisting mainly of flags either of the nation or of political symbols [Fig. 6]. The use of backdrops and objects in the image, act as “elements of a veritable lexicon, stable to a degree which allows them to be readily constituted into syntax” (Barthes 1987: 23), and are one of the main sources of political symbols in Rock-O-Rama covers. Thus, whereas labels created purposefully for the dissemination of far-right rock – such as Rebelles Européens or ISD Records – are less cautious in the use of explicit symbols, releases on Rock-O-Rama portray socially acceptable metaphorical imagery. Few references to Nazi symbolism or White Power symbols appear explicitly in the sleeve. Parallel to this omission, is the segregation of the targeted enemies on the graphics.



Figure 6 – Brutal Attack. *As the Drum Beats*. 1988. Rock-O-Rama Records RRR 73. LP. Front cover

Exceptionally, an unequivocal reference to the Ku Klux Klan does appear in the *White Rider* album of Skrewdriver, showing a Klansman on a horse emerging from a flaming field, holding a torch in his hand [Fig. 7]. The sleeve acts as homage to the forefathers of white warriors portraying their commitment in the fight against the enemy, although the lyrics identify 'Jewish power' as the enemy instead of the black community.



Figure 7 – Skrewdriver. *White Rider*. 1987. Rock-O-Rama Records RRR 66. LP. Front cover

With metaphorical images, contents consist of illustrations of mythical warriors surrounded by diverse contextual environments. Claims to engage in the struggle come from Viking warriors disembarking on the coast, as in the album *Hail the New Dawn* from Skrewdriver. Claims to be alert to the enemy movements are represented by a Viking warrior with blood dropping from his axe standing guard on the coast, as in the album *Blood and Honour* from Skrewdriver. Or, claims of endurance come from a skinhead carrying the Union Jack emerging from a flamed field, overseen by mythical characters, as in the album *Forward into War* from Vengeance [Fig. 8]. Thus, the paramount concern manifested through the imagery in the sleeves relates to nation. The usage of Norse imagery indicates the ideal of the preservation of a pure Aryan race in Northern Europe associated with the Teutonic mythology. Thus, the alliance forged between skinheads and Viking warriors establishes the link between contemporary and historical defenders of the white race, and their soil from invaders, while claiming their Aryan heritage. It is noteworthy to mention the apparent paradox in the use of Norse imagery, as historically the Vikings were themselves invaders of Britain. Celts and Anglo-saxons are absent from the graphics in Rock-O-Rama. Arguably it might be attributed to a widespread popularity of Viking mythology and imagery, and the appeal of a mythology strongly based on the glorification of warriors and war.



Figure 8 – Vengeance. *Forward Into War*. 1988. Rock-O-Rama Records RRR 70. LP. Front cover

The Skrewdriver album *Freedom What Freedom*, from 1992, makes an unorthodox analogy to a biblical figure renowned from the *Tanakh* – the Hebrew bible – and the Old Testament [Fig. 9]. Suggesting the persecution of white warriors, the logo of Skrewdriver is chained to pillars that strive to contain it. As Samson had done, Skrewdriver is breaking free from oppressive forces. Despite the atypical approach, it indicates a recurrent theme: the persecution of members of the scene. The claim to stand for fallen 'mates' reinforces the notion of unity and common purpose.



Figure 9 – Skrewdriver. *Freedom What Freedom*. 1992. Rock-O-Rama Records RRR 121. LP. Front cover

Approximately two-thirds of the sleeves include photographs of the group. Russell Bestley (2007) unearths and categorises the usage of photographs of the group in punk sleeves. Bestley defines the most common reference in punk photography as the ‘Ramones-style’ pose, depicting the group standing against a decaying unidentified urban environment. Although this is not the most common photographic representation in RAC, it was used, occasionally to the point of redundancy, as in the album *Blood Against Gold* by No Remorse, where an entire photo shoot, including duplicates, is exhibited in the front and back covers.

Another common style is the live performance shot. Frequently, possibly as a means of resolving the “technical difficulties of performance photography (particularly with lighting and the physical position of the photographer relative to the group in small clubs)” (Bestley 2007: 281), the image would be composed of a collage of individual shots of the musicians. Concerning the use of photography, the live performance shot is the most common stylistic device on the sleeves under analysis. However, technical excellence does not seem to be a concern. Front sleeves, which feature performance shots predominantly, employ photographs with defective lighting and flash reflections, as in the sleeves of Ian Stuart’s album *No Turning Back* or the album *As the Drum Beats* from Brutal Attack.

Another common visual approach is the integration of the musicians in the ‘tribe’ context. Representations of ‘mates’ ‘just hanging around’ or attending a gig are paradigmatic. Examples can be found in the cover of the album of Public Enemy, *Englands Glory* [Fig. 10]. The use of photographs of the ‘tribe’ acts to reinforce a collective identity and allegiance to a common aim.

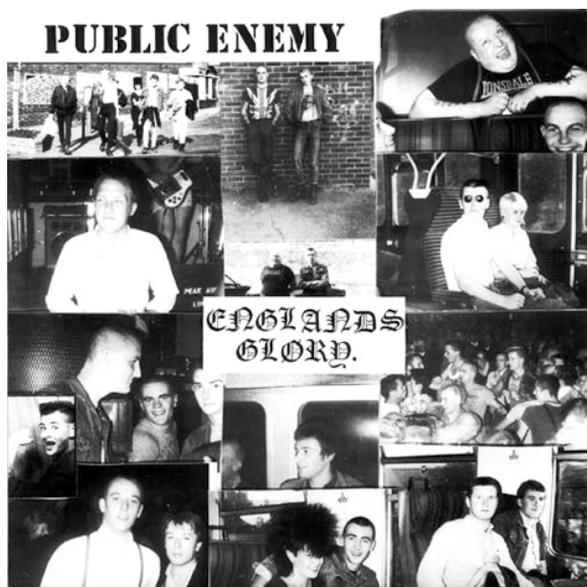


Figure 10 – Public Enemy. *Englands Glory*. 1986. Rock-O-Rama RRR 58. LP. Front cover

Conclusions

Crass Records fully exploited their releases, through sound, lyrics, graphics and written word to disseminate the political message, while constantly searching for additional surfaces in the supports. Antithetically, releases on Rock-O-Rama Records often consisted of standard or gatefold sleeves, usually without any additional inserts. The use of the package as a design strategy appears to derive from contrasting stances regarding propaganda. Crass Records set on a mission of disseminating as much information as possible; whereas Rock-O-Rama Records presents a more direct approach, relying on a direct slogan.

Regarding key themes in the labels under analysis, in Crass Records, anarchy is pursued by revealing the problems affecting society and setting out the path to overcome them. Targets consist of: the state, with emphasis on 'the system' or 'them' – involving politicians, the monarchy, organised religion, the military and law enforcement and capitalism; subcultural values, regarding issues of unity and authenticity, incitement to action and betrayal; environmentalism, with particular emphasis on animal testing and cruelty, and the meat trade; and the unquestionable conventional roles of society, including patriarchy and moral values. In Rock-O-Rama Records, idiosyncratic visual tropes include: representations of patriotism and nationalism through national symbols; struggle for the restoration and preservation of the Teutonic myth, through the usage of Norse imagery and mythology; and appeal for alliance and endurance through subcultural representations and the claim of persecution.

Common themes amongst the anarcho-punk movement and the neo-fascist scene include the appeal for unity and claim of authenticity, as an endeavour to strengthen the scene; and the depiction of foes, identifying the targets in the search for a better society.

The choice of graphic techniques is also revealing of different political intentions. Illustration is used to convey fictitious scenarios whereas photography is used to report actual situations. Despite the similarity in the purpose of the techniques, the communicational aims are distinct. In Crass Records, illustration acts to construct a representation of what the members of the anarcho-punk movement perceive as society and its vices in a contemporary reality, while photography is used to document social reality and the actions of the movement's members to alter it. Whereas in Rock-O-Rama, illustration acts as portrayal of an idealised mythical past, and photography is used to promote the members and the status of the scene. The inclusion of photographs of members of the movements in the sleeves is radically different, from scarce appearances in Crass Records releases to inclusions in approximately two-thirds of the sleeves in Rock-O-Rama, thus manifesting a reliance on leaders on the far-right versus the motto "there's no authority but yourself" of the anarcho-punk movement.

This paper aims to present an overview of how political and ideological issues were represented in music graphics, particularly in the labels Crass Records and Rock-O-Rama Records. It is part of a doctoral research project being currently developed at University of the Arts London. The research project overall aims to create an extensive panorama of visual communication within 'extreme' political factions in punk and post-punk music, including a wider selection of bands and labels, and time span. Additionally, the research includes the analysis of a comprehensive range of graphic techniques and strategies.

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Discography

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- Brutal Attack (1988) *As the drum beats*. Rock-O-Rama Records.
- Crass (1979a) *Stations of the Crass*. Essex: Crass Records.
- Crass (1979b) *The feeding of the 5000: the second sitting*. Essex: Crass Records.
- Crass (eds.) (1980) *Bullshit detector*. Essex: Crass Records.
- Crass (1981) *Penis envy*. Essex: Crass Records.
- Crass (1982a) *Christ: the album*. Essex: Crass Records.

Crass (eds.) (1982b) *Bullshit detector two*. Essex: Crass Records.

Crass (eds.) (1984) *Bullshit detector three*. Essex: Crass Records.

Crass & Poison Girls (1980) *Bloody revolutions*. Essex: Crass Records.

Ian Stuart (1989) *No turning back*. Rock-O-Rama Records.

No Remorse (1989) *Blood against gold*. RAC Records.

Public Enemy (1986) *Englands glory*. Rock-O-Rama Records.

Skrewdriver (1984) *Hail the new dawn*. Rock-O-Rama Records.

Skrewdriver (1985) *Blood and honour*. Rock-O-Rama Records.

Skrewdriver (1987) *White rider*. Rock-O-Rama Records.

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Acknowledgments

First of all, I would like to thank my PhD supervisory team: Roger Sabin, Russell Bestley and Andrew McGettigan, for all their support and advice. Additionally, I would like to thank Fundação para a Ciência e a Tecnologia for funding this research project.

Prototype-driven projects: lowering the threshold to innovation and enabling critical design.

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Abstract

According to Schrage, some innovation processes are specification-driven, while others are prototype-driven. Can the same taxonomy be applied more specifically to design processes? Usually designers have to face specific briefs and answer defined questions in their work. But what if a design project would start with a cyclical reiteration of prototyping, rather than being specified by a bullet-point brief from the very beginning? This paper presents the experience of a yearlong project based on continuous prototyping: the grassroots social campaign *Soita Mummolle* (“Call Your Grandma”, in Finnish). Continuous prototyping is explored as a process which lowers the threshold of generating innovations - in this case, social innovations - and supports design in assuming a more critical and thoughtful function in society (as envisioned by Dunne and Raby). The methodologies used to collect preliminary data and feedbacks in this case study are qualitative and used basically to know empathically the target user. The effectiveness of the project - and consequently of the method that generated it- was measured both in quantitative terms (number of participants, web visitors, appearances on national and local media, etc.) and in qualitative terms (quality of the brief generated, types of reactions in the public and on the media).

Introduction

Usually, design cases start with the client brief, a wish list of specifications that define and describe an idea and its desired outcomes. Most of the times, clients know what is the final effect they want to achieve, but not how to achieve it. They will ask the designer to create something that works/seems like some successful example they are fond of. What they wish is to obtain the same impact of such successful example, but

they tend to mix the cause with the effect. This will create limiting assumptions over the topic, preventing a free exploration of the possible alternatives.

I argue that briefing is often endowed with assumptions, which later on hinder the innovative potential that design can reach. As Schrage [1] points out, “some innovation cultures are specification driven; others are prototype driven”. In order to obtain innovative results it is important to substitute *specification-driven prototype* processes with *prototype-driven specifications*, meaning that only after the confrontation with real context and needs we can define concepts that are really innovative.

This paper presents the evolution of the *Soita Mummolle* project (“Call Your Grandma”, in Finnish). Born as a conceptual design project within a research group, its scope was to “create concepts for products and services that improve the life of seniors, granting them more independency and a longer, healthier life in their own homes”. This sentence was the only brief given. All the goals had to be defined by the researchers/designers themselves. The method chosen to do so was a reiteration of prototyping cycles, in which ideas were immediately, roughly tested and successively refined by observing results and repeating the process.

Many ideas were tested during summer 2009 and presented to the commissioning companies. One of the ideas, *Soita Mummolle* campaign, went as far as becoming a popular social campaign in summer 2010. The experiment question, this time, was “How to create an effective, low-budget model of campaigning for social enterprises, which typically do not have much resources?”

This paper presents how *Soita Mummolle* evolved through a prototype-driven process. Prototyping reiterations led to a sequential refinement of the concept. The paper presents the different iterations of the project, describing the implementation process. Continuous prototyping is explored as a process that lowers the threshold of generating innovation - in this case, social innovation- and supports design in assuming a more critical function in society.

First iteration: instant experimentation creates the brief specifications

The project team for *Soita Mummolle* consisted of five members, with backgrounds in economics, design management, industrial and graphic design. The lack of an extensive brief was the unique condition of this project: the team was just asked to design “concepts for products and services to make the life of elderly people happier, easier, healthier and more independent, so that they could live longer in their own homes and avoid hospitalization”. The team was not given any further definition to inspire their efforts. The project didn’t have a title: it was up to the team to define it - along with a focus on the subject matter and the goal to achieve. Conversely, observing and listening to the target group was encouraged, as well as trying out quickly every promising idea and keep a “failure resume” in order to learn as much as possible from mistakes [2]. A hands-on, action-oriented, experimental attitude was welcomed.

The intention was to implement experimentations within an experimentation: the team was asked to instantly prototype their ideas, but by doing so they were at the same time testing if such a brief-free, explorative methodology could generate innovative concepts

and lower the threshold of prototyping. The process used to investigate and refine the ideas proposed a model of explorative prototyping, based on some of the elements often found in literature: the prototyping process was systematic [3], rapid [4] [5] [6], continuous [4] [7] [8] [9] and “from day one” [10].

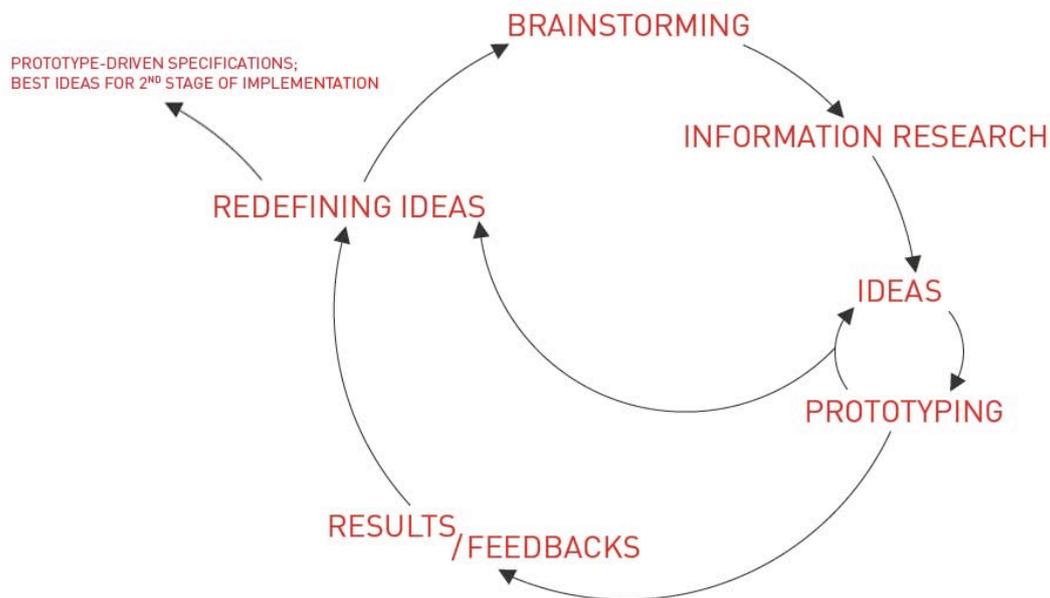


Figure 1 – Reiterative process used in this project to define prototype-driven specifications

Brainstorming focused on the generation of as many different ideas as possible; then a brief qualitative research with seniors (interviews, informal meetings, phone-diary, following and helping them during their daily tasks) was conducted, to decide which ideas to kill or to develop: observing their lifestyle, discussing with them about different concepts and gaining knowledge through empathy gave the team empirical data valuable in selecting the most promising concepts. The ideas were then refined and a plan on how to prototype them was drafted; finally the team tested the mock-ups, both among themselves (instant experimentation) and with the seniors; in the end, feedbacks from the users and from the “stakeholders of seniors’ wellbeing” (family, caregivers, nurses and doctors who typically influence the decisional process of seniors) were considered. Then, the process started all over again, focusing on the ideas that worked out better, so as to explore and to refine them further.

After this “first round” of experimentation the team was able to define the key points they wished to implement, a list of prototype-driven specifications that created the “brief”:

1. The main factors of seniors’ wellbeing are physical mobility and the existence of personal relations, and they have a mutual influence. Elderly persons who can move, but do not have any people to see and share experiences with, will tend to

get passive and lose also the physical wellbeing. The same thing happens the other way round, when physical impairment makes seniors lose progressively their personal relations.

2. Seniors need services that are not making them passive; they need to be granted an active, self-empowering role in society.
3. Thus, the target for products/services that benefit seniors are not actually seniors only: family, caregivers, nurses, doctors, friends can be targeted.
4. Society at large is the area of intervention; a change in the mentality of the world surrounding seniors can be beneficial in inventing, welcoming and supporting new ways of understanding third age's wellbeing.

This brief generated many concepts, some of which got to a second level of testing in cooperation with firms, other research groups or independently. I will proceed now to describe the project that was most successfully developed after the instant experimentation phase: a grassroot social campaign called *Soita Mummolle*. The concept was related in particular with the points 3 and 4 of the brief.

Creating a concept through instant experimentation

The *Soita Mummolle* concept was born as a reaction. After spending time with seniors in assisted living building, the team started to understand their emotions. The statements of the seniors were quite recurrent: seeing their relatives and especially their grandchildren was the biggest joy; being lonely and bored had a depressing effect on their psychophysical health.

The team realized that seniors don't need more products or more people paid to take care of them. It is the overall mentality of the society the real field of intervention: design should aim at changing the society's perceptions about what should be done for the third age. The starting point of this bottom-top intervention is something that each person should be able to do: caring for one's own relatives. If nothing is done in first person how can an intervention from the State be claimed? There should be a shared, common responsibility.

The team decided to simulate a social campaign, something between a provocation and an alternative way to observe people's attitude towards the issue of seniors' loneliness: the slogan "Soita Mummolle" was agreed upon, and it got printed as a logo on t-shirts and on A4 sheets of colored paper. The day after some of the team members went on the streets, observing the reaction of the passers-by to such signs and outfit.

The first method attempted was to stop people and ask questions, but everybody rushed away: the team members were perceived as the usual volunteer, asking for donations. Since it did not work, the opposite approach was tried. The team members just stood in

Esplanadi, a popular park in Helsinki, smiling at the passers-by and showing the signs, without uttering a word. Conversation was started only with those that smiled, commented on the signs or were curious enough to stop by and ask about the meaning of the street action. Once that the person attention was captured, he/she was asked to be photographed while holding the *Soita Mummolle* sign: the photo was meant to be published on the project's blog, as a public sign of their support to this initiative. 32 photos were collected in one hour. Even more remarkably, people were quite enthusiastic about both the idea and the approach: it sparked conversation and comments. Through this experimentation the team discovered that the idea had a potential grip on people. During the experiment the team members had to change their behavior and instantly try different solutions: thinking by doing is a crucial part of prototyping and helped to reveal what were the bottlenecks and the strengths of the idea. A long, careful planning to implement a polished test has less value (at this initial stage) than testing out quickly rough ideas that, in case, can be corrected and fine-tuned "on the run".

Planning the second iteration

Unfortunately, since the timetable of the project did not allow planning and implementing the campaign on a bigger scale, our team renounced to the idea. Nonetheless, the concept remained in my thoughts ever since and, at the beginning of 2010, I decided to implement it as practical part of my master thesis. The goal was to create a grassroot social campaign to raise awareness about the issue of seniors' loneliness in Finland and to stimulate people to do something simple about it: call your grandparents more often.

The core principle was not to "design for", but "design with": I wished to involve others, affect their behavior towards their elderly relatives, make them participate in the co-creation of the social message, trigger smiles and a slight sense of guilt. My goal was to design actions and interactions, giving people responsibility of the success or failure of the whole experiment. The field of intervention was not only the audience/society, but also myself: if I wanted to convince anybody to do something, I had to show contagious enthusiasm through my actions.

As I mentioned, I wanted the campaign to be an empirical experiment. So I defined my experimental question as: "*How to create an effective campaign model for small social enterprises, which typically have low budgets, but the possibility of employing motivated human resources?*" The situation of a small non-profit was the easiest to simulate, because the project had to be implemented individually and with the smallest budget possible.

The hypothesis was that a good-doer does not necessarily need much money to promote a cause successfully: the important is to have a perspective and a strategy, because also the "market" of common responsibility initiatives is saturated with competitors. The "goodness" of the message is not enough to persuade people to take action. Guerrilla marketing can be the most effective solution in this case, and as Levinson reminds us "small companies or individual entrepreneurs can flourish merely by gaining a tiny slice of an industry, a fraction of the market. Different wars require different tactics" [11]. Either for-profit or non-profit, this rule applies to all companies. The small actor should make flexibility its strength and use all its wit to get the maximum impact with the

minimum expense. This is the “brute force of vivid imagination”: creativity in the use of resources is more important than blind belief in money and traditional marketing recipes. Especially in the non-profit field, “small slices of market” can become a reasonable aim, because a project does not necessarily need to become huge to have a positive impact on society.

Internet also provides nowadays many inexpensive tools and platforms for self-publishing and self-promotion. Progressively cheaper technology has always been an ally for activists and artists in their work [12], and also offered empowerment to the “regular” citizen [13]. The web is the contemporary photocopier, a cheap medium that allows a message to be reproduced and made available to many, with the difference that the audience potentially reachable is immensely wider than ever before. Social networks became quickly a part of our daily *media diet*: they are a natural environment for the *buzz*, since people use them not only to update their status, but also to share news and contents that they feel significant in some way. Everybody is a mini-broadcaster, offering their friends a daily portion of comedy, drama, romance and breaking news. A network structure and the existence of content made easily shareable are the fertile humus on which viral messages can easily swarm and spread: the web is a medium in which guerrilla tactics can be easily implemented.

Thus, a mix of old grassroots guerrilla and contemporary social media communication was adopted as the campaign’s communicative weaponry. The aim was to create awareness about the initiative and its message. The cheapest way to do so is to have traditional media to get interested about your *story* and amplify it through their trustworthy voice.



Figure 2 – Examples of portraits collected during *Soita Mummolle* street actions. Helsinki, 19.5.2010.

Second iteration: creating an experimental social campaign

Soita Mummolle was implemented between April and August 2010 in Helsinki, Finland. Its web presence was granted by a blog and a Facebook page that gained over 5000 fans, who were very active in the online discussion. Even seniors were present on the platform, commenting and sharing family stories.

The role of Facebook was crucial also in recruiting the volunteers who participated in the street actions. The model of these street actions was the one already tested in 2009: volunteers are waving signs and asking passers-by for their support pictures to be published online. Seven street actions were organized in the center of Helsinki and each lasted about one hour. The portraits collected were published on Flickr and Facebook, and the people that “donated” their face to the cause counted up to 480 (figure 2). Street actions helped to increase the public awareness about the campaign and contributed to give it a distinct image and feeling. It worked in synergy with the online world of *Soita Mummolle*, creating a dialectic that made the public keep on following the project’s evolution with curiosity.



Figure 3 – Pictures of the flash mob held on *Soita Mummolle Päivä*. The signs mean “Call your grandpa”(left) and “I have called”(center). Helsinki, 11.8.2010.

Street actions were not the only guerrilla approach adopted: the campaign’s grand final was a flash mob organized on 11th August 2010, the self-proclaimed *Soita Mummolle Päivä* (“Call Your Grandma Day”), where participants could gather and call their grandparents for free, using mobile phones sponsored by a telephone operator (figure 3). About hundred people participated in the event, which was also filmed by a local TV. The flash mob and the campaign gained popularity on the Finnish media, especially in the final week before *Call Your Grandma Day*: all the major newspaper, magazines, radio and TV news talked about the event and invited their audience to participate. The media swarm was supported also by press releases and a knit guerrilla campaign. The knit guerrilla consisted in “forgetting” on metro and trams seats 150 crochet hearts hand-made by volunteer knitters recruited through the social network Ravelry. Each heart was attached to a small flyer about *Call Your Grandma Day* (figure 4). Handmade

crochets were chosen as medium because in Finland so many grandmothers have the hobby of knitting. It is typical for them to knit socks for all the members of the family, who end up having more pairs that they could ever use. When Finns see a knitted item, they might be easily reminded of their grandmothers.

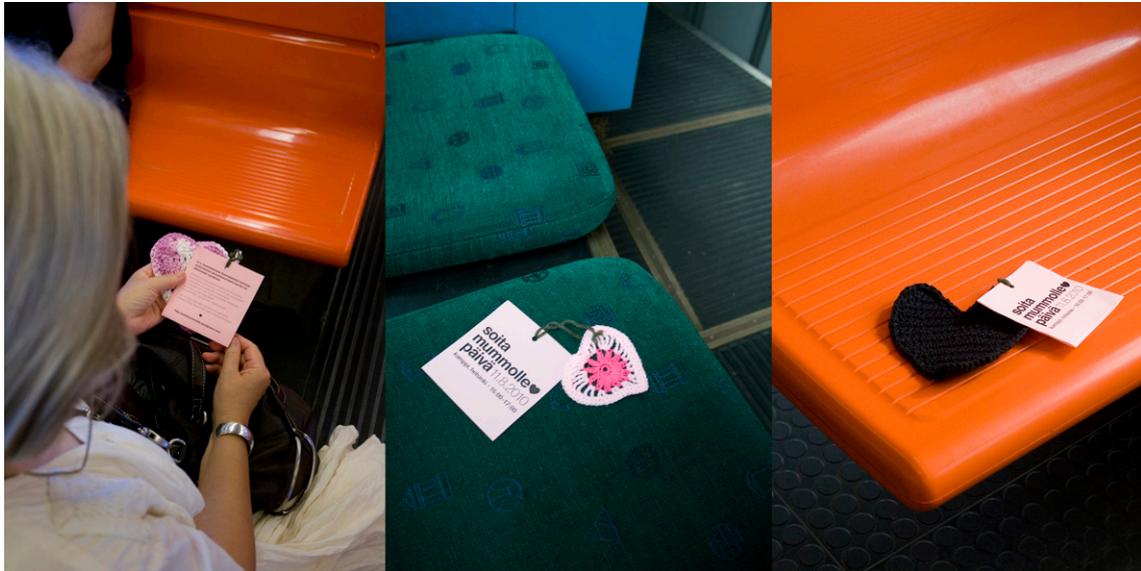


Figure 4 – Pictures of the knit guerrilla campaign. Helsinki trams and metro, 4.8.2010.

The campaign was successful in sparking interest and enthusiasm in Helsinki’s citizen and the media (figure 5). Many people “confessed” to me that they have called their grandparents after becoming aware of the campaign.

Platforms stats		Media coverage		Participants	
Blog unique visitors	5445	Press articles	16	Street actions (volunteers)	14
Facebook fans	4123	Radio programs	6	Street actions (participants)	480
		TV programs	3	Flash mobbers	100
		Web press articles	21	Guerrilla knitters	8
		Blog posts	20		
		Tweets	22		
		Discussion threads in forums	3		

Figure 5 – *Soita Mummolle* campaign in numbers.

Evaluation of the project and its methods

What makes *Soita Mummolle* an interesting project is that it was not born out of theoretical guesswork about what is “trendy, cool and works well”: it emerged during a concrete experimentation, which showed the potential of an unconventional and slightly humorous approach to a serious issue. During the second implementation, many elements were left open to improvisation, partly to have a more experimental attitude and partly to flexibly overcome the limitedness of resources (figure 6). In such a situation, following a fixed plan would have not been beneficial, because time and budget limitations required to search for opportunities while the project kept on developing. As guerrilla skirmishes in unknown territories, the only way to proceed forward is to create occasions for *must-win battles*.

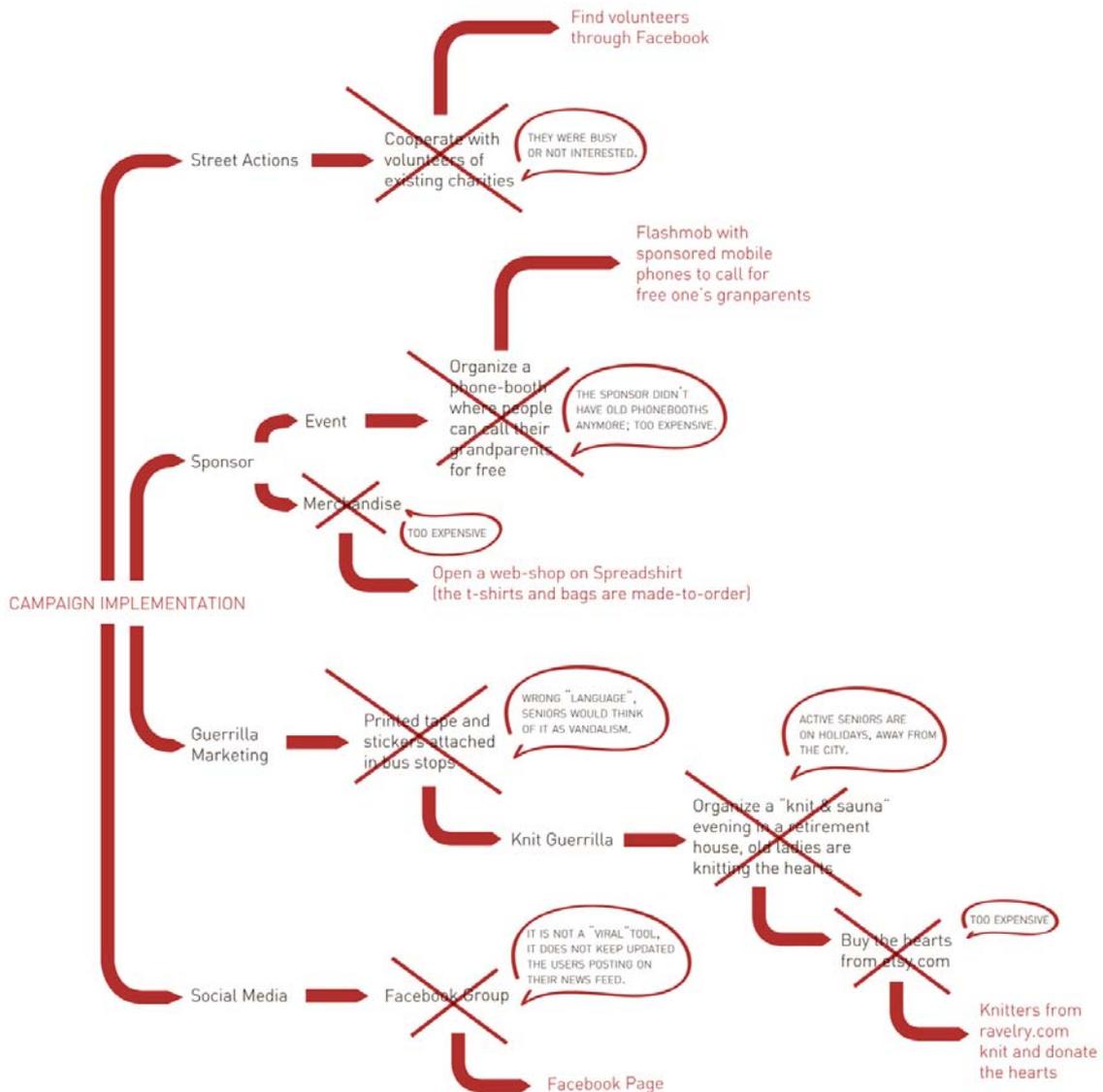


Figure 6 - Flexible path of implementation of the campaign. Instant solutions, rather than following a detailed plan, helped to overcome the limitedness of the resources.

Even though prototyping is more easily understood and applied in product/industrial design, I would suggest its beneficial effects also in the field of communication. Prototyping new ways of communicating a message, or interacting with an audience, can be interesting not only from a theoretical perspective: it could lead to innovations in a field too often disputed just between banal marketing persuasion or artistic self-oriented pretentiousness. This is limitative: communication designers should care more about creating experiences supporting human enrichment.

Though, prototyping intangible practices could be a challenge. Välikangas [14], for example, writes about the difficulty of inventing and experimenting innovative management practices. She underlines that companies should create their own practices, rather than copying “best practices” without regard to the context that generated them.

In my opinion management and communication practices share similarities: they both are intangible and exist in the relational in-betweens among different individuals, their success depends strictly on the context in which they are applied and they strongly influence what happens in such context. As communication style affects how we interpret messages and our reactions, management style subtends to every process inside of a company, fostering or mining their success. Both are invisible and difficult to control, but so important in facilitating human interaction.

It is useful to consider some of Välikangas’ insights to define how experimentation can help us in conceiving and testing alternative communicative formats:

- Experimentation should not aim to give a theoretical explanation to already observed phenomena, but should offer the possibility of creating new, different phenomena or testing variations of existing phenomena
- Inventive experimentation works at the crossroad of theory and practice, and allows for the serendipitous discovery of new ideas and practices
- Experimentation helps in redefining problems and enhancing the understanding of their characteristics
- Experimentation reveals what is possible, what is preferable and what is true
- “Learning-by-doing” is not enough to generate new solutions, so it should be substitute with “learning-by-trying”, which is the only way to experience something novel
- Experimentation accelerates the pace of invention

When we design a service, an event, a campaign or a form of interaction it is vital to understand how our creation will work in real life. Nowadays, communication is

becoming more about experiences and less about unilaterally spoon-feeding the audience with messages. Ty Montague says that advertisement is dying, but the good news is that “engagement, interactivity, participation” are flourishing around us [15]. The visual communicator has to be aware of this complexity: the easiest way to balance different variables while creating an experiential concept is to simply act them out.

Conclusions

Continuous prototyping is an asset in lowering the threshold to generate innovations – in the case of *Soita Mummolle*, a social innovation. Berman [16] and Gladwell [17] pointed out through different examples how small actions can trigger massive changes. Intervening on some detail can help to scale up virtuous behaviors drastically. Performing a simple action can have an immediate positive effect, especially if this behavior reaches collectively a “critical mass”. *Soita Mummolle* used design as a tool to make people think and to enable them to participate in improving our society. In this way, even a simple grassroots campaign can become an example of critical design.

According to Dunne and Raby [18] critical design is a type of design that embodies an alternative and a critique. It “rejects how things are now as being the only possibility” and tries to substitute art in its role of being “provocative and challenging”. Critical design offers a vision of the future and its goal is to stimulate discussions: while art is “far too removed from the world of mass consumption” to succeed in this, critical design talks the vernacular language of consumer products, which belongs to our contemporary daily experience. It is a powerful strategy because such design is not just a mock-up or a scenario, but a real product.

Not only consumer products are, in my opinion, able to become critical design artworks: visual communication is also a vivid element of our cultural landscape. Everybody is familiar with and understands how marketing speaks to the public. *Soita Mummolle* was an attempt in this sense, so the methods that are usually used to craft commercial guerrilla and social media campaigns were in this case hijacked towards a different scope. The concept was exploring a scenario in which each citizen can promote responsible messages using inexpensive tools. The project could have been implemented in the same, identical way, but if it had been presented as an *artistic performance* it would have never gained the same statute of reality in the audience’s mind. Critical design is vital in shaping alternatives, using and perceiving things into reality. Thus, it becomes an incredibly valuable method whenever the goal is to create a concrete industry-changing innovation, because in this case the designers do not know yet the solution to develop: it is important to “ask carefully crafted questions [...] about what we actually need” [18] rather than give assumption-based answers that would lead just to an incremental innovation.

Prototyping and critical design share a future-oriented attitude and they are able to test concretely a little piece of such future inside our reality. According to Oosterling [19], design is facing a “relational turn”, in which the links between different nodes of the same network become its area of intervention: us and the others, local and global, sustainability and development. In order to start designing a more just world, the creation of critical prototypes should be encouraged: understanding *how does it work between us* seems to become the next big question in design [20] [21]. Interactions,

ways of communicating, services and many other immaterial elements of the relational in-between become the new frontier of design as a practice that aims to innovatively contribute to the “design of the world” rather than to “the world of design” [22].

If a student/research-assistant manages, with the small budget granted by her own personal money, to rouse people’s and mass media attention, then design thinking combined with new media and good old grassroot activism seem to be a viable mix to create social impact, or at least to raise awareness about relevant issues. Small scale experiments should be welcomed and nurtured, since new media and a DIY attitude make it possible for everyone to easily test and spread ideas with a positive impact on society.

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Design Change=Exchange

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Abstract

Attitudinal paradigm shifts are rapidly shaping and reforming the global context for design. At the same time, design educators are seeing an increased need to prepare their students for the global arena. The teaching of design skills exclusively are not sufficient preparation for a professional practice that is global and this requires us to consider the following question: Are design skills enough for the global practice? This paper reviews current changes made by the Council for Interior Design Accreditation Professional Standards and AIGA Standards of Professional Practice in relation to themes of global context for design and design advocacy. It shows that the design profession is stepping up to the plate by re-writing professional standards and examines whether the allied design communities should also provide a new unified framework within the professional standards and practice.

In addition, the paper suggests UNESCO's Design 21 as a potential partner to assist in training designers to work in a global context. The social themes of Design 21 have been strategically developed and link directly to design issues; they are: education, aid, poverty, community, environment, communication, arts and culture, peace, and general well-being. This precedent-setting partnership seems timely and appropriate because the UN publicly supports and embraces the concept of design, viewing it as an active contributor to change. The paper closes with a brief review of undergraduate studios attempting to deal with a global context for design, and concludes that there is an urgent need for effective teaching, research and practice in the new context of global cultural diversity. The author believes that design advocacy and design equity are the new paradigms in the education of designers of the future.

Key words: professional accreditation standards, global context for design, UNESCO Design 21, design advocacy and design equity

Attitudinal Paradigm Shifts

“...[S]ince the Industrial Revolution, the dominant design paradigm has been one of design for the market” Margolin and Margolin (2002, pp.24)

Design is a geographically and culturally dispersed activity. Since the Industrial Revolution, the design profession has undergone several transformations within the field of global design practices, the era of International Style being a prime example. From an educational point of view, it has not been that long since design students were trained to revere the work of Le Corbusier, Mies Van der Rohe, and Walter Gropius, and encouraged to consider materiality, geometry, and form in their discourse. International Style was exotic – it was both physical and metaphysical. Only on rare occasions did conversations move towards cross-cultural contexts, the users of space, ecological footprint, sustainability, or global impact. But today we are living in a time where there are more transparent discussions regarding the effects of design on the world's citizens. Ecological, socio-economic, technological and cultural contexts are constantly prompting a global discourse within and outside the academy. Meanwhile, design educators and designers are collectively facing their greatest conundrum ever: to maintain the status quo of design practice as we know it, or to re-invent the profession.

Are design skills enough?

Today, design educators are seeing an increased need to prepare their students for the global arena. It has been long questioned whether providing design skills to students are sufficient preparation for professional practice. Almost 30 years ago, Nigel Cross proposed, “simple training in a skill is not enough” (1982, pp. 223). He advocated for a design education beyond traditional, vocation-oriented instruction, saying, “We are now exploring the ways and implications of design being part of everyone’s education, in the same ways that the sciences and the humanities are parts of everyone’s education” (1982, pp. 222). Of course, these statements were made at a time when Cross and his Royal College of Art colleagues were aiming to define design as a discipline and to archive its own body of knowledge. Yet by revisiting his work, we are reminded that the discipline and body of knowledge of design is growing, and a new framework for global design practices is possible.

It is critical to remember that the honing of design skills is an important part of the process of educating a designer, yet the designer no longer works in the cosseted isolation of a manufacturing village. The village is global and expansive and yet also local, a living entity that exists with living and non-living organisms. As a design community, we need to acknowledge the increasing impact of global events. At the same time, there is an urgent need for us to re-evaluate our contribution to global economic strategies and global design-production approaches. Designers and design educators need to move towards unified best practices that reflect the new reality. The global designer must acknowledge that he or she is a global citizen.

Professional Practice Standards

Design professional-practice standards are rapidly reforming and are fostering more transparent discussions about the global context for design. This part of the paper begins by providing an overview of the current North American standards in the fields of interior design and graphic design. The section then proceeds to interweave principal themes as they relate to standards in the areas of sustainability, cultural context and range of social-economic stakeholders in a worldwide context. Relevant to this discussion is the fact that both the Council of Interior Design Accreditation Professional Standards and AIGA Standards of Professional Practice have been recently restructured. Interior design and graphic design are in some ways the younger cousins to engineering and architecture. The National Association Schools of Art and Design (NASAD, 2010) establish protocols for interior design and graphic design under the specific professional baccalaureate degrees in art and design, whereas engineering and architecture operate within their separate respective associations.

Interior Design

The Council for Interior Design Accreditation (CIDA) oversees accreditation for interior design schools in the United States, Canada and Qatar. With over 35 years of service to the educational community, this non-profit organization is considered a leader in guiding the professional education of interior designers. To ensure currency, the Council reviews its standards each year, and every eight to ten years a comprehensive review is conducted. Currently, CIDA organizes its 16 specific professional standards into four sections: I. Mission, Goals, and Curriculum; II. Interior Design: Critical Thinking, Professional Values, and Processes; III. Interior Design: Core Design and Technical Knowledge; and IV. Program Administration. The 16 standards included within these sections are: Mission, Goals, and Curriculum; Global Context for Design; Human Behavior; Design Process; Collaboration; Communication Professionalism and Business Practice; History; Space and Form; Color and Light; Furniture, Fixtures, Equipment, and Finish Materials; Environmental Systems and Controls; Interior Construction and Building Systems; Regulations, Assessment and Accountability and Support and Resources. [CIDA Professional Standards, 2009, pp. 1-9]

Section 2 of CIDA's 2009 standards —Interior Design: Critical Thinking, Professional Values, and Processes—defines the framework for Standard 2: Global Context for Design, indicating that “Entry-level interior designers are required to have a global view and weigh design decisions within the parameters of ecological, socio-economic, and cultural contexts” (2008, pp. 11)The standards specifically define knowledge-based learning expectations and require that learning opportunities and exposures be provided by accredited design schools.

CIDA's learning expectations under “Standard 2: Global Context for Design” are that students will be able to demonstrate understanding of: concepts, principles, and theories of sustainability as they pertain to building methods, materials, systems, and occupants;

globalization and the implications of conducting the practice of design within a world market; and how design needs may vary for different socio-economic populations. The program expectations are defined as: exposure to contemporary issues affecting interior design; exposure to a variety of business, organizational, and familial structures; and, opportunities for developing knowledge of other cultures. For Standard 2, a guidance chart provides further assistance in defining criteria to address social, political, economic, and ecological factors, while providing exposure to design issues and implications. Various examples of business and organizational structures that are to be presented include for-profit, non-profit, publicly vs. privately held, hierarchical, flat and others. CIDA suggests providing contemporary examples of familial structures such as co-housing, nuclear, extended -family, and others. The charts point out that the program could support the standard by providing opportunities to study abroad, on-campus cultural exchanges, and interactions with visiting professors.

A close review of the Council of Interior Design Accreditation Professional Standards shows that the 2009 introduction of the Global Context for Design (Standard 2) essentially establishes the present-day attitudinal paradigm shift in interior-design teaching and practice. Prior to the 2009 version of the Professional Standards, the discussion about global context for design was superficial and references to a global perspective were buried, overlapped or dispersed among the standards. In 2006, Standards 1 to 8 related only to the educational program and 9 to 12 to other areas impacting educational quality. For instance, “environmental ethics and the role of sustainability” along with “global perspective and approach” were included under Standards of Professional Values, (2006, pp. 9), while an overlapping item – “the principles and theories of sustainability” -- were found in the standard about design fundamentals (2006 pp.10).

In CIDA’s preamble, there is discussion of the need to adapt to the changing world with the recommendation “that the graduate draw on history and on the experience of many cultures” (2006, pp.2). However, in 2006 the experience of many cultures is only nominally discussed whereas in 2009, “Global Context for Design” becomes an identifiable standard with its own learning protocols. Another and perhaps more subtle indication of a shift in thinking relates to how graduates should investigate learning issues: in 2006 the empirical method is sanctioned, whereas by 2009 investigation methods become more holistic and are open to both quantitative and qualitative modalities.

The author believes that the development of “Standard 2: Global Context for Design” has made the standards more inclusive while offering opportunities for more transparent discussions about global design practices. CIDA is positioning interior-design education to be globally open in a new way, while at the same time encouraging design educators and professionals to tackle the complex issues of globalization formally within their teaching and practice. While the provision of CIDA standards and its guidance chart for programs and educators offer encouraging indication of a new global direction, several underlying themes (for example, the practical term of “green design” in the context of

“sustainability principles and theories”) still need to come to the forefront. One could see CIDA further expand its definitions to include the fields of global design ethics, design equity, and design advocacy.

Graphic Design

AIGA is the national organization for North American professional graphic designers. Originally the American Institute of Graphic Arts, AIGA now refers to itself as “a professional association for design” (AIGA, 2010). AIGA was established in 1914 and has numerous local chapters across the United States, including an affiliation with the Society of Graphic Designers of Canada and AIGA China (a networking branch). AIGA is similar to CIDA in that it is a not-for-profit educational institution. However, while CIDA is an accreditation organization and is recognized by the Council for Higher Education Accreditation (CHEA) and National Association of School Art and Design (NASAD), accreditation for graphic design colleges and universities is carried out by NASAD rather than AIGA.

As a professional organization, AIGA is viewed as the leading voice in the advancement of graphic design as a professional craft, strategic tool and vital cultural force. Unlike CIDA, which mandates direction via its accreditation standards within academic institutions, AIGA directs its members by means of its standards of professional practice. These are divided into five sections: professional resources; education; design and business; society and environment and writing.

The AIGA has defined seven standards of professional practice, as follows: the designer’s responsibility to clients; the designer’s responsibility to other designers; fees; publicity; authorship; the designer’s responsibility to the public; and the designer’s responsibility to society and the environment. Of particular note, the recently amended and expanded 2010 Standard 7, “The designer’s responsibility to society and the environment,” includes the following subsections:

7.2 A professional designer is encouraged to contribute five percent of his or her time to projects in the public good—projects that serve society and improve the human experience.

7.3 A professional designer shall consider environmental, economic, social and cultural implications of his or her work and minimize the adverse impacts.

As a professional organization, the AIGA seems to be in the forefront in the discussion of design in a global context. Standard 7.3 specifically addresses global design

production with regards to context and impact, while the introduction of Standard 7.2 now formally encourages design professionals to donate five per cent of their time for public good. Public involvement and community service from the allied design professions and educational institutions are oftentimes merely suggested, and AIGA should be commended for its efforts in encouraging social responsibility for the next generation of professional designers. The outcomes of this standard will help to create an environment in which the designer is viewed as a transformative citizen.

AIGA's Society and Environment division is another area where discussions about the global context for design are moving towards design advocacy work. The Society and Environment division has initiated several civic-minded design projects through its Design for Democracy initiative (established in 1998). Most notably, the AIGA took a proactive role in re-designing election ballots in the United States of America and indeed, one could argue that the response of this professional organization to the ballot-related chaos in the 2000 presidential election helped improve the process of the 2008 election campaign. The voters received graphic information that was much clearer, easy to read and accurate (Lausen, 2007). The AIGA's commitment to this project led to an innovative collaboration with the Election Assistance Commission (EAC), which resulted in the establishment of governmental-led ballot and polling design guidelines.

The two above-mentioned design disciplines [CIDA and AIGA] are offering much needed insight and direction in the context of changing attitudes about design paradigms in teaching and practice. CIDA has elevated educational accreditation standards to allow for urgently needed discussions about the practice of global design. AIGA's proactive advocacy work, and the results-driven approach that has led to government partnerships that facilitate public change, is masterfully linked to its standard that states that five per cent of designers' work should be for public good.

It is clear that innovative work is being done by these design disciplines. Yet, the author wonders if the allied design communities could provide a more unified and viable process. Observers of design are witnessing exponential attitudinal change within and outside the disciplines of design. The growth of design advocacy groups, pledges and nonprofit organizations proves that the building of global design equity is desired. The longtime model of market-driven aesthetics/design will always exist, yet the creation of meaningful and ethical designs are fast becoming the new reality. The question is, how will the allied design communities lead this change - as solitary agents of change or in solidarity?

Partnership With UNESCO

In this paper, I am attempting to begin a multi-layered discussion between allied design professions about the relationships among the themes of design equity, design advocacy

and global design production. The current practice of design has changed globally and this begs the question: What is global design—is it social design, or is it design for change? And what is design activism? Since numerous studies and papers on the subject are being published at this time, it may be prudent to look at the underlying layer of cultural diversity in global design production.

I am also proposing partnership models as part of the methodology for change. Earlier, I mentioned the AIGA's proactive Design for Democracy ballot-design project, which led to the securing of a government partnership. I am now proposing that the allied design professions form a similar partnership with UNESCO.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) states the following: "Cultural diversity is a driving force of development, not only in respect of economic growth, but also as a means of leading a more fulfilling intellectual, emotional, moral and spiritual life." (UNESCO 2010, unesco.org/culture) UNESCO presents solution-focused statements – "Cultural diversity is thus an asset that is indispensable for poverty reduction and the achievement of sustainable development" (Ibid.) Within UNESCO's Culture and Development mandates for social cohesion and strategies for development - one could begin to align partnership models within design professional community, allied creative industries and governments.

A sub-category of UNESCO **Culture** under the theme of **Creativity-DESIGN 21** states the following: "In the framework of design, with the aim of stimulating and recognizing the creativity of young designers worldwide, UNESCO implements the Design 21 programme. DESIGN 21: Social Design Network's mission is to inspire social activism through design. We connect people who want to explore ways design can positively impact our many worlds, and who want to create change here, now (UNESCO, 2010 <http://www.design21sdn.com/design21>). The document goes on to pose and answer the following question for example -

Q: *What is Social Design?*

A: It's design for the greater common good. We want to use the power of good design for greater purpose. We believe the real beauty of design lies in its potential to improve life. That potential first manifests itself as a series of decisions that result in a series of consequences. The practice of social design considers these decisions on a greater scale, understanding that each step in the design process is a choice that ripples out into our communities, our world and our lives. These choices are the result of informed ideas, greater awareness, larger conversations and, most importantly, the desire to do good. Social design is design for everyone's sake.

UNESCO's Design 21 has strategically developed social themes that in many cases link directly to design problems. There would be numerous benefits if design institutions, educators and professionals adopted the UNESCO directives and models. At the same time, design schools could easily incorporate the global context for design, support innovative collaboration models, and improve professional and business practices within their studios, which then could be carried to real world practice. Accreditation boards and design profession organizations could easily sustain life-long partnerships and perhaps co-develop a universal policy for change.

Putting Theory into Work

The **Design Change = Exchange** research project is a theory-to-practice initiative. Since 2001 the author of this paper, Lorella Di Cintio, has been introducing a series of culturally based studios and projects to undergraduate students studying interior design.

Design Change = Exchange aims to expand the design-learning paradigm by acknowledging embedded dilemmas while contributing to a new body of knowledge. Specifically the program is intended to:

- expand the global perspective in the areas of design scholarship and practice by focusing on **design activism, design ethics and global-justice issues**;
- secure opportunities and forge new creative partnerships with **aboriginal scholars and community members** —partnerships that build upon and expand traditional knowledge and experience;
- secure new creative partnerships with **technological scholars and practitioners** that build upon and expand existing systems while ensuring that development of technology is just and equal; and
- support and improve **disciplinary diversity and cultural equity by way of inter-cultural learning**.

Through the Global Exchange Studio and the Cross-Cultural Projects program, since 2008 the author has been promoting collaborative design exchanges by uniquely employing experiential and service-learning methods in the School of Interior Design at Ryerson University (Ryerson, 2008). The studios provide students with skills in cross-cultural understanding and cross-disciplinary practices. The author has established partnerships with aboriginal communities and scholars in Canada and Mexico. The philosophic approach of the studio is to introduce reciprocal social change through the practice of design. The key to the studio's success is its use of collaborative trans-disciplinary practices and the use of cultural probes. The aims of this initiative are to give students the competitive edge to perform in a global arena and to create a new methodology for global learning.

In 2008 and 2009, we partnered with an Algonquin community. In 2008 and 2009, interior designers in our program collaborated with industrial designers from Mexico. A memorandum of understanding was signed between Iberoamericana and Ryerson in 2009. Our 2010 collaboration expanded to include interactive designers and partnerships with aboriginal communities in Canada and Mexico. In all cases, students conducted field research by visiting aboriginal reserves, community centers and museums, and by participating in traditional ceremonies and feasts. Over 180 Canadian interior designers, 80 Mexican designers, 30 Algonquin and 20 Otomi members participated in the pilot studios. (Note: In order to sustain these studios, the participants' family and friends, colleagues, alumni, and local design/manufacturing firms made generous financial contributions.)

An underlying question for the students and this author always seems to surface: Where does design stand today in the 21st century? In studio, we consider the following question: Can the design of an activity, object, or place create social or cultural change? The answer is an overwhelming "Yes." We need only look back a million years to when the human hand first reached for a shell or stick. This moment—and the subsequent advent of the drinking vessel, the building tool, and the weapon – marked the very first paradigm shift in design history: the moment when humans began to comprehend the relationship between form and function.

Conclusion

If design is a global cultural product, then the production of design must respect the international standards of justice. The allied design professions are stepping up to the plate, as they are currently restructuring professional and accreditation standards. The observers of design and the practitioners of design are for the most part in agreement that design must change. Yet, designers need to move beyond voluntary pledges to be socially responsible; designers need to band together to change the existing systems – be they accreditation, standards, institutional mandates, or governmental policy. The author believes that this pending change will involve a new reciprocity among the professions, the communities, the governments and the institutions.

Global issues that relate to design advocacy and design equity need to be expanded beyond a "perspective point of view" regarding globalization. The salient message in this review ultimately lies in the realm of undergraduate teaching, accreditation boards and professional organizations, and their relationship to civic engagement. If civic-minded educators and practitioners "follow the motto that good things happen when people engage with others, then the process of civic engagement – defined as interacting more often and more meaningfully with others in respect to civic issues – will build a stronger and more unified community" (Canada 25, 2007).

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Acknowledgments

This work was developed and supported within the Ryerson School of Interior Design and a travel grant was awarded by the Faculty of Communication and Design SRC Committee.

A corkboard with a hand-drawn title in a black outline. The title reads "EXPLORING designers' EXPERIENCES THROUGH VISUAL NARRATIVES". The word "EXPLORING" is in red, "designers'" is in black, "EXPERIENCES" is in orange, and "THROUGH VISUAL NARRATIVES" is in black. To the right, there are four sticky notes stacked vertically: "ART", "CRAFTS", "DESIGN", and "2010".

EXPLORING designers' EXPERIENCES THROUGH VISUAL NARRATIVES

ART
CRAFTS
DESIGN
2010

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Abstract

This paper describes the foundations and testing of a self-reflective visual narrative method that was developed to explore designers' career paths in Spring 2010. The method includes the creating of a visual narrative in a workshop with the help of pre-assignment, instructions, and prepared material.

The present method provides an engaging platform for the designers to reflect on the significant experiences in their careers. The visual narrative method builds on elements and approaches that are familiar to designers, allowing freedom of expression, while still preserving sufficient amount of control. It features active and intensive participation, while keeping the temporal duration short, aiming to be lightweight for the participants.

It is proposed that the method is beneficial in organizing experiences and capturing extensive time periods to form a visual narrative that can be easily followed, when the experiences are presented and discussed. This paper describes the method and its application and discusses some initial findings. The author suggests that the method can be used in versatile ways in design education and design research.

Introduction

This paper describes the development and testing of a method that was used to collect initial data concerning the career paths of design entrepreneurs. The method provides a frame for the designers to reflect on the significant experiences in their career by creating a visual narrative with the help of cues and tools. The method was tested in two workshops arranged in Spring 2010 for Finnish design entrepreneurs who possess a degree from the Aalto University School of Art and Design.

The described method was developed as part of a research, which explores designers' transition from students to practitioners. The research focuses specifically on designers, whose educational background is in craft-based design or applied arts, and who work as self-employed entrepreneurs. The purpose of this method is to tackle two major themes, professional identity and entrepreneurship, which are considered important in this transition.

The method utilizes elements and approaches that are familiar to designers and that they are comfortable with. By integrating approaches, such as hands-on doing and visualization, the method aims to enhance the level of engagement to attain rich and meaningful data. The method consists of a pre-assignment, pre-prepared cues and a setting for creating a visualization of individual experiences.

The following chapter illustrates the studied phenomenon, and context of the research, followed by the foundations for the described method. The paper proceeds by describing the designing and testing of the method and continues by discussing initial findings related to its application. Finally, the concluding remarks highlight the most important issues related to the method and present briefly a more recent application of the method.

Background

In Finland, these craft-based fields, such as furniture design, textile design, and ceramics & glass, are some of the most traditional design fields forming a frame of classic Finnish design (see e.g. Korvenmaa, 2009). The education in these fields has stressed the teaching of craft skills and knowledge of materials (see e.g. Koskinen, 2007). Due to globalization, manufacturing being mostly outsourced outside Finland, and the internationalization of the design market, these design fields are under strong transformation.

In these fields entrepreneurship is sometimes a voluntary, but often also a compulsory option, since there are not many job opportunities available for this specific group. This means that when starting to work as self-employed, designers, who traditionally have not studied business, face challenges related to e.g. brand building, finance, marketing and networking. However, based on discussions with the practitioners, many designers see entrepreneurship as the only convenient option, e.g. due to the freedom it allows.

Indeed, according to Hägg (2008), one of the most central issues in entrepreneurship in the artistic fields is the question how to combine artistic identity with entrepreneurial identity. Hägg's notion is relevant since craft-based designers typically have a twofold relationship towards commercialism. The roots of this attitude derive from the arts tradition, which still has a big part in the education of this specific group. Since one of the purposes of art is to question and rise up different life phenomena, instead of pleasing a certain audience, these design entrepreneurs have to find solutions to balance these contradicting aspects in their work.

Foundations of the visual narrative method

The present method provides a platform for creating a visual narrative with the help of pre-prepared material. The material consists of visual and textual cues, such as printed words and pictures. The main inspiration behind the method derives from professional probes, which are applied in user centred design to investigate the individual users and the phenomenon to be studied (Mattelmäki, 2006, Lucero & Mattelmäki, 2007). The probes help users to describe their actions and thoughts by self-documenting, e.g. writing a diary, photographing, or making collages (see e.g. Gaver & al. 1999).

According to narrative psychology, we are born into a narrative world, and through narrative, make sense of an ever-changing world (Murray, 2008). It is typical for people to construct narrative accounts as part of their sense making process rather than to express their experiences in terms of concise, abstract generalizations (Musson, 2004). By first visualizing the sequence of experiences, and then narrating the visualization, this method aims to be an effective tool for forming an overall view to the history and development of a career.

The method concentrates on enabling reflection over an extensive period of time and forming a narration of this period by concentrating on significant experiences. These experiences are approached indirectly, via an artefact. The indirect approach allows the subjects more time for reflection and a freedom to choose the depth and privacy level of their narrative. Creating an artefact of experiences, prior to discussing them, leaves the subjects with time to consider to what extent they are willing to share their reflections and supports voluntary commitment to the study.

Due to the focus of the study, the method was developed specifically to be approachable to designers by utilizing working approaches that are considered familiar and natural to them. Designers are used to sketch, draw, and rearrange, and it is natural to them to think while doing (or even “by” doing) something with their hands. Also, designers are used to build mock-ups and prototypes; hence certain physicality is part of their work. According to Schön (1983), in reflection-in-action doing and thinking are complementary actions feeding and framing one another: the practitioner has a reflective conversation with the task or situation. The described visual narrative method aims to combine doing and thinking in this productive way. Other research methods that allow freedom of expression, such as the Life Histories -approach (Musson, 2004), typically do not include visualization or physical action that are seen typical for designers when structuring their ideas.

Designing the method

When designing the method, certain issues were considered to be essential in order to engage the participants to the reflection task. These include 1) cues and tools to stimulate the memory, 2) easy implementation of the narrative, 3) approach natural to designers, 4) time invested by the participants, 5) space & setting for applying the method. These issues are addressed in this and following chapter.

Planning of the method started with mapping out relevant themes related to design education and practice. The mapping was done based on experience from the design

practice. The themes, such as education, people, exhibitions, and awards, were then divided to concepts categorized by whether they were factual or feeling-based. This categorization was based on the premise that when creating the visual narrative, one finds it easier to start with facts, such as when did he graduate, or work in an office, and then proceed to emotions to describe his attitude and experiences related to those events.

Drawing from these themes, the verbal and visual cues were created. The cues were mainly words and pictures describing the themes. The words were printed on a paper, which was partly cut, so that it would be easy to rip them off. In addition to thematic cues, also a set of photos and icons specifically related to each participant's career was provided. These participant specific cues based on designers' curricula vitae, and their primary purpose was to help to better recall one's work history.

In order to enable the comparison of the narratives by different participants at some level, two instructions were defined for making them. The visual narrative had to be presented in temporal order (e.g. as timeline), and it was suggested to include an indication of one's development as a designer or emotional engagement / satisfaction level to the practice (e.g. as curve). Another purpose of the instructions was to prevent the designers from paying too much attention to the design of the appearance narrative instead of concentrating on creating the content.



Figure 1 – The bracelet type of tool, which was made of a thread, had a magnetic lock, so that it would be easy to tie the knots whenever memories rose.

When designing the pre-assignment, special attention was paid to its function and appearance. The main purpose of the assignment was to stimulate participants' memory and communicate researcher's motivation towards the research experiment.

It was considered essential that the assignment was easily and quickly implementable, and that it should evoke positive emotions in order to engage the participants to the study. A jewellery type of tool was considered optimal, since it can be easily carried along, and people tend to give meanings to jewellery by possessing memories in them (Koskinen & Ahde-Deal, 2010).

The assignment consisted of a bracelet type of reflection tool (Figure 1) provided with instructions. The thread was supposed to be wrapped around one's wrist or otherwise carried along prior to the workshop. The participants were instructed to reminisce about the significant experiences along their career and tie a knot to the thread to resemble each experience.

Testing the method in two workshops

The method was tested in two workshops, which took place at the Aalto University School of Art and Design. The pilot workshop was organized for two designers who were of ages 35 and 37. The second workshop was organized for four designers whose age varied from 31 to 36. Excluding one, who had not yet completed her MA studies, the designers had received their master's degrees from the Aalto University School of Art and Design in between 2000 and 2008. The workshops were intensive: the visual narratives were completed in 3-5 hours and each of them presented in 10-30 minutes, followed by an informal discussion.

The workshop space was an art studio, primarily meant for painting and drawing. The space was selected since it was considered to provide an inspiring atmosphere with familiar surroundings. After all, the designers had all studied in this specific university, and returning back to the familiar surrounding was thought to support reflection.

The workshops were video and audio recorded in situ. The workshops started with an introductory speech, in which the research context and purpose were explained in order to highlight the value of designers' participation in this study. Then the aim of the workshop and the materials were described. The designers were asked to compose the visual narrative with the help of cues but not to limit themselves to those. The pre-assignment could be used to sketch the visual path.

The visual narratives were created on a provided large sheet of paper to enable easy sketching and rearranging of the cues. The provided material; combination of big brown drawing paper and printed cues, was intentionally sketch-like in order to draw the attention away from designing a visually pleasant artefact. The materials included e.g. blu tack, tape, glue, post-it notes, markers and such, to enable fast narrative building. After the creation of the illustrations, they were put on wall and presented verbally for the group. After the presentations, there was an informal group discussion that tackled the themes, which had emerged from the presentations.

Initial findings and discussion

Reflection as such was considered difficult but the reflection task rewarding.

The difficulty of reflection was first brought up when one of the invited designers pointed out that the set task seemed difficult, and this time he would not have time to do that. Reflecting on one's past is sensitive, and can be distressing as well, specifically if the current career situation is not considered satisfying. Reflection brings transparency to the past and evokes emotions related to the lived experiences.

The method aimed to approach the reflection task in a soft and easily approachable way. Nevertheless, when asked whether the participants considered the pre-assignment as difficult, the responses varied. For some it was easy to identify what has been significant, some were more hesitant on what to bring up. When it comes to the making of the visual narrative, many of the participants pointed out that it was difficult to get started with, but once one got started, it was rewarding.

Pre-assignment engaged the participants and prepared them for the intensive workshop

The combination of pre-assignment and workshop got positive feedback and was observed to work well. The pre-assignment was considered useful and as an interesting way to start the reflection. Since the significant experiences were already marked to the bracelet, it served as a useful guide in making the visual narrative in the workshop. However, not everyone used it as such.



Figure 2 – The bracelets became unique artefacts, in which the significant experiences were marked as knots.

The bracelet had mostly been used as a timeline in which the experiences were marked in chronological order (Figure 2). Some used the thread to make single and double knots to make a certain type of hierarchy to the experiences; some had added small notes next to the knots. It was observed that the jewellery-type of object succeeded in engaging and evoking positive emotions. Some of the designers asked afterwards whether the object was designed for this purpose and made positive remarks about it. When the designers were asked to return the bracelets, some were reluctant to give them away, which refers to an emotional attachment to the object.

The cues and instructions facilitated the making of the narrative

The cues were used in different, individual ways, and in different quantities (Figure 3 & 4). They were considered helpful; specifically the combination of words and pictures received positive feedback. Naturally, the cues also guided the narrative making, and therefore it is essential to consider what type of cues to prepare when applying the method. Since the prepared cues were discipline and participant specific, they covered a certain external perspective to the studied design careers. Consequently, they embedded assumptions of what was considered relevant in this studied phenomenon.

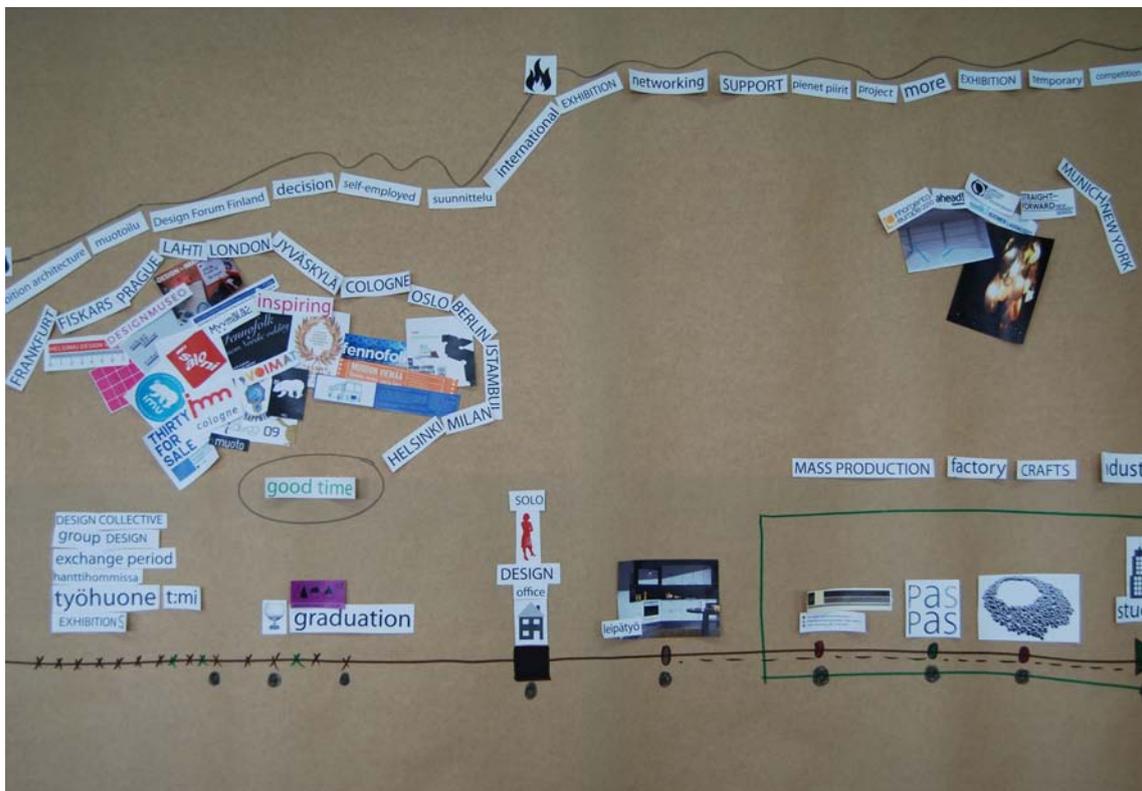


Figure 3 – The cues, icons, words and photographs, were organized in different ways to illustrate the career paths.

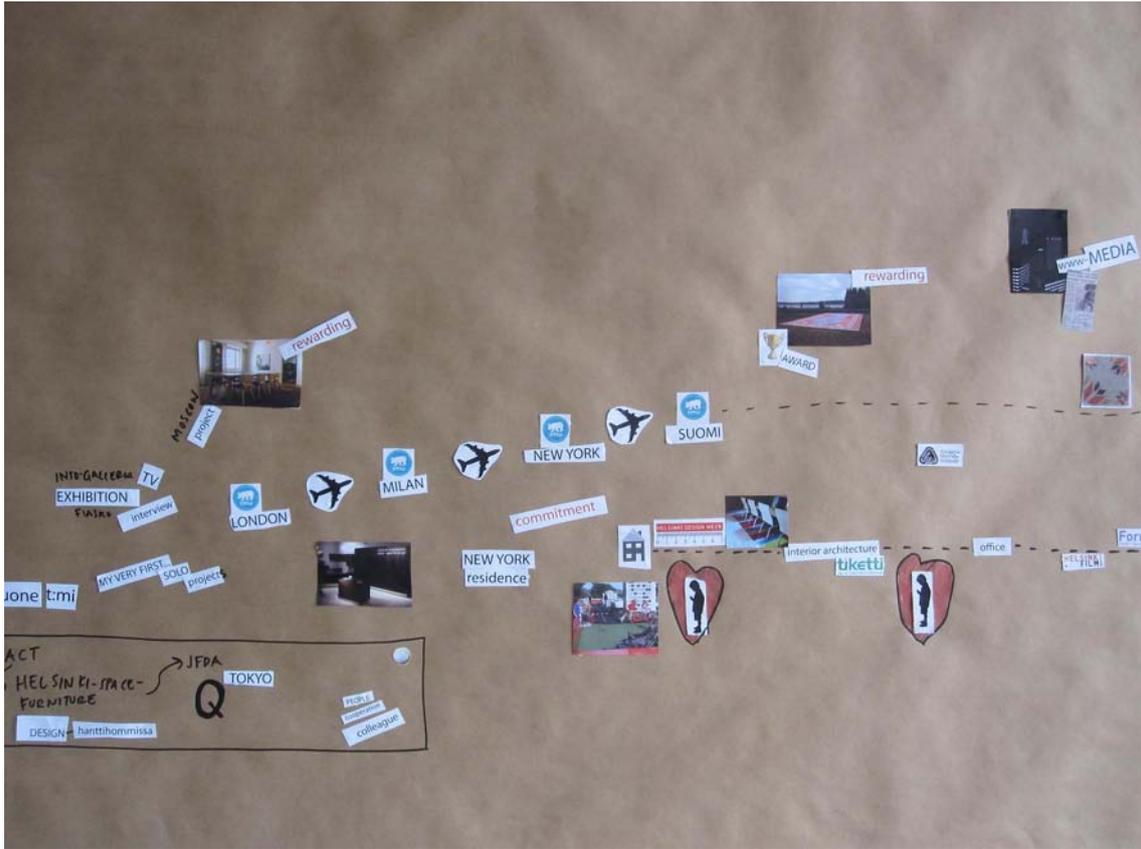


Figure 4 – The visual narratives described also personal issues, such as birth of children.

In addition to the cues, the given instructions also framed the narrative building. The aim of the instructions was to help in the creation but not to restrict it too much. However, one participant did not follow either of the instructions. He explained that for him it was difficult to perceive his history as a timeline. He perceived the experiences in clusters or periods, and he expressed this by making cue groups to the paper. It is difficult to precisely assess to what extent the designers were influenced by the cues. However, observation of the work did not give any reason to assume a significant bias, as the participants did not limit themselves to the provided cues.

In the beginning of the workshop it was mentioned that the cues and tools could be used as preferred. As result, from six participants, five used the cues, but one did not use them at all. Since this illustration differed strongly from the other narratives, it is taken into closer inspection.

This participant made her narrative by using only post-it notes and drawings (Figure 5). Since the outcome was a somewhat cryptic illustration of her experiences, it would have been impossible to interpret it without her. Afterwards she mentioned that she had wanted to concentrate on the reflection, which she had already started with the help of the pre-assignment, and thus had only glanced over the cues. She said that while reflecting, she had figured out some repeating, influencing factors in her life. She explained these insights and presented the narrative touching very personal issues. Her visual narrative resembled a life history, depicting her most significant experiences,

whether they were related to her design career or not. Her engagement was strong, and she obviously used the platform for her own benefit as well.

However, not all the participants considered the creating of the narrative to be easy, nor were willing to go as deep in the presentations. The visual cues were considered helpful in starting the work, just doing something instead of thinking of what to do.

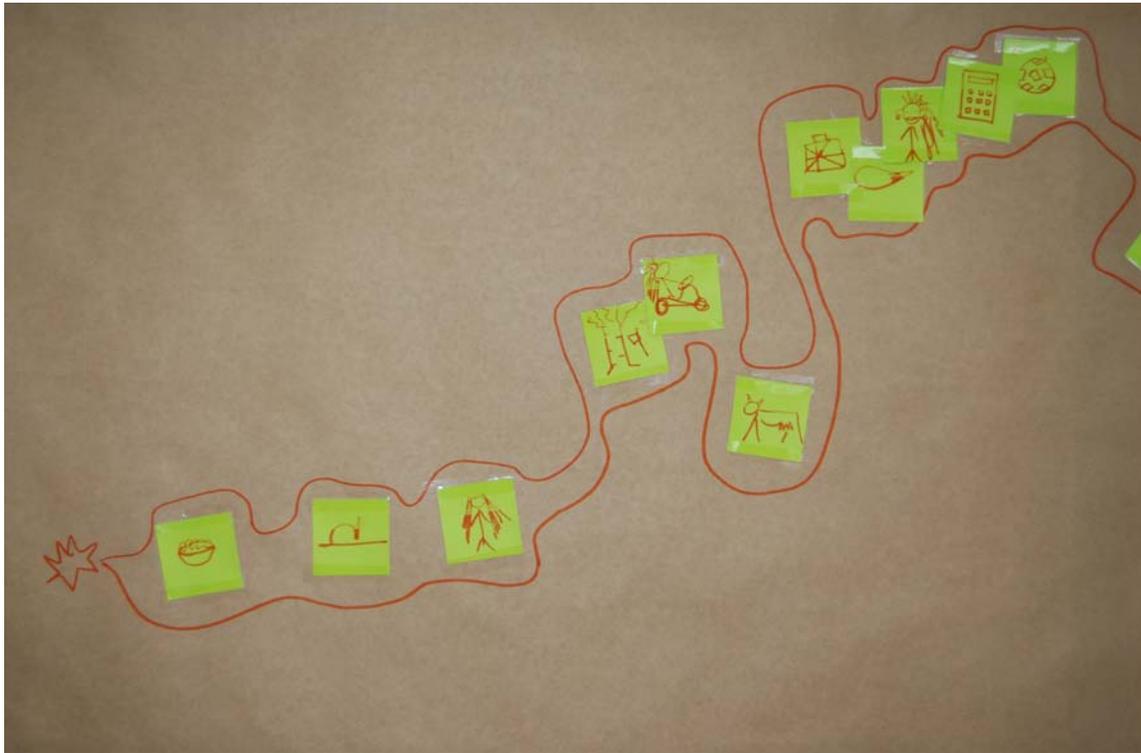


Figure 5 – A fragment of a visual narrative, which differed significantly from the other illustrations. Also this narrative was started from the birth.

The visual narratives facilitated forming an overall view to the career, returning the narrator back to the main story when the narration ended up to a side track

When presenting the visual narratives, the narrations were rather easily constructed of the experiences that had taken place many years ago, but it was considered more difficult to reflect on the most recent years. Experiences were explained in a chronological order, which made the narrative easy to follow, and provided a good overview to the designers' careers. When the designer started to describe an experience and lost track of his career narration, the visual narrative helped him to get back on track. The cues seemingly reminded the speaker about the recent reflection task and enabled rich storytelling.

While describing the visual path, the participants were not interrupted, except of few clarifying questions. The designers automatically drew conclusions, analyzed their actions, and pondered their choices. When describing the experiences, the designers also mentioned how they valued these experiences, and whether they considered them as

relevant in building their own business. This way they addressed the research question, even though that question was not directly posed. Since the presentations were video recorded, the data became a combination of unique visual artefacts and rich verbal narratives.

In the pilot workshop the designers began their narratives from the time they started to study crafts or design since this was suggested by the facilitator. In the second workshop the participants were suggested to present a time span they consider relevant for their career choice and development. With these instructions allowing more freedom, all the participants chose to start their narratives from the birth. This supports Hägg's (2008) idea of artistic and professional identities being intertwined, and that the career is seen as part of being and living instead of e.g. separated area from personal life. Even though the narratives were formed around the career development, most of them included personal issues, such as relationships to friends, and significant life events, such as the birth of a child, marriage, or an accident.

The method is empathic, providing an opportunity to discover new aspects of past experiences

Since the method was designed to designers, and thus it was acknowledged that there was a risk that the participants would focus on the design of the visual narrative instead of concentrating on the reflection. Designers automatically pay attention to visual issues, such as the layout or appearance of an artefact, and also evaluate them aesthetically. The combination of brown drawing paper and printed cues was intentionally rough and sketch-like in order to draw the attention away from designing a visually pleasant artefact. Highlighting the fact that this is not a design task, but a reflection task with visual means, aimed to focus the attention to the reflection process.

The method is rather free, allowing the participants to decide the depth and privacy level of the narrative. The method provides an opportunity to use the platform as an occasion to go deeper into the reflection process and possibly discover new perspectives to the past experiences. How deep one goes in this reflection process, depends, naturally, on the individual, but also the environment, setting, atmosphere and attitude of the other participants, as well as the facilitator. Due to the sensitivity of the reflection process, there is an empathic aspect embedded in the method. This aspect requires related skills from the facilitator and emphasizes the importance of piloting the approach before implementing.

Since the reflection was considered beneficial in discovering aspects of one's career, the method was further developed and modified for a workshop for MA design students in fall 2010. The method was used in a similar type of manner, but the focus was, in addition to past experiences, also in present and future. The aim of the five-day workshop was to help the students to define their skills and challenges, position themselves in the field, and envision possible futures. At the moment the workshop is being analyzed due to the very positive feedback from the participating students.

Concluding remarks

This paper described the foundations and testing of a self-reflective visual narrative method, which was used to explore designers' career development. The described method helps in organizing and expressing meaningful experiences with the help of cues and tools. The method allows reflection over an extensive period, which may be difficult to present without a concrete artefact, in which the entity is illustrated. The crafted visual narratives become unique artefacts, which can be discussed and returned to when deepening the studies.

The method is based on an assumption that the most significant experiences are raised up quite intuitively due to the strong impact they have made. However, the method only provides a platform for collecting preliminary data, an overall view to the phenomenon. Due to the short temporal duration of the workshop, the outcomes have to be considered as somewhat general representations of the careers, but not as all-inclusive accounts. In order to more thoroughly study the significance of these experiences, the study has to be deepened. However, the visual narratives provide a solid and interesting starting point for e.g. an ethnographical study.

The method is empathic, aiming for reciprocal advantage, and supporting voluntary engagement. The participants can decide the depth as well as the privacy of reflection. Since the reflection task itself proved difficult, and also sensitive, due to the transparency it gives to one's life, the implementation of the method should be carefully planned and piloted before execution.

Since the reflection task was completed in a group within a short timeframe, it was influenced by several factors. Though the group enabled discussion, it also affected on the richness of the narrative. The presentations were affected by the previous performers and were dependent on the multiple variables related to individual's personality, state of mind, engagement, relation to the other group members, or previous presentation experiences. The method could be used in making the narrative alone as well, but then issues such as the risk of over-analyzing how to make the narrative, or starting to design the narrative to be visually pleasing, should be reconsidered. There are pros and cons to both applications that should be further tested.

As the method emphasizes participant's own expression, and facilitates narration without too much control, it is suggested that this type of method may be used as an option to more traditional research methods, such as interviews or focus groups, which, naturally, can complement the presented method. The visual narratives can be implemented in a quick-and-dirty manner, when there are strict time constraints from the participants' side. Since the method concentrates on preparing useful material before engaging the research subjects to the task, it is time consuming for the researcher, but provides rich and meaningful data.

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Design Redefined and Focused on an Uncertain Future

Endless End Porto: EAD09: Paper number: 078
Paper Title: Design as a Catalyst for Change and Progress)

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Abstract

“Our worst fear is not that we are inadequate; our deepest fear is that we are powerful beyond measure.” (1)

The aim of this paper is to explore the idea that design can be a catalyst for fundamental/sustainable change and that designers can provide imaginative solutions to the questions surrounding sustainability and the integration of business and the corporate world. Every day new solutions are being found to ensure our survival; but it is more than survival it is about evolution and growth not only in terms of economy but also in terms of us as human beings understanding our development. Design, inventions, realisations, how ever you describe it, are endeavouring to benefit all humanity, this paper will seek to show a few alternative ideas while focusing more on root and branch change for our communities, in education, business and design. Design Matters: Good design works on many levels, functionally, rationally, and aesthetically. It is pleasing to use, to look at and at its best, it makes life easier, safer,

slower, faster, it can be amusing, it enhances the experience of the built environment, we all take this as a given in the developed world.

Our failure to realise and appreciate that our planet is a fantastic design, or to act on this thought, is why our efforts are now so concentrated on its survival. It is also our failure to understand ourselves, which has thrown our very existence into jeopardy. Designers have always dealt with conflict, ambiguity, difficulties and diverging requirements. Their job is not to ignore certain aspects or compromise, but to be innovative risk takers in their quest to find solutions. Design has the power to convert difficulties into improvements; good design has the power to connect people emotionally, rationally, and scientifically. That is why it is ideally placed to play a leading role in reshaping our understanding of why and how we need to move forward realistically into the 21st century. Several themes have emerged over the last five years that as Design Educators, Designers and Design Entrepreneurs we have to take into the future, this paper charts these envisaged solutions and offers some alternatives to the status quo.

Design redefined and focused on an uncertain future

“Good design is inseparable from good quality of life. It is efficient, affordable, sustainable, inclusive and beautiful. It lifts the heart and inspires the mind. We need it now more than ever.” (2)

“The engine of cultural change is the human capacity for creative thought and action.” (3)

Designers are the world’s great intermediaries, bridging the gap between ideas and actuality. Almost everything we touch, hold, smell, sit on, sleep in, listen to or look at has been designed for us. The list is endless. Design is present in almost every aspect of our lives and we consequently take it for granted. We only become aware of design when it is ineffectual or obstructive, annoying, dysfunctional, awkward or unattractive.

Global developments and an accompanying increase in related ecological and social problems are creating new challenges for designers. They are dealing with conflicts, ambiguities, difficulties and diverging requirements. Their job is not to ignore certain aspects or to compromise, but to be innovative risk takers in their quest to find solutions.

A global revolution in design thinking and a more holistic approach to design education and research could provide imaginative and far-reaching solutions to the issues we are faced with in a rapidly changing world.

This paper will explore the premise that design is being challenged to redefine itself and that designers must assume new roles and commit themselves to developing solutions in order to secure a sustainable future. Good design has the power to connect people emotionally, psychologically, rationally, and scientifically. That is why it is ideally placed to play a leading role in reshaping our understanding of how we will move forward realistically into the 21st century.

How can good design be defined?

In the early 1980's, troubled by concerns that design may be contributing to the world's problems as opposed to providing solutions, the German industrial designer Dieter Rams asked himself the question: is my design good design? He concluded that good design is: innovative, useful, aesthetic, understandable, unobtrusive, honest, durable, thorough, environmentally-friendly, pure and simple. (4)

These basic principles still apply and are relevant in every area of design practise from architecture to computer technology and fashion to finance. Good design is accessible, adaptable and has a very real capacity to instigate and deliver change. It can teach by example, encourage the spread of ideas and foster a holistic approach to problem solving. Design is a means of creating social, cultural, industrial and economic values by merging humanities, science, technology and the arts.

Design and education

The principal benefit of a broad education in art and design is the enhanced capacity for exercising the imagination. It would not be stretching the point too much to associate the development of imagination with the development of political vision and the role of art and design in citizen education.

Ideally we must commit ourselves to the further education of our youth by encouraging the development of a value system that places emphasis on our global responsibility to build sustainable, human-centered, creative societies.

In 1999, in response to a White Paper On Excellence In Schools, the UK Government commissioned a report on the importance of creativity in education. The result was All Our Futures, a groundbreaking study carried out by the NACCCE (National Advisory Committee on Creative and Cultural Education) chaired by Sir Ken Robinson. It laid the foundations for a national education strategy and argued that by increasing students' creative awareness and abilities we better prepare them for the challenges of a rapidly changing society. In effect, it redesigned our approach to education.

“In terms of education there is a need ‘for minds capable of creating new possibilities' and a necessity to 'transform our current ways of thinking and operating.’” (5)

For those working in the field of education and Higher Education in particular, the onus is on conveying the skills, values and knowledge required to address the problems posed by environmental, economic and social change. Education for sustainability is increasingly popular and ideas, innovation and networks are growing, both at policy and practice levels. At the same time, design for sustainability is flourishing as a necessary and creative response to new challenges, it is embedded in good practice but there is a need for more real transformative action to take place.

Human-centered design thinking, when rooted in universal and sustainable principles, has the power to fundamentally improve our world. It can deliver economic, ecological, social and cultural benefits, improve our quality of life and create optimism in communities and individuals.

Design and the built environment

Another interesting development in 1999 was the formation of CABE (The Commission For Architecture And The Built Environment). A bridge between politicians and the public, the Commission became the government's advisor on architecture, urban design and public space and reviewed over 3,000 development proposals between 1999 and 2011. Eighty-five percent of local authorities in England took advantage of CABE's independent advice service and seventy percent took planning decisions in accordance with that advice.

The Commission proved to be an excellent example of an effective working relationship between government and designers for the benefit of society. Projects ranged from the regeneration of run-down coastal resorts and industrial wastelands to community housing developments and the creation of ecological parks and green infrastructures. The emphasis was on community, inclusion and diversity, design excellence, health and wellbeing, design in education, sustainability and the development of a sense of place.



Figure 1 – Derelict East London Warehouse

Education programmes like Engaging Places, were run in conjunction with English Heritage. Children and young people were taught in buildings and open spaces where they could immerse themselves in the social, architectural, and environmental issues relating to their immediate environment.

CABE also launched The Grey to Green campaign which pushed for greater investment in green infrastructure and argued for a shift in public spending from grey projects, like road building and heavy engineering projects, to green schemes that included, tree-planting, eco-parks, green roofs and waterways.

The city of Peterborough (Cambridgeshire, east England) is pursuing an ambition to make itself the environmental capital of Europe. The regional council believes it probably has the largest number of environmental businesses on the continent and the local schools are even preparing children for employment in the town's growing low carbon economy. Marco Cereste, leader of Peterborough Council, sees design as an integral part of re-orientating the town and preparing it for sustainability. Neighbourhood councils are responsible for making key decisions regarding sustainable transport, waste management, energy-efficiency, planning, the promotion of green habitats, bio-diversity and management of open space. It is successfully setting a precedent for the creation of future holistic communities.

“Changing who makes decisions about what to build and what it should be like could seem risky, creating uncertainty and requiring new ways of thinking and working. For designers this is, in fact, an opportunity. An opportunity to prove the virtues of good design. To contribute to wealth creation as the country gets back on its feet. To listen to people and put them at the heart of their designs. To rediscover the virtues of efficient, low cost design. To get better value for the taxpayer and create greater value for the community and for business.” (6)

The role of design in economics and the corporate world

“The bottom line is back! Deep self-interest, not altruism drives adoption of energy efficiency and “green” strategies as sensible business practice.” (7)

Apple Inc., the most valuable technology company in the world and perhaps the most iconic design company of all time, has been criticised for its contractors' labour, environmental and business practice. However, in a recent address to design students at The Royal College Of Art, Apple's multi-award winning industrial designer, Jonathon Ive, placed the emphasis on "new" rather than "better," and warned against churning out products simply in order to survive, with no thought of the impact of such rampant production.

"It never ceases to amaze me what it takes to develop and bring to mass production a product," he said. "If you don't care, it's just wrong to drag so many resources and so much of people's time through that process.” (8)

He also warned against catering to market trends and praised instead authentic and heartfelt commitment to innovation-led culture from within the company. Unless core values and disciplines are acknowledged and embraced by every employee he is sceptical of their success.

The corporate world is also looking to designers for new models to facilitate financial growth from within communities as opposed to external loans and aid packages.

In an introduction to Yale University's School of Management, Ernest Beck outlines the advantages of using real case studies in schools of public policy, business and design.

“MBA professors will be able to look at the financial, marketing and legal issues of a design-oriented enterprise; design tutors will be able to look at the role of design but will also be able to discuss balance sheets and the role played by investors; and a school of public policy might look at micro-financing for product innovations that facilitate social change.” (9)

One particular case study aims at fighting HIV/AIDS and TB epidemics in South Africa. Project Masiluleke a signature program of the PopTech Accelerator, ‘a social innovation incubator designed to foster breakthrough solutions to pressing global issues.’ The initiative is dependent on the joint efforts of product designers, educators and innovative mobile phone technology. It is a working example of how disparate organisations can interact to benefit society. The scope and scale of these initiatives is unparalleled in history. Manufacturers and marketing companies are challenging the preconceptions of how they are meant to operate by creating goods and services, which have appropriate outcomes in the world.

“Placing design within the larger context of real world projects and enterprises is critical for design thinking and solutions to evolve as a methodology and a means for social impact.” (10)



Figure 2 – Project Masiluleke

Design and the future

In 1973, as the architects Chamberlain, Powell and Bon (followers of Le Corbusier), were watching London's vast Barbican arts centre rise so optimistically from a depressing Luftwaffe crater, the British economist EF Schumacher published his book, *Small is Beautiful: A Study Of Economics As If People Mattered*. (11)

In 2011 we are contemplating a similar collision of opinion with regards to our stance on environmental and economic concerns and how we can move forward most effectively.

Schumacher believed that 'appropriate technologies' are the best way of addressing the needs of smaller communities because they provide effective solutions whilst taking into consideration the special requirements of the local community.

Schumacher argued that the modern economy was unsustainable. Natural resources (like fossil fuels), were treated as expendable income, when in fact they should be treated as capital, since they are not renewable, and thus subject to eventual depletion.

He further argued that nature's resistance to pollution is limited as well. He concluded that government effort must be concentrated on sustainable development, because relatively minor improvements, for example, technology transfer to Third World countries, will not solve the underlying problem of an unsustainable economy. Schumacher's philosophy is one of "*enoughness*," appreciating human needs, limitations and appropriate use of technology. It grew out of his study of village-based economics, which he later termed "*Buddhist economics*".

He faults conventional economic thinking for failing to consider the most appropriate scale for an activity, blasts notions that "growth is good," and that "*bigger is better*," and questions the appropriateness of using mass production in developing countries, promoting instead "*production by the masses*." Schumacher was one of the first economists to question the appropriateness of using GNP to measure human well-being, emphasising that "*the aim ought to be to obtain the maximum amount of well-being with the minimum amount of consumption*."



Figure 3 – An HAPV “Happy Cart”

We have recently seen a proliferation of ‘small and beautiful’ developments across the Developing World. A great example of low-cost, inspired design solutions for Sub-Saharan communities are “HAPPY” carts, a contemporary twist on HAPVs (Human and Animal Powered Vehicles). The simple addition of solar panels to the humble donkey cart converts the vehicle into an independent, sustainable source of energy that provides multiple benefits for the local community as a means of transport, a water-carrier, mobile phone charger, and convenience store.

Design and the environment

Can design succeed where science is proving insufficient to generate the will to act effectively on climate change?

Scientists sound increasingly desperate as the evidence they are carefully accumulating stacks up but fails to prompt the urgency they insist it requires. Some schools of thought even deny that climate change and global warming are a problem. Our press seems only to create a panicked paralysis: a language of probabilities, statistics and numbers, which fail to ignite the public imagination.

Is this where designers have to step in to prompt understanding, to challenge what is taken for granted, to turn ideas upside down?

The earth’s rapacious consumption of energy is predicted to double by 2050.... but all human activity for a whole year could be powered by the energy contained in the sunlight hitting the Earth in just one hour.

The untapped potential for using the sun's rays is huge. Harnessing even a small amount of this to make electricity or useful fuels could satisfy the world's increasing need for energy without further endangering the climate.

Instead of burning the earth beneath our feet we can invest as China has; it already makes most of the world's solar panels and wind turbines. Its carmakers, such as BYD, are pushing ahead faster than established Japanese and American rivals to mass-produce electric vehicles. Its carbon captures technology and high-efficiency "ultra supercritical" coal plants are close to the global cutting edge. With the new package, the government will commit itself to developing domestic markets for these "sunrise" industries.

Obviously political decisions can be made fairly swiftly but nonetheless its staggeringly impressive.

Too often we think of carbon dioxide as just another scalar quantity, often measured in tonnes. We breathe in 10 tonnes of air a week but what does that mean? Fundamental quantities such as acceleration, weight, and force are vector and not scalar combining magnitude with direction. As designers we need to combine and emphasise this extra dimension to give a stronger meaning to the concept of the carbon footprint so that it will have more of a fundamental impact on our lifestyles. James Woudhuysen, Professor of Forecasting and Innovation at De Montfort University, Leicester, gives his perspective on Britain's role.

“Yes, Britain – the nation that, across the Channel, is widely ridiculed as the Dirty Man of Europe – should set the world an example in cleanliness and hygiene. Red-white-and-blue peace UK insists that, ‘as the country most culpable for initiating the first coal age, which is largely responsible for the global warming we are currently experiencing, Britain undoubtedly has a responsibility to take a lead in developing practical solutions to solve the climate crisis’. Greenpeace and others hope in particular that Britain can show the way to allegedly dirty nations like China or India.” (12)

He goes on to say:

“For many environmentalists, ‘clean coal’ is a contradiction in terms. Although this judgment is overhasty, there is certainly a long way to go before coal-fired electricity generation is made free of all pollutants – including CO₂. However, if anyone is making progress toward cleaner coal, it is the Chinese.”

So can design continue to work more directly with consumers so that together they can evolve 'mindsets' that encourage new behaviour types and lifestyles?

Edwin Datschefski, a great advocate in the design of sustainable products continues to promote a micro awareness rather than the macro 'Greenwash'. As he puts it

“Large well meaning corporations fail to package and communicate meaningfully. And with all this bombardment entwined with guilt it is easy to slip into ‘carbon compliancy.’”

He says:

“For example, people think “I cook my potatoes more efficiently now in the microwave, so it’s OK to still run my old 4x4”, or “Yes I’m flying to Australia but I only boil as much as I need in my kettle.”

Other people recognise that small improvements don’t make much difference and use that as a reason to justify doing nothing at all. Consumers need to know how their biggest carbon emissions are created and take effective action and also that they are not alone in making changes, as they say in France " l'union fait la force".

One of the first true multi-tasking products on the market was an alarm clock that also played the radio and if you were so inclined it made you a cup of tea!! It seems somewhat antiquated compared to the functionality of the latest mobile phones.

History has shown that man’s appetite for development and the need to solve problems and create new ones is absolute. New smart products and design experiences are continuing to develop at a phenomenal rate. Applications for mobile phones are a case in point. New technology has now made it possible for us to monitor everything from air quality and weather forecasts to our personal health, lifestyle and finance by simply touching a phone screen. Perhaps we could introduce an application that will keep tabs on our carbon footprint and the money saved could be invested in low-cost design initiatives for the Developing World.

We can either *create* assets for the future or *take* the assets of the future. One is called restoration and the other exploitation.

Design at the forefront of global change

“It’s not about the world of design but the design of the world.” (13)

In recent years we have seen the rise of a new breed of designer. The focus is shifting from materialistic and aesthetic prerogatives driven by consumerism to values which are philosophical, intellectual and more altruistic. A paradigm shift from material-driven consumption towards a greater connection with human centered design and new technology development is underway.

An era of “cultural productivity” has commenced where the importance attributed to modes of life, values and symbols may be greater than that attributed to physical products. New Design Thinking stands steadfastly at the centre of this development whilst simultaneously acknowledging the importance of cultural traditions and the need to rediscover and revitalise them. Emily Pilloton, Founder and Executive Director of Project H Design, USA, is an exponent of the need to educate our young in new design thinking.

“Our focus on K-12 education is rooted in the belief that design is not just about products or beautiful spaces, but a way of thinking, and that this creative critical thinking is a valuable problem-solving skill to be learned at a young age. We don't just deliver design solutions FOR education, we hope to instill design thinking in the minds of young citizens, so that they may be better equipped to take on the next generation of global issues. Such initiatives are focused on improving the lowest-opportunity K-12 public schools and districts in the US.” (14)

Thinkpublic is a social design agency founded in 2004 by Deborah Szebeko after she worked as a volunteer project manager at Great Ormond Street Children's Hospital where she experienced the huge impact that design can have on improving the patient experience. The organization has now grown to include programmers, marketers, film-makers, artists and anthropologists and some of their most successful work has been carried out in the field of mental health.

“This was the first service for the Alzheimer's Society that focused on people with dementia. It was a wave of change that was happening, coming in contact with thinkpublic was good timing. The skills and tools of the designers have helped us make this change.” (13)

There is a global shift amongst many design practitioners towards a design philosophy that is rooted in education, altruism and therapeutic change, helping communities to empower themselves through self-help and education projects driven by design initiatives. These are basic principals and we should listen to them, update them and apply them to a new design ethos based on humanity's willingness to restore, redress, reform, rebuild, recover, re-imagine, and reconsider.

A good example of this is The Massive Change Project, a multidisciplinary collaboration founded by Canadian designer Bruce Mau and the Institute Without Boundaries with the aim of maximizing the potential of design to benefit humanity.

“Surveying the world we found hundreds of examples where visionaries were using design to effect positive change in the world. We called this pattern Massive Change.”

“Design has emerged as one of the world's most powerful forces. It has placed us at the beginning of a new, unprecedented period of human possibility, where all economies and ecologies are becoming global, relational, and interconnected.” (15)

Touch points for a new era in design

“Our worst fear is not that we are inadequate; our deepest fear is that we are powerful beyond measure.” (16)



fig 4. Lisbon

We need to move away from Futures and Options and attempt to develop a Future with Options. We need to look at the past, embrace the present and have faith in the fact that design and creativity are capable of instigating change.

We need to recognise that the primary principals of the modernist story have failed in terms of product design, by simply ascribing primary value to utility and style, but what needs to be regained is the pragmatically useful and the socially viable. How will we achieve this?

Perhaps it is time for designers to become educators instead of facilitators. Technology has made it possible for designers, producers and consumers to interact at an unprecedented level. Now is the time for designers to come out of the shadows in order to play a bigger and more responsible role across all design disciplines.

Time to share skills, initiate debate and to appreciate our potential as activists on the frontline of a consumer revolution.

We need enthusiasm most certainly if we want change, and it will come at a price, but perhaps a price we should be prepared to pay. Whether acting as individuals, employees, creatives, creators or critics we have the opportunity to contribute to our future and that of the people who, quite literally, put their future in our hands.

PQD 2011

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Liquidity

past & present future craft practice

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Abstract

Past, Present and Future Craft Practice (PPFCP) is a major research project funded by the Arts and Humanities Research Council U.K (2005-2010). It evaluates the aesthetics embodied in craft by analysing methodological approaches embedded within historical and contemporary practice. It seeks to develop a tool for interrogating the process of progress, and evaluate the relationship between skill, intellect and culture in order to attend to the following question: Is there a future role for craft?

In craft (writings and conversations), the skill of coherently expressing the intellectual and personal voice within the development of work is usually missing. PPFCP challenge the perceptions of the craftsperson to keep the journey silent and authorless to facilitate new knowledge of craft as a process, service and experience, thereby complimenting knowledge of craft as a product and sector, opening up the debate as to the future value of craft.

The argument underpinning this research is for craft to be considered as a concern for innovation, individual vision, intrinsic values and future cultural concerns: a fusion of art, science, engineering, and technology. In doing so, it inverts the perspective from which craft is predominantly viewed and considers craft as a system of thinking rather than an act of skillful making. The premise of this investigation is that craft-based practice is a socially interactive process despite being a predominantly individually executed product, where dialogical methods expose contradictions and nurture mindful interrogation.

This paper exposes historical and practical craft knowledge studies through jewellery, metalwork, textiles, interactive media design and film. It gives insight into the contribution to knowledge made by the investigation, both as one dialogue and as a series of five individual craft inquiries. As a result, five new methods are summarised in this paper, including Visual Craft Practitioner, Mindful Craft Inquiry, Participatory Craft Practice and Visual Analysis Model.

Introduction

There are two assumptions underpinning the following discourse. The first is that craft is considered a concern for innovation, individual vision, intrinsic values and future cultural issue(s): a fusion of art, science, engineering, and technology. This assumption is a base from which a developed understanding of craft is sought – it is the environment where new knowledge of craft in terms of first principles or core

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values is investigated. The second assumption is that craft-based practice is a socially interactive process despite being a predominantly individually executed product, where dialogical methods expose contradictions and nurture mindful interrogation: a system of thinking.

The 5-year project¹ which this paper generally reports, placed the practitioner and their visual thinking at the centre of investigation. The study sought to develop understanding of the relation between skill, intent and culture in order to attend to the question, Is there a future for craft?

A common misperception is that craft is equivocal to the term 'skilful making'. However, this reference fails to address the individual maker's capacity to retain the integrative nature of thought. This project and by consequence this paper, challenges the perceptions of the craftspeople to keep the journey silent and authorless. It challenges these assumptions by inverting the perspective from which crafts are conventionally interrogated and communicated i.e. it seeks knowledge and understanding of craft from a strategic rather than operational perspective.

Research Questions and Methodology

What can be learned from historical craft ideologies and philosophies? What is the value of craft to the development of culture? How does a craftspeople communicate the knowledge embodied and embedded in craft? What is the significance of the craftspeople's approach to thinking for other knowledge domains? How can the discipline of craft regenerate itself?

'Mindful Inquiry' is the research framework for the authors study; it is a synthesis of critical social science, hermeneutics, phenomenology and Buddhism. At the heart of this methodology is the concept of 'change' where perpetual activity is its inherent characteristic, both within the research context and of the subject under consideration, because the human condition is at the centre of investigation (Bentz and Shapiro, 1998). The concept of 'postmodern chaos' and its presence in our everyday existence is a key reason for selecting 'Mindful Inquiry' as an appropriate methodological framework to investigate past, present and future notions of craft practice. However, for the purposes of brevity, this paper will not offer in-depth explanation of the methodology.²

There were five active researchers involved in the investigation, the authors (Professor Georgina Follett as Principal Investigator and Dr Louise Valentine as the Post-doctoral Research Associate) and, three PhD researchers, namely Frances Stevenson, Elizabeth Donald and Fanke Peng. Each researcher was tasked with retaining the relationship between past, present and future in their studies (albeit with varying emphasizes and content). In this paper selected aspects of these studies will be shared.

Past

House of Falkland³ (Figure 1) set the parameters for the research project. This unique resource enables visual analysis and cultivation of the crafts from a historical

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perspective. It offered an opportunity to have an intimate discussion about craft practice through observation of historical examples in their original environment. For example, discussing the relationship between asymmetry and symmetry in the composition of works, the effect of natural light and its movement through the course of a day on the use of colour and the various levels of storytelling embedded within an individual room and the narrative of the house as a complete entity.

In analysing the House through observation of craft in situ the authors identified parameters affecting practice, namely:

- An **indexical mark** of the creator which offers insight into the practitioner's intellect *ie* his/her conceptual capabilities.
- Use of **storytelling** and the various forms in which the method is applied, for example, the use of myth, romance, mysticism, astrology, natural lifecycles (winter, spring, summer, autumn), heraldry, heritage and the concept of family.
- The **environment** for craft and the different meanings associated with the term, for example, cultural, economic, physical and meta-physical, and societal environment.
- The role of **patronage** as an economic model for craft practice.
- Application of **iconography** in practice, for example, strong use of symbols and images from the natural world (*ie* flora and fauna) demonstrating a direct use of iconography, and also an embedded or implied metaphoric relationship with nature as concept
- Visual structure (*ie* **form**) of craft practice and its relation to narrative.
- **Realisation process** or the relation between concept and physical actualisation (*ie* the working relation between patron, craftsman and artisan) and the various ways in which this can manifest.

In order to further explore the findings, the authors undertook a series of field studies where crafts culture was integral to the architecture. The rationale was to look at crafts inherent within buildings; buildings act as time capsules and the crafts within them are still located as the practitioners intended. They are not separate from their environment and viewed as discrete single objects, but have an integrity that has survived time. One of the principles of craft practice offered by this research is that, by its very nature, craft practice operates over the lifetime of an individual and as such, it is necessary to view practice as a continuous journey rather than a series of independent events. It is argued that single objects alone do not convey the visual exploration and development inherent in an individual's craft.⁴

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Figure 1: House of Falkland, Fife, Scotland. Photograph by Malcolm Finnie.

These visits supported understanding of the essential elements that give visual integrity to objects or environments exemplifying the indexical mark of the author and their development in relationship to crafts practice. In addition to the seven parameters for practice identified via House of Falkland, five additional generic factors were identified as being fundamental to practice and evident from the works examined through the visits including:

- **Vision** *ie* an ability to conceptualise and ‘see’ something in the mind’s eye that has yet to be created and to hold the full view (rather than fragments of it in the mind’s eye) while it is being physically exposed.
- A requirement for a personal **visual language** from which to test and develop the vision.
- **Passion** and personal commitment.
- An understanding of the limitations of **time**.
- A **personal capacity** to continuously develop one’s visioning capacity or indexical mark.

The evaluation of House of Falkland in terms of craft practice formed a central resource from which the project team could discuss and evaluate craft through the objects created by practice. The research used this exemplar from which to explore craft historically and to provide a frame from which to evaluate contemporary practice.

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For example, PhD researcher Donald evaluated the aesthetics embodied in craft through analysis of methodological approaches embedded within historical and contemporary practice. The Vine Corridor in the House of Falkland (Figures 2, 3) was the case with which to study historical craft practice.



Figure 2 (left): The Vine Corridor in the House of Falkland.

Figure 3 (right): The ceiling and wall covering in the formal dining hall, in House of Falkland. Photographs by Malcolm Finnie.

Heuristic inquiry was the process with which she engaged with historical craft practice (Moustakas, 1990). The method of storytelling was used to unravel the narrative in the Vine Corridor and unpack the meaning embedded in this work of craft. It was achieved through intense observation and analysis of the construction of the Vine Corridor which unveiled layers of meaning constructed through the separate use of colour, light, space, form, imagery, pattern and composition. It was observed that a grid system had been employed as a framework for the imagery (Figure 4). Grid systems use a mathematical basis in their construction and to understand the grid a 'mapping' of the overall construction was undertaken. The resultant diagram presented a picture of reoccurring numbers, namely three, five and eight and derivation thereof.

Reviewing numerology and its origination via the Greek philosopher Pythagoras led Donald to see if there was a relationship between the three people deeply involved in the house, namely the Marquess of Bute, his wife Gwendolyn and Robert Schultz (Architect) and the aforementioned numbers. Pythagorean theory attributes a number to each letter and as such was used to determine a specific number to an individual

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name. A direct correlation between the names, the numbers and visual construction was identified.

Findings revealed layers of storytelling which are carefully interwoven. At one level and immediately accessible is the simple story of a beautiful garden in the height of summer, with the creatures of the garden placed within the tree branches. At the other extreme is a deep personal symbolism hidden within the structure, perhaps concealed purposefully, or only accessible by those closely connected with the work's conceptual base. The intended meaning and symbolism of the Vine Corridor is therefore accessible by different individuals at different depths; this gives an indication of the sophistication of its overall construction.



Figure 4: A front view of the 'vine' in the Vine Corridor (House of Falkland, Fife), exposing the grid system upon which Pythagorean theory was applied. Photograph by Malcolm Finnie.

Present

Present practice was perhaps the most contentious and difficult aspect of the project to embrace. The issue stemmed from the lack of a clear definition of contemporary craft within the plethora of practices that come within the potential scope of the project. We observed that definitions in reports commissioned by existing public bodies with responsibility for craft either excluded certain forms of craft or were so non-specific as to be true for any visual practice (McAuley and Fillis, 2002; Morris, Hargreaves, McIntyre, 2006).

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To capture the diversity of activities within the crafts and take stock of its fast changing cultural and creative role, an international conference and exhibition was held. There were four key findings from the event which were pertinent to the overall research. Firstly, the papers presented to conference, where the almost universal citing of Peter Dormer and David Pye demonstrated the dearth of reference material available to the discipline, reinforced this issue.⁵

Secondly, works put forward for the exhibition did not use visual referencing via the work of other practitioners operating within the same field, either past or present. Rather, individuals saw visual referencing as objects of their own practice, thus not applying the same premise to practice as they did within a theoretical context, even when the author submitted both forms of research for inclusion in the conference and exhibition. This posed a series of questions – Why do practitioners construct their ideas without referencing work within their field? How do they make themselves aware of the issues affecting their practice? Is this insularity inherent to the nature of craft practice?

The third key finding arose from the formal evaluation of the exhibition (Figure 5) conducted by a carefully selected UK review group. It highlighted the embryonic use of the exhibition as an investigative tool for craft research. The key outcome was a series of questions, including, what is a research exhibition and what should it be? What is its purpose and audience? Should it communicate knowledge about processes and context? What is the thematic or narrative structure?



Figure 5: A snapshot of the Future Craft – Celebrating Diversity exhibition. Photograph by Andy Rice.

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The final finding related to the format and call for works for the exhibition which produced an interesting insight into practice as research. Most of the objects submitted were unresolved, in that they were prototypes, glimpses of an idea, partly formed and searching for knowledge that would enable further iterations until a solution emerged.

In other work concerned with contemporary practice, Fanke Peng's PhD research (2010) identified there was no model developed for reading the practitioner's intention in the construction of their works, to enable an understanding of how they articulated this through practice. She developed a Visual Analysis Model (VAM) through a deep understanding of holistic modes of consciousness by bringing together Zen and Goethe philosophies to produce a model that has the capacity for reading objects of craft practice.

Peng applied her VAM to Phoebe Anna Traquair's works and Michael Lloyd's silversmithing (Figure 6) through the use of interactive media, which allowed her to modify the scale of her VAM to be able to read the language inherent within large scale two dimensional works and small-scale, three-dimensional objects. Transfer of the model from 2D to 3D and the change in scale was problematic. Peng significantly modified the VAM to enable it to function fully as an analytical tool for the visual analysis of 3D craft. She identified that 3D objects convey their visual intention differently from 2D objects. For example, within a craft practitioner's visual thinking the elements of shape and form are not purely compositional within which to hold decorative pattern, rather they are the visual language of the author.



Figure 6: An example of the 3 dimensional craft analysed by Peng.
'Weapons of Peace' by the silversmith Michael Lloyd.

Follett's reflection *on* practice of her process and product identified a gap in her craft methodology when comparing it to a research methodology, in that a review of the literature was essentially missing. She sought to rectify this and introduced it as a

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means of progressing and contextualising her practice. A review of literature within the domain of international enamelling was the method for understanding the precedence of previous enamel practice and as a means of appreciating where the knowledge gaps were in terms of the visual language of plique-à-jour.

Follett also conducted an evaluation of her work over a six-year period (2000–2006) by analyzing the photographic record of the majority of her portfolio during this period. She visually compared this record of intellectual progression against other items in jewellery publications (Phillips, 2000; Snowman, 1990; Gere and Munn, 1996; Falk, 2004) as a way of providing greater general understanding of the quality of her work relative to that of other individuals in the field (Fabergé, Cartier, Lalique, Fouquet, Traquair).⁶

Having examined the literature and compared it to her own work, attention was redirected to the issue of form and how the forms used in her work give the pieces an aesthetic quality. This analysis revealed a variety of useful points. The most critical of these indicated that whilst colour, transparency, and opaqueness were all key elements that could be associated with her work, she had been using the colour in a very two-dimensional manner. This limitation in her pieces seemed to run through those of other jewellers also. As in her work, these jewellers (*ie* Louis Aucoc, Leopold Gautrait, Lluís Masriera, Pierre Vever) had simply applied a single enamel colour to the base metal in order to give the finished product impact and richness. However, very few individuals had attempted to moderate colour *over* form by creating a complex visual image that is characterised by various colours *across* the piece. When considering this factor Follett realised that in her earlier pieces she had tentatively begun to explore this but had failed to carry it forward. This observation provided the base from which to make the decision to explore the opportunity of mixing enamel colour on sheet metal to give a painterly quality to the surface and to examine the light refraction.

Having evaluated her enamelling process Follett then went on to look at the final forms given to jewellery with an analysis of a variety of work spanning from the now priceless art forms of the ancient Greek and Roman periods to that of her contemporary visual craft practice. Following this Follett examined her own aesthetic value with specific reference to how she worked necklaces. Based on a comparison between the works of others (for example, Lalique, Henry Wilson, early pieces by Watkins and Ramshaw, Cartier) and that of her own she soon realised, to her dismay, that she had fallen into the traditional mirror image method of formation that involves balancing the piece in terms of function by placing equal weight at either side of the central line and mirroring the forms away from this central point. Upon recognising this she determined that her new work would eliminate this cycle of convention that seemed to run concurrently through her work. The next piece would be asymmetrical rather than a simple mirrored reflection from the central line.

In conducting this review a series of observations around visual literacy within the construction of jewellery pieces resulted, enabling the development of a new visual quality in her enamelling. The key observations were the need for new work to have

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an asymmetrical composition, to mix enamel colour directly on sheet metal in order to give a painterly quality to the surface and to examine the resulting light refraction. Two pieces of work resulted. They were 'Violets' (2007) and 'Field of Endeavour' (2008, Figure 7).



Figure 7. 'Field of Endeavour' by Georgina Follett.

Valentine's study of craft carried out 'Mindful Inquiry' of the process of thinking with a view to defining the qualities of creative practice and, offer a new way of discussing craft. Literature reviews identified a preference to emphasise craft practice equated with the final object. If materials and technique are removed from the conversation, how do you gain access to craft practice given that most practitioners use these as an oblique way of accessing their knowledge in practice?

Her research conducted a series of interviews with practitioners over an 18-month period to understand the development of their personal journey, of how they gain inspiration and what drives them to develop their work through a combination of the visual, conceptual, social, material or technical. She constructed a series of stories to facilitate analysis of craft practice.

Valentine's stories provided insight into how individuals create the questions from which to challenge the idea. They revealed that the practitioners all looked for rhythmic activities, and constructed meditative spaces in different ways to suit their lifestyles in order to internally resolve issues within their making practice. For example, the interactive jeweller's rhythm was found in the way she engaged people within her thinking process; her craft is a *social product*. She carried the most recent prototype with her at all times and used the interstitial moments in her day to unwittingly inform colleagues of her new work and seek their immediate reaction, using this to inform her questioning and decision-making. The silversmith's rhythm

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was found through the solitary physical challenge of cycling and cycle racing which is used as a means of resolving ‘tension’ in his craft practice, often riding for hours at a time to understand the intellectual conflict hindering progress; his craft is a *meditative product*.

In order to understand an individual’s intellectual development the research looked at recent practice to understand whether the journey is linear, moving in a forward direction, laterally or backwards. To facilitate this understanding Valentine has constructed visual timelines, articulating a holistic pictogram garnered from the practitioner including products, personal influences, literature, travel, materials, inspirational sources and social contexts (Figure 8).



Figure 8: A snapshot of (four years out of the ten year) visualisation map or ‘cultural enrichment cycle’ for Tim Parry-Williams, offering an alternative viewpoint from which to understand the term ‘craft practice’. From top to bottom, the concurrent layers of activity that constitute ‘craft practice’ for Tim are exhibition participation, the people in his life who influence his thinking, the objects of his craft

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practice, the teaching undertaken in Britain and Japan, his sojourns to Japan, the textile fibres directing his thinking, and an engagement with writing for academic and professional practice journals.

This visual mapping allowed Valentine to evaluate patterns of productivity, from which an individual's development can be extrapolated and compared, to understand whether craft practice operates a universal model, or whether it is idiosyncratic in form and dependent on many variables. Given the rationale for selection it may be possible to understand that different individual imperatives require specific circumstances for craft to operate within, and to develop an understanding of which particular environments allow for the greatest progress to be made, collectively and individually.

Valentine's visual timelines and stories encapsulate the working life and environmental constructs used by the practitioners in the formation of their work. Her model has the potential to act as a developmental tool for ongoing use by practitioners to enable them to understand the generative circumstances under which they operate most effectively, and how they operate within certain patterns, and what effect apparent disparate and unconnected elements have on their practice.

Frances Stevenson research was concerned with exploring the relation between context and content of craft within a cultural framework through the establishment of a series of practice-led projects.⁷ Stevenson's review of the literature noted innovation as a key tenet for maintaining craft as a professional occupation. It also highlighted the need for crafts to increase its level of public engagement. Stevenson sought to bring these two problems (one concerned with economics and the other marketing) together in her methodology. While each problem can be viewed independently within the same agenda, her idea to combine them was central to her argument concerning the sustainability of the individual's craft practice.

She devised five scenarios, testing audience participation and response to craft practice and how (if at all) audience participation advance(s) a practitioner's thinking (Figure 9). Throughout the studies Stevenson's textiles became probes or tools for participants to engage and experiment with craft. The method of exhibition was the framework for each of the scenarios as this is a central way of working for craft practitioners (Newell, 2007; Follett, Moir and Valentine, 2007).

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Figure 9: An example of exhibition visitors interacting with Stevenson's printed textiles design and presenting a use or alternative design.

Through these scenarios, a model for 'participatory craft' evolved enabling the audience to become engaged in a product development process. Stevenson engaged with risk in the craft-making process throughout the research and while learning that the exchange of tacit knowledge can hinder progress in practice, the act does support the development of thought round an individual's methodology as it encourages deep reflection and critique.

The Participatory Craft approach to progressing practice mitigates the insularity of practitioners. Stevenson's framework for evaluating and developing craft in terms of textile products, offers a means of increasing the level of motivation for practice by seeing participants 'play' with the practitioner's ideas. It facilitates the removal of preconceptions and frees-up the thinking process. In doing so it becomes a vehicle for liberating the body and mind, inspiring the maker to look to the future and encouraging active engagement with the future.

Future

Craft research has a value to craft practitioners, demonstrated through taking a research methodology and applying it to support understanding of both practice and research.

Stevenson is currently evaluating the impact of the participatory process in formulating craft to understand the difference an audience makes to the conceptual thinking in textile product development. The method has the potential to become a generic tool for practitioners and vendors alike (*eg galleries*) to increase the level of innovation within their practice while concurrently extending audience participation and understanding of craft. The next step is to test the transferability of this new model by working with creative practitioners while concomitantly extending and honing the method via her own craft practice.

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On reviewing the research process and outcomes of Mindful Craft Inquiry, Valentine acknowledges they offer a basis to undertake a SWOT analysis of the individual's practice to understand the different layers of activity that makes up their practice. The visualisation will allow for an individual evaluation of the impact of the different elements of their life journey on their work; providing an insight into different aspects and their direct effects on practice, through research, intensive engagement, volume of work and their management within it. Potentially the practitioner could alter these relationships within their portfolio, rebalancing and influencing potential impact thus perhaps driving innovation at a faster pace than their current practices.

The value of Peng's VAM is that it provides a way of understanding the intellectual component(s) of craft practice. It facilitates deep understanding of a practitioner's personal philosophy and aesthetics. It recognises craft practice as both skilful making (tacit knowledge) and visual thinking (conceptual framework). The VAM offers an alternative interpretive framework, supporting the extrapolation of both philosophy and aesthetic of craft practice, both of which are difficult to access as a visual language, (where philosophy is the practitioner's 'guide' to making craft products and his/her approach to living; it is the holism applied and practised every day. Aesthetic is the theory used when creating visual work and is an unfixed variable).

Donald has produced a heuristic method for interrogating the practitioner's development from the perspectives of skill, intent, knowledge and culture. This method enables individuals to understand where their practice requires further development and where they have achieved high levels of understanding within the different elements of visual practice.

Investigating what is effective for the future of crafts is ongoing. The V&A at Dundee initiative⁸ is the most ambitious aspect of the future plan. Follett and Valentine are currently seconded to articulate the content for the V&A at Dundee project. They are looking at how Scotland can build a unique enterprise within the heart of the new building that will showcase design.

This craft research has led to the development of an opportunity to both develop public awareness of design and to engage with the wider community of practitioners to further their agendas in an environment built around the products of their work. The project will be completed in 2014, with the opening of the new building housed on the River Tay, in Dundee (Figure 10).

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Figure 10: The architectural design for the V&A at Dundee by Japanese designer Kengo Kuma.

Endnotes

¹ The project Past, Present and Future Craft Practice research was conducted under the framework of a successful grant application to the Art and Humanities Research Council (2004), which established that the research would evaluate the aesthetics embodied in craft by analysing methodological approaches embedded within historical and contemporary practice.

² For further reading about Mindful Inquiry and this research project, see Valentine, L and Follett, G [eds] (2010). *Past, Present and Future Craft Practice*. Edinburgh, Scotland: National Museums Scotland Publishing Ltd.

³ Nestling at the foot of the Lomond Hills in Fife, Scotland, House of Falkland is a two-storey country house, in the Jacobean-style. House of Falkland is a resource of international significance. The House is an 'A' listed building designed by William Burn (a pre-eminent Victorian country house architect), built between 1839–1844 with the exterior and the landscape created by Alexander Roos; the internal decoration commissioned by John Patrick Crichton-Stuart, Third Marquess of Bute, a great Victorian patron of the Arts who installed works by Robert Weir Schultz, Horatio Walter Lonsdale, and others.

⁴ For further information about this aspect of the research, see Follett, G. and Valentine, L. (2010). *Future Craft*. Dundee, Scotland: Duncan of Jordanstone College of Art and Design, University of Dundee. Details available at www.futurecraft.dundee.ac.uk/ Accessed January 2011.

⁵ For further information about the international conference and exhibition entitled New Craft Future Voices, visit www.newcraftfuturevoices.com. Accessed January 2011.

⁶ For the purposes of brevity this paper not offer a detailed report of Follett's contextual review and the other researcher's studies. A fuller discussion is offered in the 'Future Craft' research exposition catalogue, available via www.futurecraft.dundee.ac.uk. Accessed January 2011.

⁷ Stevenson's PhD is entitled, *Participatory Craft: a product development method for professional makers of contemporary craft* and is due for completion in June 2012.

⁸ For further information about the V&A at Dundee initiative visit www.VandAatDundee.com Accessed January 2011.

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What is the concept of core?

The term “core” is frequently used to refer to a body of knowledge which consists of essential concepts, theories, and research methods in a discipline (D’Antonio, 1983; Keith and Ender, 2004; Zechmeister and Zechmeister, 2000; Wagenaar, 2004b). Some commentators regard the core of a discipline as being part of an educational curriculum thought necessary for all learners and comprising “required” courses, as opposed to “electives” or “variables” (Bossing, 1955). Many disciplines, such as sociology, political science, psychology, history, and geography, have searched for a core in their disciplines, yet there has been limited research conducted regarding such a core (Wagenaar, 2004b; Zechmeister and Zechmeister, 2000). The majority of work conducted in terms of developing the concept of core has been undertaken by sociologists from an educational perspective. There has been a little research on core in the cognate disciplines of fine art (Corner, 2005) and art and design as an integrated discipline (Alison, 1982); both focus on the development of a core curriculum in each respective subject area.

In design, there has been limited research looking at its disciplinary core. In part, this can be attributed to the fact that researchers do not utilize the term “core” when referring to an essential body of knowledge, instead they employ different language in such contexts, such as the principles or nature of design. However, such work is usually limited due to the fact that it is more concerned with the aesthetics or practice of design (Pye, 1995; Mayall, 1979; Lidwell, Holden, Butler and Elam, 2010), rather than looking at design as a whole or as a discipline. This study aims to establish the need to develop approaches to identifying the core of design which will serve as a starting point to finding out what the core of design really is. Here, an important and initial question arises: what approach to the core of a discipline is suitable for design?

According to Wagenaar (2004a), there have been two different approaches to establishing the core of a discipline. One is the “discipline as science” approach, which promotes core in order to enhance the scientific credibility of a discipline. For example, in sociology, Keith and Ender (2004) believe that greater accumulation in the core and a greater number of core concepts will promote their discipline as a science. There was a desire to ‘scientise’ design in the design-method movement of the early 1960s (Cross, 1984, 2000; Broadbent, 2003). However, this movement was criticised because design and science are different kinds of activity (Cross, Naughton and Walker, 1981). The design-science relationship is still controversial. The other approach to core is the “discipline as major” approach, which primarily promotes core as a means to facilitate in-depth study by students. This approach is based on the general consensus that a discipline should include a degree of core knowledge and skills in order to be an academically distinct field of study. However, this approach also has problems when applied to design since it is hard to say that there is an agreed body of knowledge across all the sub-disciplines of design, in spite of the many attempts to build a coherent body of knowledge within design (Love, 2002, 2005; Friedman, 2000, 2003; Poggenpohl, Chayutshakij and Jeamsinkul, 2004; Hatchuel, 2001). In this sense, it would be necessary for design to adopt an approach to core that is different from what has been developed in other disciplines.

Design as a discipline

Design has various meanings and interpretations, depending on the context and purpose of those using the term (Heskett, 2002; Walker, 1989; Julier, 2008; Best, 2009; Borja de Mozota, 2003; Sparke, 2004). In its extreme form, design can be defined as an activity that all people perform to some extent (Potter, 2002; Heskett, 2002; Thackara, 2006; Papanek, 1985). To narrow its scope, design can be seen as a process – an activity with specific goals and procedures – often described as a problem-solving process (Simon, 1969). This process often involves people, objects, and culture, where design can be regarded as a phenomenon (Walker, 1989). In a narrower view, design can be seen as a discipline (Buchanan, 1998; Cross, 2000; Archer, 1979) which has its own intellectual culture that is distinctive from other disciplines, such as the arts or sciences. Most of this study adopts a view of design as a discipline since the core of design that this study is examining is something specific rather than something broad.

Design as a discipline is hard to define, not only because it involves a wide spectrum of professions, such as product design, graphic design, interior design, and service design, but because it is interrelated to other disciplines. QAA Subject Benchmark Statement (2008: 6) makes it clear: “There is no single definition or methodological approach to the (design) discipline, and there are no limitations in terms of interdisciplinary relationships”. Additionally, some researchers put emphasis on the interdisciplinary aspect of design, such as design management (Cooper and Press, 1995; Borja de Mozota, 2003; Best, 2006), design thinking (Brown, 2009), and service design (Kimbell, 2010). Simon (1969: 55-6) claims that design is the “core of all professional training” and that this interdisciplinary nature of design is something that distinguishes the profession from other disciplines. In contrast, other authors regard this interdisciplinary aspect of design as a challenge for the design discipline, claiming that design should be understood as an independent discipline with its own theoretical basis (Buchanan and Margolin, 1995; Margolin, 1989, 1992; Love, 2002; Friedman, 2000; 2003). Cross (2000: 97) notes the “paradoxical task of creating an interdisciplinary discipline”. He argues that design has its own appropriate intellectual culture, which concentrates on designerly ways of knowing, thinking, and acting (Cross, 2000, 2006). The important point here is that there is a common consensus that a discipline must have independent forms of knowledge and distinct ways of knowing that are particular to the awareness and ability of its practitioners.

Design theory and practice

Since the emergence of design as a discipline is relatively recent (Buchanan, 1998), there has been little progress in terms of building theories of design (Love, 2002; Friedman, 2003; Hatchuel, 2001; Hatchuel and Weil, 2009); instead, most design theories are drawn from other disciplines, not from within itself (Andruchow, 2010). Many researchers agree upon the lack of common theoretical foundations across the design professions (Buchanan, 1995; Margolin, 1989, 1992; Poggenpohl, Chayutsahakij and Jeamsinkul, 2004; Love, 2002; Friedman, 2000; 2003). However, Love (2002) claims that there are concepts and theories that constitute core areas of a discipline relating to designing and designs, as being distinct from other disciplines.

There are several problems that hinder constructing theories in design, such as ambiguous terminology (Andruchow, 2010), epistemological contradictions (Love, 2005), and a failure to develop grounded theory out of practice (Friedman, 2003). Despite the obstacles in developing theories of design, the importance of theories for design practice has been increasing. For Friedman (2003), design theory involves designers' ability to analyse and synthesise, and to build broad principles to solve many kinds of problems in unique design situations, since design theory is a critical tool that helps practitioners understand and tackle the complexity of design.

Design practice involves the various methods and tools that are required to create designs (Lawson and Dorst, 2009). Specifically, there are a number of visual representation skills that are used throughout the design process, such as drawing, modelling, prototyping, photographing and so on. Lawson (1980, 2004) acknowledges that visualization skills are central to all designers. Recently, design practice has begun to shift away from objects (manufacturing) towards social (service) and organization (management), thus creating more complexity in its practice or process (Kimbell, 2009) as well as requiring more expandable knowledge creation (Hatchuel, 2001), which design theory can offer or facilitate.

In short, design as a discipline involves a rich relationship between theory and practice, between how things should be and how things are, between tacit knowledge and the ability to visualize tacit knowledge and take it forward into artefacts or services. This approach to design is in line with the position on science and scientific methodology held by Olaisen and Friedman (2000). This intimate relationship between theory and practice in design suggests that the intersection between the two may imply something about the core of design, at least something that suggests a way to approach the core of a design discipline.

From the above discussions, two hypotheses for this study emerge:

- 1) It is necessary to develop designerly ways of approaching the core of design, which are different from other disciplines.
- 2) The intersection of design theory and practice reveals some important aspects about the core of design.

Research design

To address the above hypothesis, the following section outlines the approaches to research. Detailed below are research structure, methods, and participants.

Structure

As shown in Figure 1, a search for the core of design being the basic research interest, this study, as a starting point, aims at developing designerly approaches to the core of design. Through an analysis and synthesis of the literature, two research hypotheses are suggested. Research was planned to explore the hypotheses by comparing two different perspectives of the core: a design-theorists' perspective and a design-practitioners' perspective. A conceptual framework for the identification of designerly approaches to the core of design will be suggested.

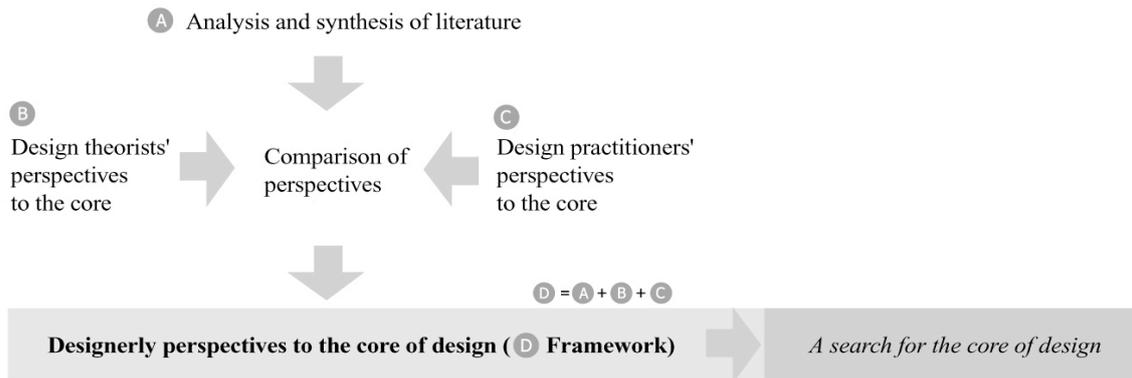


Figure 1 – Research Structure.

As the literature suggests, the meaning of core can vary according to the different intellectual cultures in different disciplines. For this reason, this study did not predetermine the meaning of core before conducting the research, rather it was left open to possibilities, depending on the answers from participants. This seems to be effective in the sense that it allowed participants to think in their own ways, based on their own experience, and allowed the researcher to obtain unlimited and in-depth ideas from participants in order to establish appropriate concepts of core for this and further studies.

Methods

A qualitative semi-structured interview method was employed, with open questions. Interviews of 45 minutes to an hour long were conducted with six UK design professionals. Five interviews were conducted face to face, and one via a video call. All the interviews were audio recorded and transcribed in preparation for qualitative thematic analysis. A thematic analysis method is appropriate to exploring theoretical-based research hypotheses as this has the advantage of flexibility, which allows the researcher to draw on a rich and detailed account of the data (Braun and Clarke, 2006). It is also effective in the way that it can highlight similarities and differences across the dataset. Table 1 describes the process of analysis.

<p><i>Stage 1</i> Descriptive coding</p>	<p>Read through transcript Highlight relevant material and attach brief comments Define descriptive codes Repeat for each transcript, refining descriptive codes</p>
<p><i>Stage 2</i> Interpretive coding</p>	<p>Cluster descriptive codes Interpret meaning of clusters, in relation to research questions and disciplinary position Apply interpretive codes to full dataset</p>
<p><i>Stage 3</i> Overarching themes</p>	<p>Derive key themes for the dataset as a whole, by considering interpretive themes from theoretical and/or practical stance of project Construct a diagram to represent relationships between levels of coding in the analysis</p>

Table 1 – Process of thematic analysis (King and Horrocks, 2010).

Participants

Based on proposition (2), this study was structured to explore the intersection between theory and practice in design. For this reason, participants in this study came from two main sources, at each end of the design theory-practice spectrum. The viewpoints of the participants are compared in terms of similarities and differences. With the design-theory and design-practice areas acting as categories for the selection of participants, three design-theorists (DT) and three design-practitioners (DP) were selected from each category. Participants who have diverse backgrounds in design were selected, since this study is looking at the design discipline as a whole, rather than focusing on one specific professional area. All the three design-practitioners were selected from amongst design associates of the UK Design Council. Table 2 shows more details about the participants.

Group	Participant	Career/Work experience	Background
<i>Design-theorists (DT)</i>	DT1	About 15 years career in academia and about 7-8 years work experience	Furniture, Industrial Design
	DT2	About 15 years career in academia	Art History, Design History
	DT3	About 7-8 years career in academia and about 7-8 years work experience	Engineering Design
<i>Design-practitioners (DP)</i>	DP1	More than 9 years work experience (commissioning producer and project manager)	Architecture
	DP2	More than 20 years work experience (design strategist)	Ergonomics
	DP3	About 4 years work experience (co-founder of design consultancy)	Design Studies

Table 2 – Participants in this study.

Interview findings

The thematic analysis of the interviews was conducted separately on the DT and DP transcripts. However, three overarching themes, which characterize the key concepts of the results, were identical in the two separate analyses. Following are three themes identified from the analysis:

- Theme 1: Complexity in design
- Theme 2: Implications for the core of design
- Theme 3: Relationship between theory and practice

The findings of the interviews will be discussed in detail, below each theme, with diagrams that shows levels of coding in the analysis.

Theme 1: Complexity in design

Both design-theorists and design-practitioners agree that there is complexity in establishing a common understanding of design, which hinders the establishing of a unified body of knowledge within the design discipline. This complexity involves various definitions of design, different views on design as a discipline, and anxiety within it (Figures 2 and 3). Specifically, the various meanings of design, held by different stakeholders in design, create challenges for design practitioners when they are working with clients, as DP3 stated: “we do not really use the word design, because it is confusing ... they (clients) would presume wrong things and not get it”. However, at the same time, this complexity is something that designers have to deal with, and DT2 described this: “they [designers] need to engage with the complexity ... they have to understand the complexity of their world in a way, then the designer would be the one who synthesizes stuff, makes it useful, understandable, and usable”.

The views of the two groups are slightly different in terms of commonality across design disciplines. Whilst the two practitioners emphasized that there exists something that all design disciplines have in common, the two theorists talked about not only similarities across design disciplines, but also differences between them. For example, practitioners referred to skills, process, and communication as the commonality of all design disciplines and DP3 stated the importance of crossover between disciplines. However, DT3 questioned the commonality between all design disciplines, mentioning, “I would say there are strong resemblances between different design professions because of studio education ... but the way a whole set of practices, stories, stuffs, and skills, take shape is different in product design and communication design, similar, but different”. This participant even has doubts about design being one discipline, arguing that design is “lots of professional practices which are institutionalized in different ways”. DP2 also expressed doubts about whether design is a discipline by stating, “It is beyond discipline, it is not a discipline its own right, it’s just something that works”. The participants’ views on design as a discipline varied, depending on how they use the term ‘discipline’.

The complexity of design indicates that it is difficult to establish a common understanding or knowledge of design, and thus a common understanding of its core. Going further, DT2 raised questions about the rationality of looking at core and DT3 was not sure whether design has a core. However, there were also views that address the need to identify the core of design in order to tackle difficulties and challenges in the discipline, as supported by DP1 who noted that the “deskilling that comes when you get the overlap between disciplines and the loss of knowledge within a discipline ... it is certainly an interesting time to be thinking about it (core)”.

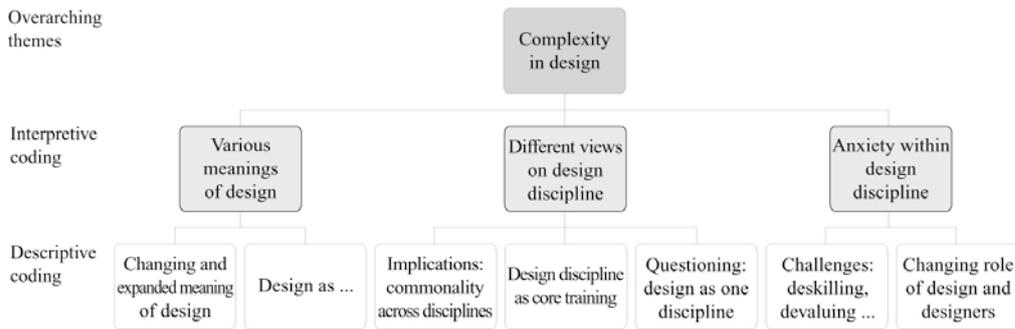


Figure 2 – Theme 1 Coding diagram in the analysis of DP

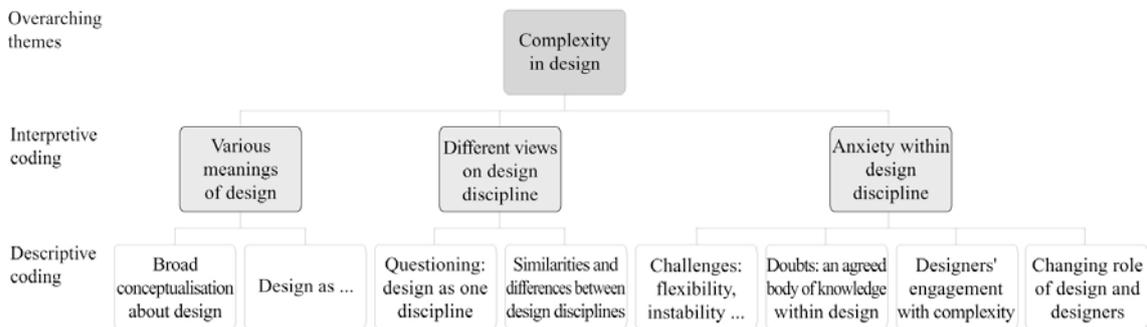


Figure 3 – Theme 1 Coding diagram in the analysis of DT

Theme 2: Implications for the core of design

Under this overarching theme, several approaches to the concept of the core have been identified. As mentioned previously, the term “core” was not explained to participants before their interviews, rather they were asked a question about what the concept of core meant to them. This allowed participants to give their own opinions on how to look at the core and what the core is. The results reveal that their perceptions of the core of design are sometimes totally different, depending on each participant’s perspective. However, there are some important implications for the core of design that stem from identifying similarities and differences between their various perspectives.

From the practitioners’ side, they were using the term “core” as something to do with good design or that designers have in common, a set of values and skills, the role of design, and the uniqueness of design, which is something people outside of design cannot offer (Figure 4). For theorists, the concept of core was used to refer to a way of working (thinking) as a designer, a model by which designers can work, essential theories and concepts (a body of knowledge), a commonality across all design disciplines, a whole set of practices, and something different from other professions (Figure 5). Both participants share a view of core as something that all designers have in common, regardless of their specialties, and also that other disciplines cannot offer. According to their own approaches to a core, various potential cores were described, such as creativity, improvement, quality of change, communication, studio practice, ability to draw, visualize, ideation, and so on. Also, practitioners indicated that there are

some obstacles to identifying the core of design, while some theorists raised questions about the rationality of identifying a core for design.

As shown above, participants rarely mentioned core as a body of knowledge in design. Although one participant (DT3) referred to some important theories and concepts of design as being the core, that person also noted that the core is not only about those theories and concepts, and that there is much more. It can be argued that the participants in this study considered core from a more practical perspective, relating to something important in design practice – e.g. creativity, studio practice, ability to draw – or something that design can bring to people or society by practising design – e.g. improvement, quality of change, communication. In particular, DT1 emphasized a practical perspective towards a core and remarked that “I would have thought a core subject would be the ability to draw ... the ability to draw sufficiently to communicate ideas to somebody else, and also to have a dialogue with yourself in the way that you design”. This evidence suggests that practice-based learning or knowing is crucial for designers and that this can be an important aspect of the core of design.

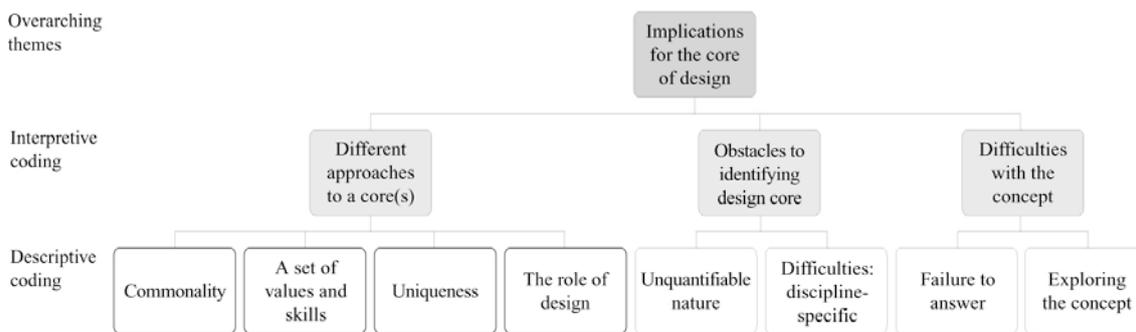


Figure 4 – Theme 2 Coding diagram in the analysis of DP

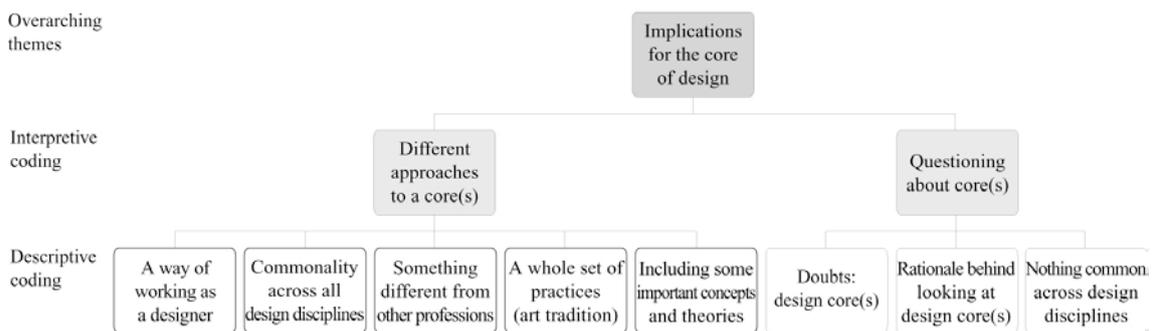


Figure 5 – Theme 2 Coding diagram in the analysis of DT

Theme 3: Relationship between theory and practice

Based on a consensus of the close relationship between theory and practice among participants, differences emerge in their ideas about how much designers engage with theory when they are practising. Specifically, practitioners regard themselves and other designers as having limited engagement with theory (Figure 6). Instead, they indicate

that they are engaging with the world through tangible things. During the interviews, they often disclosed unfamiliarity with theory, and even doubted the use of theory in practice. Thus, it can be concluded that there are gaps between theory and practice for practitioners; as DP3 noted: “we don’t have a design theory ... things like theory and methodology seem very simple in academia ... but, in practice, it is not translated that simply”. On the other hand, theorists presented not only their deep associations with theories, but also designers’ engagement with them (Figure 7). One theorist (DT3) stated: “I would not be able to separate theory and practice ... I think they [designers] are engaging with design theories ... maybe you have never read about design theory, but you have an idea about design and how design works ... we have lots of theories”. DT1 also pointed out the use of theory in practice which may not be recognized.

This presents a clear distinction between the participant groups in terms of the explicit use of theory in practice or the articulation of theory. This may be attributed to the fact that the design discipline has not established a set of theories and concepts in its own terms, and that most of those which do exist were drawn from other fields of study; thus, these are implicit.

In this study, both design-theorists and design-practitioners seemed to be aware of the importance of theories, but in slightly different ways. While practitioners put emphasis on theories in design education, theorists acknowledged the significance of theories in design practice. There was also agreement on the view that design theory is something evolving, fluid – not fixed. This is mainly associated with constantly-changing design situations, as one of the participants (DT2) commented, “I find that theorizing design is very difficult and problematic ... as we know, design is adapted, is constantly about new situations”. This person believes that designers’ ability to theorise within practice should be noted. Since most participants stressed the changing and adapting aspects of design, the approaches to the core of design should reflect this.

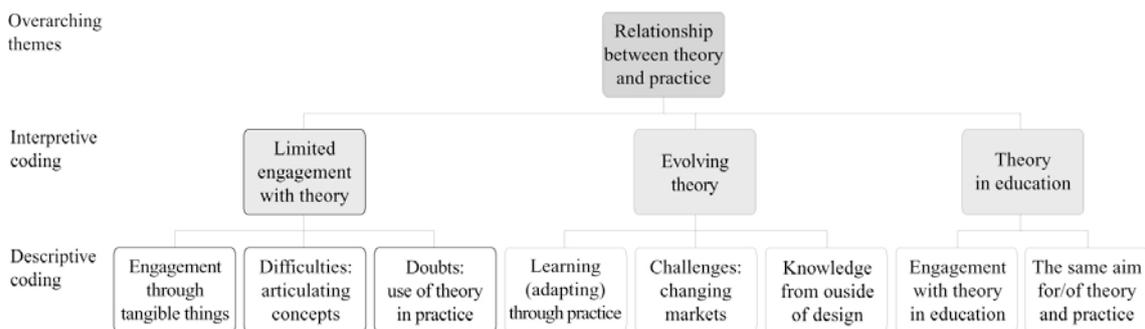


Figure 6 – Theme 3 Coding diagram in the analysis of DP

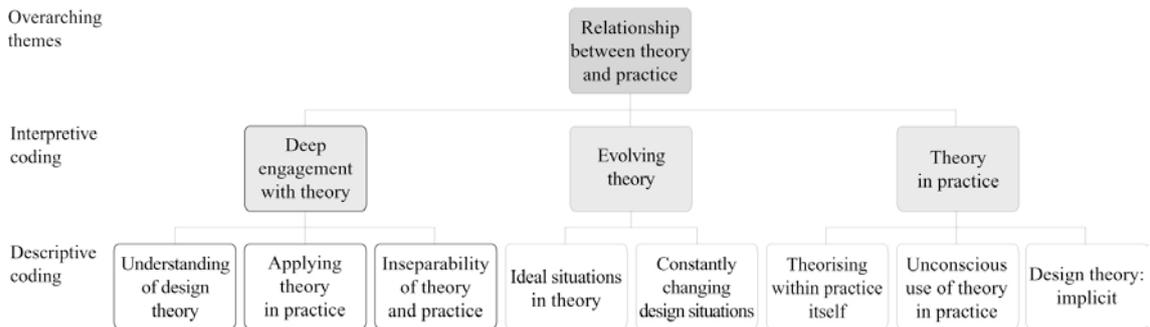


Figure 7 – Theme 3 Coding diagram in the analysis of DT

Discussion of the core of design

So far, the empirical data collected through a series of interviews have been analysed in terms of the similarities and differences between the design-theorists and design-practitioners. This research is founded upon the hypothesis that the intersection between the two areas can reveal insights into the core of design. There are several issues relating to identifying the core of design that have been identified, and which are discussed in detail below.

Firstly, the general agreement found in the literature about what the concept of core in a discipline is – a body of knowledge, which consists of essential concepts, theories, and research methods in a discipline – has not been applied to the design discipline to the same extent as in other discipline areas. The results of the analysis demonstrate that both design-theorists and design-practitioners have been questioned about an agreed body of knowledge within design, and that they share views from which it is difficult to build a coherent body of knowledge about design. This is in line with the findings from the literature on design which suggests that, although many researchers in design have attempted to build a theoretical basis for design, this has not yet been accepted (Love, 2002; Friedman, 2003; Poggenpohl et al., 2004; Hatchuel and Weli, 2009). In part, this can be attributed to the complexity not only within the design discipline, that hinders any common understanding or knowledge for both theorists and practitioners, but also outside design, such as people who work with designers. There is further evidence that the idea of design as one unified discipline is not shared by all participants; for some participants, design disciplines are so fragmented, containing many distinct professions, that it is hard to find or build commonality. Taking all these issues into account, it is asserted that the concept of a core which is appropriate for design may be different from ones that have been used in other disciplines. This task is linked to the issue of which approaches to a core are appropriate for design, and also justifies developing designerly ways to constructing the concept of core, rather than those developed in other disciplines – for example, “discipline as science” and “discipline as major” approaches.

Secondly, a key finding from the interviews is that most participants in this study rarely associate a core with a theoretical basis for design. Respondents regard the notion of core from a more practical perspective, rather than an academic one. As discussed earlier, only one participant referred to important theories and concepts of design as being a core. Others focused on the practical side of design, such as something that exists within design practice or something that design can offer by practising design. One example is designers’ ability to draw, as DT1 mentioned, and as the literature

suggests (Lawson, 1980, 2004). These practical approaches to a core are, again, related to how they look at design as a discipline, since some participants do not really consider design to be a discipline, but consider it rather to be several distinctive professional activities or even just something that works. In this sense, theory is considered a means to facilitate design practice in a better way, constantly evolving through adapting constantly changing design situations that occur in practice. One theorist (DT1) emphasized the training of designers in particular (designerly) ways, rather than teaching them specific concepts and theories, since new knowledge arises as the world changes and as design changes. More emphasis is placed on practice, specifically when considering the relatively short history of design as a research field and its initial studio-practice tradition.

Thirdly, although the participants share an awareness of the close relationship between theory and practice, as shown in the literature, practitioners do not explicitly use theory. This is evidenced by analysis of the interviews, which indicates a varying degree of engagement with design theory between the two groups. Practitioners seem to be unfamiliar with design theory, often having difficulty in explaining theoretical concepts. Since this study was initially structured based on theoretical positions, they might thus have difficulty in articulating such concepts during the interviews and need more time to think about the concepts, answer the questions, or sometimes ask for clarification. However, in some ways, they are interacting with design theories unconsciously, since design theory is implicit rather than explicit in their thinking. In some instances, practitioners may feel they have limited association with theory because they do not engage much with theoretical vocabulary on a day-to-day basis. Perhaps they are familiar with the concept, but not with the term. In this sense, constructing common language (intersections) between design theorists and practitioners is an essential prerequisite for establishing a design core. The Bauhaus, often credited as the pioneer of modern design education, tried to combine theory and practice in design, teaching students to employ the knowledge and skills that they had acquired to create design artefacts (Sparke, 2004). From this tradition, design in education became structured and developed; however, such a design-theory and design-practice relationship has not fully prospered so far as can be seen in this study. This, again, can be justification for developing designerly ways to approach the core, which is different from other approaches.

In summary, the key implications for the core of design, which have been drawn from this discussion, are as follows:

- A concept of core which is appropriate for design needs to be defined; accordingly, developing designerly approaches to the core of design is necessary;
- Potential approaches to the core of design can be more practice-oriented, rather than theory-oriented, which can be claimed as being ‘designerly’;
- The language of design-theorists and design-practitioners is different; thus, common language needs to be refined so as to be appropriate for different audiences.

Based on these implications, a conceptual framework, which features potential designerly ways to identifying the core of design, can be suggested (Figure 8). This framework has been adapted from the “Venn diagram of thought and action” by Han et al. (2010), which illustrates the concepts – “thoughtal-action” and “actional-thought” –

that exist at the intersection of thought and action. In Figure 8, the design discipline bounds both design-theory and design-practice, and the two circles are situated within design-discipline territory, representing design-theory space and design-practice space, respectively.

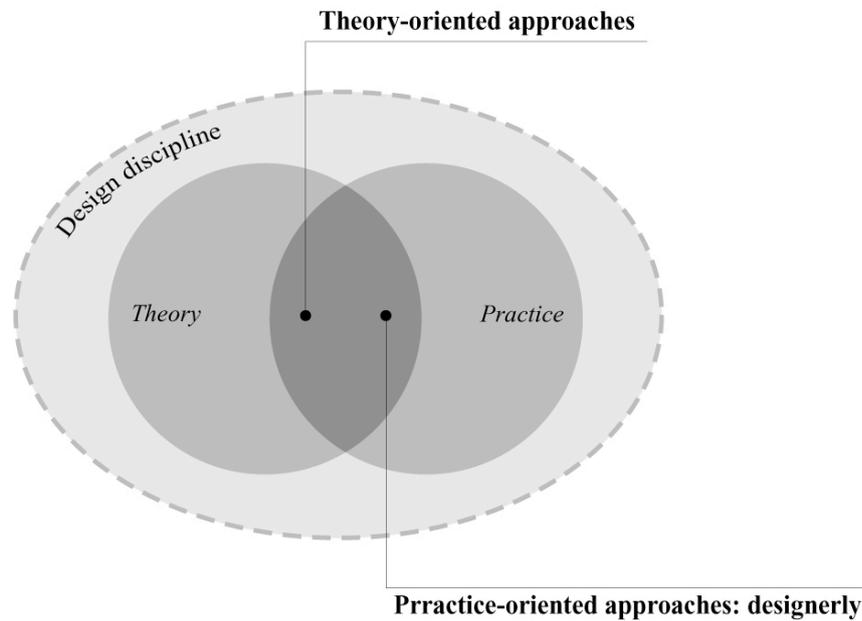


Figure 8 – A framework for developing designerly approaches to identifying the core of design

The authors assert that the core of design exists at the intersection of theory and practice, in which there are two different types of approaches to the core of design: theory-oriented approaches and practice-oriented approaches, with the latter being considered ‘designerly’. Theory-oriented approaches mean that practice has been informed and performed through conscious and explicit uses of theories. Theories are generated and evolved by practising design within practice-oriented approaches. Both approaches can be used to establish the core of design; while theory-oriented approaches are more similar to other approaches of disciplines outside design, practice-oriented approaches are regarded as more designerly approaches, which are different from other disciplines. Identifying the core of design requires enhancement of the intersection between the areas of theory and practice through building common language or knowledge between the two.

Conclusion

Many studies note that design has not been clearly defined. Also, design as a discipline has not yet established itself as a concrete field of study as is the case in other fields with longer histories. One reason for this is that design has a wide range of different sub-disciplines, which have their own specialties. Another reason is that today’s trend in design has become more interdisciplinary in many respects, creating new areas of study, such as design management, design thinking, and service design. This trend partly stems

from the increasing interest in design from other disciplines, specifically management. The interdisciplinary aspect of design is important and beneficial in the sense that it causes design to be more diverse and to have a wider area of contribution. However, at the same time, it creates a confusing picture in terms of the exact meaning of design or the status of design as a discipline, leading the boundaries of design to become more blurred and thus weakened. Hence this study, which looks at the core of design, is both timely and helpful in seeking a better understanding of design and what designers do.

This paper has aimed to establish the need to develop designerly approaches to identify the core of design. It began with an analysis and synthesis of the literature, and compared two different perspectives of the core: a design-theorists' perspective and a design-practitioners' perspective. Having analysed empirical data from a series of interviews, it was identified that in order to establish the core of design, it is necessary to develop designerly approaches to the core through enhancing the relationship between theory and practice and building a common language or understanding between the two, and between design and non-design. It then offered a conceptual framework which suggests practice-oriented approaches that are claimed as being 'designerly' in order to identify the core of design. Those approaches will help in the search for a core of design which will, in turn, contribute to establishing design itself as an independent field of study with its own significance, thus ultimately making a real contribution in relation to other fields of study and society. Also, it must be noted that this is a foundation to the need to develop designerly approaches, which is something that can help to establish the core of design.

Limitations

This study has several limitations. First, the participants from the design-practice area do not regard themselves as designers; rather, they prefer to describe themselves as design strategists. In further work, it will be necessary to investigate what designers who actually do make things think about the core of design. Second, the participants' backgrounds only cover a few of the sub-disciplines of design, thus perspectives from more diverse fields will be required to increase the validity of the study. Third, this study has used concept-driven coding when analyzing the data, in which method codes do not come from the data, instead they come from the literature, previous studies, etc.; thus this might influence the way the results of the interviews, as well as the participants, appear in the interviews.

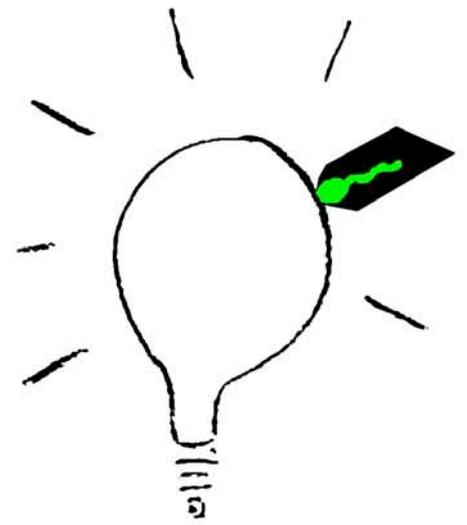
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DESIGN FOR NEXT

Which is the Design capability to produce Useful Innovation?

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Abstract

Nowadays, Society is constantly looking for innovation. This research of innovation is due both to a sort of ‘addiction’ triggered by the accelerated progress of the 20th Century - which has create a real cultural and economic ‘dependency’ – and to a need of more sustainable solutions in order to improve those wrong habits caused by the technological innovations. At the same time, current Society, more than past, assigns to Design the specific role to define its material (and immaterial) expressions: Design is the bridge between the consumer questing for the experiential and the company trying to meet that appetite with an offer that presents the new in a user-friendly and innovative way. That means Design has the responsibility to generate, thanks to its creative capability, innovation.

Therefore, if the cultural and economic debate considers Design at the core of the knowledge economy as one of the copingstones of an innovation system, the questions are: Which is exactly the creative capability of Design? How the Design creativity can generate innovation? Which of the established categories of innovation - incremental, radical or fundamental – is generated by Design?

The paper report a didactic research focused on the capability of Design to generate useful innovation. This didactic research, in order to recognize and define the Innovative level of the Design activity, has explored the combination of three key aspects:

- the generative process that focuses on the context (of production but above all of consumption);
- the rearrangement made with cultures (the individual ones of the designers and the collective ones of society);
- and the production of connections.

Exploring the varying configurations between these three aspects, a necessary relationship with other fields of knowledge has been developed, especially with those fields of knowledge traditionally delegated, more than Design, to generate Innovation.

From a methodological point of view, this research recognized as the relationship between design and other fields of knowledge lies in a range with what we call as 'generative creativity' at one extreme and 'deductive creativity' at the other one: the first entails a process of stimulating to produce innovative proposals, which revolutionize the present in order to change the future, the second involves revamping cultures and contexts to bring about proposals, which constitute an addition to the present.

From an experimental point of view, the didactic research had demonstrated that isn't important to ascertain which of the two relationships is the most prolific but it is interesting to note the current wealth of approaches, especially regarding social and cultural sustainability, which are increasingly removed from any reasoning involving coded Design approach or any validated aesthetics.

Request of Innovation

Nowadays, Society is constantly looking for innovation.

Current society is invested by continuous processes of change due to globalization, rapid technological evolution and to reconfiguration of the political and territorial balances. These conditions define a scenario where lighter, non-unique and non-homologated cultural models progressively grow up.

In fact, compared to Modern Era, where a plural model of knowledge made up of autonomous specializations, today we see the collapse of all disciplinary notions and the epistemic boundaries are less and less clear.

According to the concept of 'liquid modernity' (Bauman, 2000) where the social forms and institutions no longer have enough time to solidify and, therefore, cannot serve as frames of reference for human actions and long-term life plans, at the same way, current knowledge no longer have enough time to combine themselves and they run out within an quickly overlap of information, thinking and statements.

The result is a continuous redefinition affecting all knowledge, especially focusing on the level of impact between knowledge and innovation (Appadurai, 2000), due the unexpected reactions in the social behaviour (P. Taleb, 2007).

Therefore, a need to reinterpret the capacity of the various forms of knowledge to create innovation seems to be emerging.

But, if the capability to generate innovation involves, in holistic way, all cultural, economic and social features, today it appears particularly crucial.

In this way, we can assert that, today, there is a need of 'high' innovative contents within processes of change; and, the role of the scientific research is more and more scrutinized and judged for its ability to trigger real positive impact (especially in the face of socio-economic crisis like the one we are experiencing in recent years).

Knowledge must be able to change themselves rapidly in order to reply to the constant social, economic and political stimuli, with a great flexibility and adaptability.

The relationship between Knowledge and Innovation

This need of innovation brings into play the relationship between research system, which produces knowledge, and social system, which benefits of innovation: society asks to scientific research system to push back the boundaries of understanding and creating new opportunities; and, at the same time, the own aim of the scientific research system is to improve its innovative effects on the social system.

Although these two functional aspects seem to be convergent, there is a hidden point of incompatibility in the dilemma of 'who comes first', or rather who determines what.

Should society, taking its cue from economic choices, clearly points out the expected methods and results, or should the research system, carrying out research and thus generating new knowledge, guides and maps out a future for society?

In the first case, the fear is that research is far removed from real issues and do not have an influence on society. In the second, the main concern is research being subordinate to purely market-based thinking and working as simple 'providers' of extremely short-term services, which once again means they have no real influence.

Therefore, the big contemporary issue seems to be, also, about the level of independence between research system and social and economic system, which is waiting to exploit it and invest in it. (and then between knowledge and innovation)

Naturally each branch of research has developed and continues to experiment with specific models of the relationship between its knowledge and social innovation, which are in some cases closely tied to production processes and, in others, more autonomous or even completely unrelated.

Design, due to its nature of 'bridge' between the social requests and the production system, seems embody this relationship: in social and cultural way, in fact, Design has the responsibility to generate new material and immaterial context, using its creative capability.

But, as we know, Design is a truly contemporary profession (it emerged in the 1900s and only established itself as a scientific discipline in the second half of the century): that means, on one hand, a constant update in terms of production and society, and on the other, a continual alteration of its boundaries and methods.

This means that for Design is still difficult to identify itself as a crystallized branch of knowledge, often finding itself or in the extreme situations of either limitative 'specialization' or worrying 'generalization'.

One only need think of the numerous areas in which Design now operates (products, components, fashion, lighting, graphic, web, packaging, ecology, retail, transportation, medical and more besides) within the shattering of the great dream of positivist consumerism when faced with the natural limits of environmental sustainability.

Therefore, within this ‘blurred’ condition of Design, how is it possible to exactly define the creative capability of Design? And to establish how the Design creativity can generate innovation?

To reply at these questions, we need to analyze the concept of ‘creativity’.

From the second half of the 20th century, neurological studies began to associate creativity with the concept of innovation, defining the former as an act that produces new ideas and the latter as the process of generation and application of creativity in a certain context. However, in 1996 T.M. Amabile underlined that innovation does indeed start with a creative idea and this is a necessary part of it, but it is not sufficient to make it applicable. In this way It was recognized the value creation path to innovation (Nonaka, Takeuchi, 1997) and the role of creativity within generation of new knowledge.

In particular, it was recognized that creativity is not able to generate innovation without applicability: it doesn't generate ideas and processes which radically change the established order and lead to unexpected adaptations if it is not based on preliminary skills and, above all, on knowledge of the rules to overcome.

This means that at the basis of system creativity must be an ‘epistemic community’ deeply rooted in the physical or cultural territories (Haas, 1992 – Rullani, 2004). Von Hippel (1988), analysing several types of ‘epistemic communities’ focused to innovation, has divided them in: cooperation community (user-to-user) and interactive community (user-to-communities) where members can act freely, and selective community (lead users) where members must have specific capabilities. But he recognizes that all of these are based on criteria of open knowledge and diffused cooperation, able to embody knowledge to generate new ones.

It is in these modality of ‘epistemic community’ that is possible to find and assess the Design creativity, opening a reflection that comprehends the external relations with the cultural, social and production system.

The symbiotic condition of Design Creativity

Design, more than other knowledge, in order to be innovative must contextualize its creativity: both within the system of activities that constitute the social context and within the wider system made up by the flow of knowledge generated by the other disciplines.

This means a kind of symbiotic state of Design research, due not only to its ‘young’ history, where is possible to identify two principal approaches.

One approach according which, Design research is based on practices from the social disciplines, which are more concerned with the observation of results than action, about the consequences on the behaviours of people rather than functional performance of objects (Cooper, 2010) (Imbesi, 2010) (Pizzocaro, 2010).

Other approach according which, Design research is closer to engineering disciplines, and that studies and experiment with technologies and processes in the constant drive for innovation (Branzi, 2010) (Marzano, 2010).

These different approaches, often, correspond at two typical level of research activity - basic research, the first direction, and applied research, the second direction – but, also, they are connected with different innovation results.

In fact, innovation can be categorised into three levels - fundamental, radical and incremental - each one progressively more significant and far-reaching.

Fundamental Innovation is not just the result of some knowledge but it generates a new one and causes a paradigm shift. Although this is very short definition, it is clear that fundamental innovation couldn't be a prerogative of Design research that, as we have seen, works substantially on recombining of approaches from other disciplines.

Instead, if radical innovation drastically changes existing knowledge and incremental Innovation entails step-by-step improvements of existing knowledge and technologies, due to its symbiotic state, Design research, each time, triggers different kinds of thinking, working, and risk taking, therefore, triggers different epistemic communities

Therefore, in order to achieve its innovation capability, Design faces on three key aspects during the creative process:

- the generative process that focuses on the context (social, economic, political);
- the rearrangement made with knowledge (of the others disciplines);
- and the production of connections.

The varying relationships between these three aspects trigger independent mechanisms of creativity. They lie in a range with what is known as ‘deductive creativity’ at one extreme and ‘generative creativity’ at the other.

The first involves revamping cultures and contexts to bring about creative proposals, which constitute an addition to the present, while the second entails a process of simulating them to produce creative proposals, which revolutionize the present.

- ‘Deductive Creativity’ absorbs the existing context, redefining its boundaries without radically changing it, and offers converging solutions;
- ‘Generative Creativity’, on the other hand, breaks down contexts, identifies weak or missing links and provides diverging solutions, thus altering the structure as a whole.

When Design is based on a deductive creativity, builds up a continual flow of information between the different parties on the ‘chain of values’; in terms of symbolic value, it means produce an incremental innovation for social behaviours.

When Design is based on a Generative Creativity, works on the interaction between scientific research and social demand for performance: in terms of symbolic value, it means produce a radical innovation for the whole environment: social, economic and productive environment.

Of course, there is a wide range of innovation possibilities between the two extremes of incremental and radical innovation. But it's clear that any successful incremental or radical innovation is possible only when Design is defined and identified within a specific context or, in other words, within which creativity – deductive or generative – is activated.

'Design for Next': an experimental evaluation

In order to pass from a theoretical dissertation to an experimental evaluation, a didactic project based on this vision of the relationship between knowledge, design creativity and social innovation, has been developed. This project involved the students of the postgraduate degree in Product Design of Sapienza University of Rome.

As asserted, considering that successful innovation must be defined and evaluated only within a specific 'epistemic community', the first assumption has been to develop the didactic project focusing only on one of two creative approaches. From methodological point of view, the didactic project has been divided in three steps.

The first, called 'research spheres', has been focused on the mapping-matching of the latest scientific researches: the aim has been to evaluate which could be possible areas of innovation.

At the end of this step, which has been developed involving experts from others disciplines, three areas of Innovation has been mapped:

- Techno-Biology, which includes all researches in the medical, biological and nano-technological sciences that work on the improvement of biological performance of vegetal and animal world (considering also the improvement of human performances);
- Green-Resource, which includes all researches in the physical, chemical and engineering sciences that work on the exploitation of alternative energetic resources;
- Communication-Tools, which includes all researches in the informatics and physical sciences (also the neurosciences) that work on the development of new communication tools between man and man and between man and machine (as in the robotic science).

The second step, called 'points of innovation', has been focused on the relationship between scientific research and productive innovation: the aim has been to recognize a possible field of experimentation where propose a goal of real innovation. At the end of this step, each teams described a 'market vision': a possible consumption opportunity for one or more connected results of different scientific researches previously individuated.

The final step, called 'meta-concepts', has been focused on strategic management of the relationship between scientific research-production-consumption: the aim has been to develop new concepts that could be not only present social and productive opportunities but, overall, addresses for new scientific research activities for Design and for other involved disciplines.

At the end of this step, the results have been presented to the experts involved in the first step, in order to verify the real capability to be stimulus for new research.

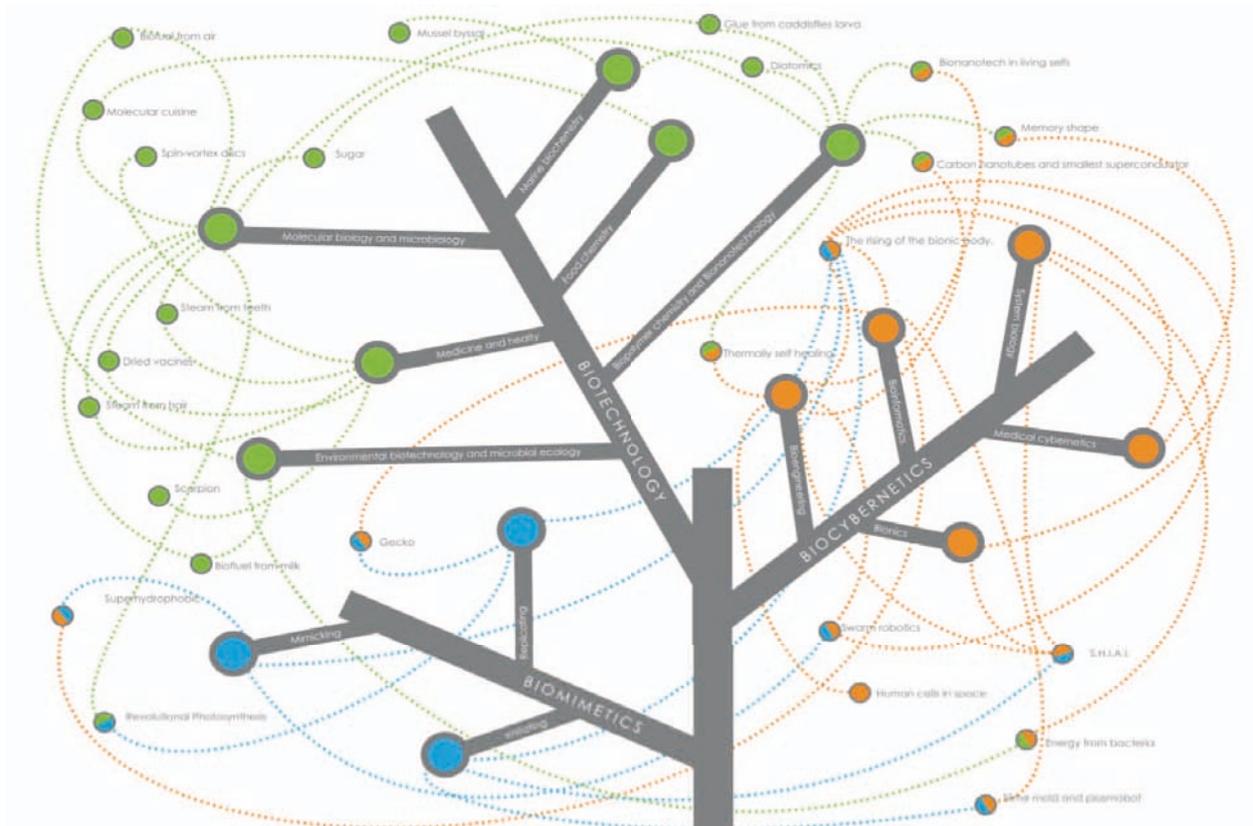


Figure 1 – One of results of the first Step. This is the graphical representation of the Research Sphere “Techno-Biology” where are indicated the relationship between several researches: each point indicates a research, the colors indicates within which of three research areas it is developed.

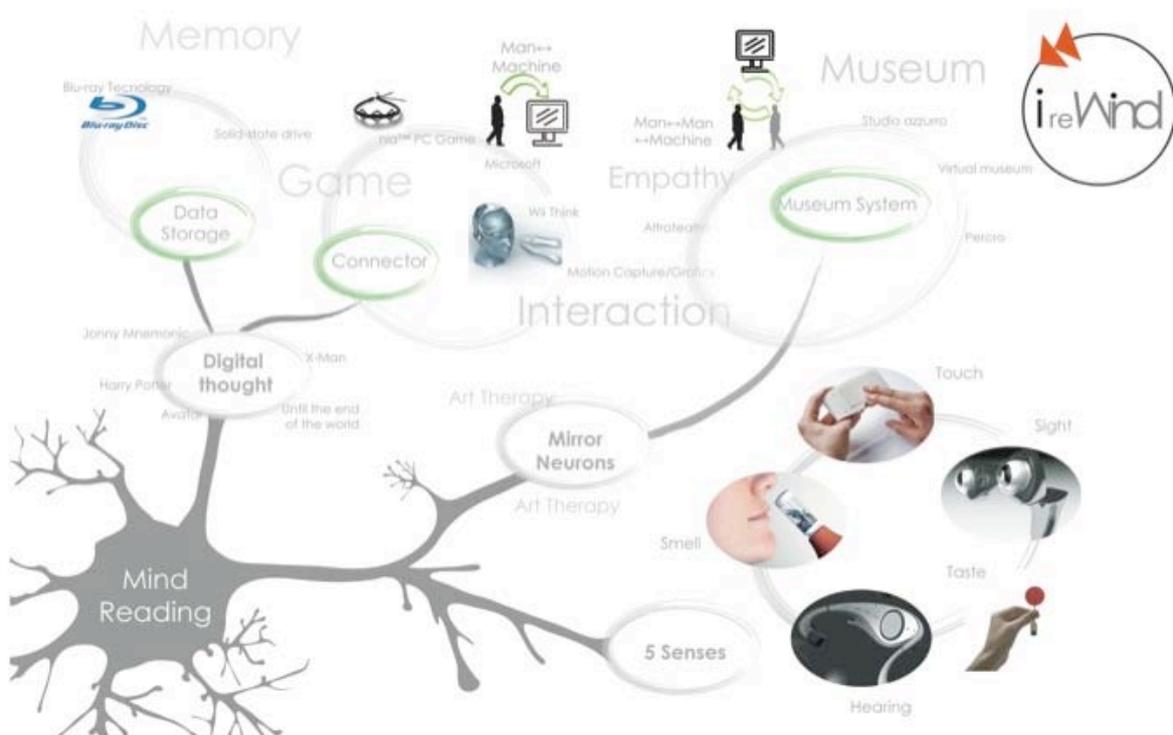


Figure 2 – One of results of the second Step. The students have linked some selected researches, discovered during the first Step, with those production sectors interested by the innovation opportunities of researches. Authors: Vincenzo Di Tommaso and Angela Giambattista.

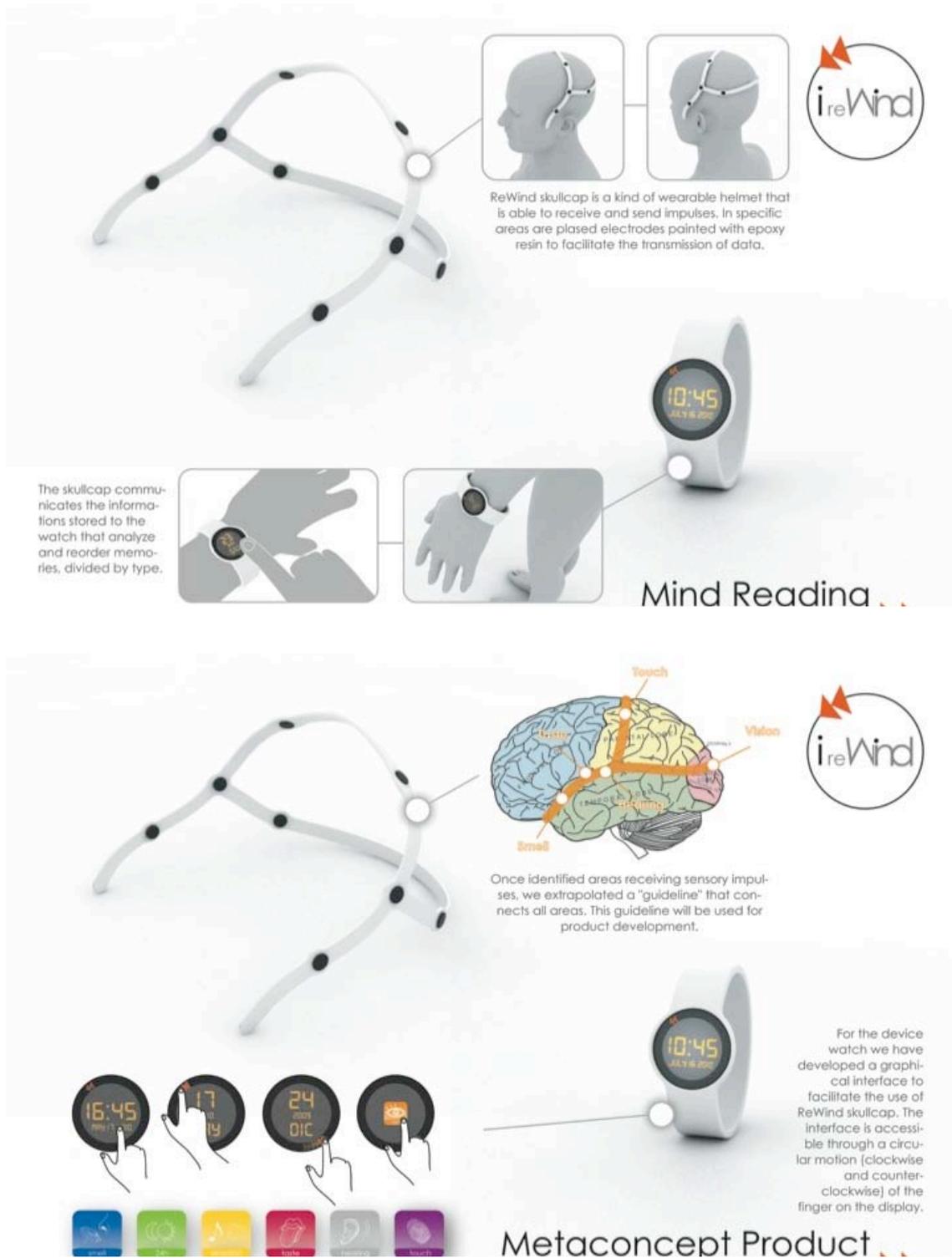


Figure 3 – One of results of the third Step. iReWind is a new communicator system based on some recent researches about the neuronal communication. The idea is to have not more computer or any other informatic appliance, but only an external memory able to record what our brain incorporates meanwhile we are doing, are seeing, are reading, etc. Authors: Vincenzo Di Tommaso and Angela Giambattista.

Conclusion

Beyond the level of interest of these concepts (of course, based also on the individual capability of single student) it has been possible to identify some common features.

The results are 'niches' of knowledge in which society is prepared to invest for the future, as are many keen-eyed business figures (Guellerin, 2010).

Therefore, it is clear that Design creativity can be more efficient if 'not to work in isolation' but independently and responsibly become part of a team with expansive know-how, carrying out creative activity with broad horizons. This interdisciplinary approach looks into both theoretical and practical aspects at the same time, underlining the responsibility of Design in production and socially too.

This means a paradigmatic passage from the 'autarky' of disciplines to a synergy of knowledge: a new interpretation of Design as a driver of genuine ecosystem strategies based on synergy between other disciplines.

In this way, Design become a form of transdisciplinary knowledge capable of developing broad know-how and visions for the society of the future

And Design creativity can converts specific and unique cultural forms in social practices widely shared and accepted and, therefore, to introduce, more then before, useful innovations in wider contexts.

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I wouldn't start from here

The importance of design thinking in setting a trajectory for innovation

Abstract

We live in a world where digital objects and services are part of a ubiquitous, pervasive, distributed and evolving environment. To produce even the simplest of these digital objects and services involves a vast array of skills and specialist domain expertise. Not surprisingly, given the reliance of these on code and computing capabilities, much of the development process is rooted in the traditions of the requirements-based, function-focussed approach of the business software industry. Yet increasingly innovation arises not simply from addressing the functional, rational, and commercial requirements of these objects and services, but through a design response to experiential, emotional, and even cultural considerations.

This shift requires an evolved development approach which can encompass these multiple, and at times potentially conflicting considerations while aligning the array of different skills and specialist expertise required to produce digital objects and services in a way that is focussed, balanced and inclusive. Taking a design thinking approach into a territory heavily dependent on merely functional delivery acts as a catalyst to reconsider the driving force behind digital development.

This paper focuses on how three multidisciplinary groups made up of designers, programmers, business analysts and others, working in parallel on the same digital brief as part of a one day "innovation challenge", each configured the task, incorporated design thinking, communicated within their group and across specialist skill sets, and governed the process to arrive at a solution within a compressed timeframe.

This research raises the significance of the brief in changing the trajectories of digital development. It illustrates the role of the brief not only as task definition and requirements summary, but also the role it plays in implying an operative model with assumptions, priorities and prejudices as well as a catalyst for innovation.

Introduction

As everyone is well aware, we are surrounded, immersed and at times confronted by the digital world. Having spent the last 15 years working on the development of digital products and services, I have noticed a shift in the context of my own work and that of some of my colleagues. Until recently, in terms of digital products and services, base functionality and a reasonable degree of usability alone were enough to generate engagement and even at times create novelty. Now, however with the explosion of the digital products and services, there is often little to differentiate one product or service from another within any particular category. As creators of digital objects and services, and those who study them, we are now challenged to consider not only the functional, rational, and commercial elements of these objects and services, but also to juxtapose these with experiential, emotional, and even cultural considerations. Arguably, these considerations become even more important when set within a context of the pursuit of innovation, which often seems reduced to minor incremental change, the smoothing of usability, or changes in surface styling.

Verganti suggests that the real territory for innovation and indeed competitive advantage lies in the of creation of meaning around and through objects and services (Verganti 2009). In his context, this process is significantly dependent on a design thinking approach. Yet given the array of skills and domain expertise required to produce even the simplest of digital objects or services, one must ask how these multiple, and at times conflicting influences are aligned, focussed and balanced during the development stages of planning, concept development, concurrent software development/experience and visual design, integration, final roll-out. This is particularly problematic given that much of the digital sector has remained rooted in a legacy taken from computer hardware and software engineering which is fixated on functionality and the adoption of best practice with its focus on requirements capture, use-case scenarios, the reliability resilience and redundancy of system design and in the end risk management. Even the fairly recent focus on User Centred Design, can fall into a trap of

merely optimising functionality and usability rather than genuinely responding to the desires and aspirations of those who may use new products and services.

THE CASE STUDY

With this as a background, an exploratory research project was set up to observe three groups, each consisting of approximately 8 people, all from the same company, working on a single innovation challenge over a period of approximately 4 hours culminating in presentations at the end of a company community day where the primary purpose is knowledge sharing and team building.

All the participants were self-selected, representing a wide range of specialist skills and approaches. The teams included: business analysts, sales people, technical architects, interactive developers, designers, planners, and user experience specialists. Broadly speaking, these represent three different approaches, 1-business, 2-technology and 3-design and the brief attempted to contain functional and non-functional drivers that could engage all of the specialist skillsets within the groups, including a business component, a technology component and a social /experiential component.

The actual brief challenged the teams to develop a new product or service for an integrated, voice/data/media entertainment service provider based on trends in social media and new sensing and pattern matching software. Although the brief was fictional and all the participants were aware of this, it was positioned as a potential “live” brief from an existing client of whom all team members had some knowledge. However, approximately two thirds of the way through the sessions the client company was changed. The new client was one of the original’s main competitors, which is equally well known to all of the participants but whose brand proposition is significantly different from the original client company. This action was taken to act as catalyst for the groups to both reconsider the direction in which they were going, and to see if this non-functional, yet potentially differentiating factor had any significant impact of the solutions being proposed.

By the end of the 4 hours the teams had to prepare a short presentation that would cover:

1. *Conceptual Model* - highlighting the basic elements of the proposal
2. *User/ business Rationale* - based on a user insight, potential ROI or some other success metric
3. *Demonstration of Feasibility* - particularly if it was dependent on emergent technology

OBSERVATION APPROACH

Each group worked in its own room and was recorded on video throughout. The single researcher moved between groups several times as the day progressed to observe the groups first hand.

In keeping with the exploratory nature of this stage of the research the focus here was on the process and the interactions within each group rather than the specific outputs of the sessions or the proposed solutions. The observation, both in real-time and through the review of the videos, was particularly focussed on how the members of each group engaged and interacted particularly between and across the different domain expertise in terms of:

Participation – the actual mode of engagement throughout the process. Did, for example, individuals actively engage in continuous, sequential or episodic patterns

Communication – how were ideas and feedback contributed, captured and responded to within each team, particularly when the content was based in specialist domain knowledge

Controls and Direction - how the teams managed their activities, make decisions as to which lines of thought to pursue or reject, and if/ when tasks were assigned how was that done

These interactions were viewed in relation to the evolution of the three components making up the final presentations: *1. Conceptual model, 2. User / Business Rationale, 3 Demonstration of Feasibility.*

OBSERVATIONS

1 Conceptual Model

Participation

While there was a surprisingly consistent level of engagement across all members of all groups in terms of defining and exploring the potential ideas for development, for some members, predominantly those representing the business streams, there was less direct contribution at this stage. This did not appear to be a lack of concentration or commitment to the process itself but rather a self-editing characterised by listening and processing rather than contributing.

Communication

The overall communication and exchange of ideas was very consistent across all groups. The conceptual models evolved through the exchange of anecdotes and analogies across all groups. The ability to describe and at times even dramatise the potential of an idea seemed essential not only in giving the idea its best possible chance of influencing the direction of the innovation concept but also in terms of keeping others engaged in the process. There was also a general desire to take any idea presented and see how it might be extended through another "what if" story. In many instances the essence of the anecdote was captured in bullet points or a rough sketch by the facilitator.

Controls and Direction

Although all the groups were fairly open and non hierarchical or leader centric, in the first stages of the discussion with no-one either being given or actually taking on the role of team leader, in groups A and B, individual members of the team very quickly took it upon themselves to "scribe" for the group. In both these groups the role evolved into that of facilitator although one individual was considerably more directional than the other. However in group A the role of facilitator changed 5 times throughout the day reflecting the domain specific focus as the discussion changed in direction. In group C however, the role of scribe did not manifest itself for some considerable time never seemed to fully evolve into the role of facilitator.

2. User/ Business Rationale

Participation

Given that the drivers for any digital object or service can be multiple and varied, the participation in formulating the rationale was somewhat inconsistent. While all members of the teams did participate, in some ways this appears to have been more of a concurrent behaviour, potentially appearing to be more integrated that it was in fact, with each domain skillset working out their own specific rationale in anticipation of the presentation at the end of the day. While there seemed to be little in the way of an attempt to draw together the individual elements into a consistent coherent cross supporting whole, in all three groups the leading rationale was based on some declared user benefit, albeit in every case, this was centred around some element of functionality.

Communication

Establishing and communicating an overarching rationale or drivers to support the proposals was far from consistent. In real terms, very little was discussed or communicated in terms of why the solutions had benefits or how those benefits might be ranked and valued. Most of the

guiding principles revolved around functional attributes and user requirements rather than user intention or user satisfaction and engagement.

Controls and Direction

While there was little specifically determined within the groups as to how a framework for a rationale might be defined and constructed, there was considerable reference to the brief document as a guide for the inclusion or exclusion of ideas and areas of focus. All the groups referred to the brief at various points in the sessions. This varied from an interrogation of the brief, almost in an attempt to elicit a solution and a supporting rationale as if it were embedded in the brief and needed to be unlocked, through to using the brief to constrain debate and finally as a validating document.

3. Demonstration of Feasibility

Participation

While there was a fairly consistent level of engagement by all participants throughout the day, it was as the discussion turned to implementation that the cohesiveness of the groups began to weaken. This may be in part, because for many of the participants, these discussions were seen as a preamble to the presentations at the end of the day. As such, participation took different forms and was organised along the lines of smaller sub groups and task fulfilment, which for some, meant that the involvement became even more direct.

Communication

In many ways the communication around feasibility provided an opportunity to demonstrate differing domain expertise without the need for it to be fully understood by the entire group, even though the general level of knowledge was very high. This was most evident in terms of the most technical participants, who, while not meaning to be exclusive, addressed their contributions to one another. This was because they did not want to bore anyone and it was no longer deemed to be necessary for everyone to understand all the technical detail that would support the proposal. These discussions revolved around requirements and delivery options and although high level, were primarily based on features and functional requirements lists. While the initial concepting incorporated experiential notions the language at this point in the discussion became much more quantitative and less qualitative.

Controls and Direction

As the discussion moved from issues of what the concept model could be into how it might operate and be constructed, the differences between the areas of domain expertise became much more striking. In all of the groups, as these issues began to dominate the discussion the structure of the groups began to change and different self-selecting "workstreams" began to appear. It was also at this point that the focus began to shift towards the end of the day and the requirements of a successful presentation. While this change in focus did occur in each group the point at which the shift took place was different in each group. In Group C, which had the single, and arguably the most directed facilitation, the shift happened approximately mid way through the session, while in Group A, which had multiple facilitators, this shift was nearer to 3 three quarters of way through the sessions. Group B which never really had a facilitator as such, was somewhere in between the other two. However, in all of the groups no one actually assigned tasks and responsibilities, and the workload was mostly self -defined and agreed by general consensus.

DISCUSSION

In the context of a group, design and design thinking can be linked to many different creativity related influences. For some, diversity, including both readily detectable and unobservable traits, and group structure are seen as significant factors that affect the creative potential of a group. (Milliken et al 2003) (Nemeth and Nemeth Brown 2003). In this particular case, the level of diversity could possibly be seen as limited given that in many ways the participants could be seen as being fairly uniform both within and across all three groups. Those obvious similarities include cognitive styles and modes of behaviour, which could well be influenced by

a common company culture, and quite possibly further reinforced by the nature of self-selection to participate in an "Innovation Challenge". Yet despite all the apparent similarities, all the groups nonetheless did represent some very significant differences in terms of specialist domain expertise and the working methods associated with them.

This diversity is particularly relevant in when set against Amabile's theoretical framework encompassing three different components: *Domain Relevant Skills*, *Creativity Relevant Skills* and *Task Motivation*. (Pg 83-85 Amabile 1996) Traditionally within this organisation, the domain specialists work in sequence as part managed teams rather than as part of a single concurrent working groups. This pattern is not untypical and as Bilton notes even in the creative industries he finds it common to separate the so called "creative" people and processes from the rest of the business, also noting that this frequently engenders a mistrust and antipathy in both directions. (Bilton 2007)

While brainstorming sessions in this company are common, it is rare to get the breadth of specialist domain expertise and approaches represented by these participant groups gathered together in one place, particularly with the inclusion of business analysts, project managers and technical architects. Although one could detect minor departmental rivalries, there appeared to be a genuine desire to maximise the benefits of the diverse perspective on offer. This may be in part based on a real understanding that the development of digital products and services is entirely dependant on the intergrated efforts of so many different skillsets. While there was a high level of goodwill, nonetheless this diversity did challenge the groups in terms of aligning and optimising all three of components of creative performance within the group around a design thinking approach. This appeared to be particularly important in reference to the brief itself.

While the specific issues and debates varied, all of the groups relied on the brief to define, perform, or support many different tasks. These ranged from consolidating the potential solution drivers in a way that provoked productive exploration and focussed problem solving, through to an encapsulation of essential requirements and deliverables. This was the central artefact that participants looked to, to evoke, if not actually determine, a conceptualisation of the task at hand, imply an operational framework enabling the relevant creativity skills to manifest themselves, and provide a unifying point around which all of the separate domains skills could focus and integrate their specialist knowledge.

This alignment of intention , motivation, specialist skillsets reflects Davila's perspective that the process of innovation is essentially and unquestionably a management issue (Davila 2006). The way this was manifested was somewhat different in each of the groups. Although the role of facilitator, however informally, emerged differently in each group, nonetheless some configuration of this role seemed to be a critical factor in framing the discussions and aligning goals within the groups.

In groups A and B, the role of facilitator evolved out of the initial task of capturing ideas as they emerged. However it was only in group B that there was a smooth transition from scribe to facilitator to team leader. While the particular individuals, notably the experience planner/ user experience participants, from all three teams who seemed to gravitate to the role of facilitator as informal as that may have been, may at first viewing, appear to have brought the most obvious contributions in terms of a design thinking, it is arguable that these contributions were fundamentally contributions to process. Quite possibly rather than being overtly creativity relevant skills as such, they were in fact as much expressions of their particular domain relevant skills, for example running workshops or conducting user behaviour research, and that their ways of communicating were more naturally suited to this context than some of the other participants, for example the business analyst or technical architects.

Group A , which changed the facilitator role several times, spent the most amount of time on exploration and concept creation, taking a slightly different approach with each new facilitator. Although the entire exercise was somewhat artificial and the context of a community day may well have limited the scope, in groups B and C the ideation and exploration portions of the sessions accounted for less than half of the time elapsed. For these two groups in particular,

the significance of the presentation seemed to overtake the desire to push the concept beyond what seemed like a credible, feasible solutions to the brief.

This became strikingly evident when the change of client was introduced to groups. While none of the groups made significant changes to their solutions, in groups B and C, having devised a conceptual model, rationale and feasibility defence based on the delivery of novel, possibly even innovative, functionality, the discussion relating to the brand change was very limited and almost dismissed as a significant consideration.

CONCLUSIONS

It would seem clear, that all the groups at various points displayed some of what might be characterised as a design thinking approach. It is also clear that this was not limited to those participants from the so-called creative departments but extended to participants less likely to be associated with design thinking. However, the actual amount of design thinking that was really employed during these sessions is less easy to assess. For many of the participants, a design thinking approach seemed to be limited to what was seen as the initial exploration part of the sessions, following on from which, most of the behaviour seemed to revert to a functional approach based on identification of tasks aligned to specific defined roles. So while this may have been in part due to the artificial nature of the sessions, particularly given the requirement to make a presentation at the end of a compressed timeframe, nonetheless it would be impossible to suggest that any of these groups, in this instance, consistently displayed a design thinking approach.

Arguably this was most evident in the limited response to the change of the client brand which was deliberately introduced late in the day. Roscam Abbing and Gessel suggest, that

“the concept of brand has moved from being thought of as merely an addition to the offering (the logo on the product) to its acceptance as a representation of the culture, knowledge, and visions that inspires and strategically guides that offering . The brand in its most developed form, has become a strategic asset for businesses, inspiring both ideation and action and helping them to make decisions and to frame the future in an increasingly complex world.”

(Roscam Abbing, E., Van Gessel, C., 2010 pg 131)

From this perspective, particularly in the context of Vergati's (Verganti 2009) challenge to find competitive advantage through radical innovation based on the creation of new meaning, then in experiential terms, the change of brand should have been extremely significant, and might well have been expected to trigger some rethinking or at least inform the rationale for the concepts presented. Yet it would seem that at the point at which it was introduced, which was after the concepts had been fairly firmly established, the desire to revisit these, perhaps due to the time pressures, seemed virtually non-existent, None of the groups reacted to this change as though it were particularly significant in any way. So it would seem that even when something as significant as brand in terms of meaning, experience and differentiation, can be sidelined, it is an indication that the conceptual models themselves had been reduced to mere expressions of their functional attributes.

So, in this instance, it would seem that the issue in terms of design thinking, is not only that it was manifested at some points during the process, but rather, why was there such a lack in terms of employing a design thinking approach throughout process. In this case there are two interrelated elements, which would seem to have come into play.

Firstly, one has to look at the brief itself. While all the groups, to some degree understood the brief to be an expression of intent, it was deliberately broad, and perhaps provided too little in terms of actually determining or focussing a solution. Despite the open nature of the brief, in each group, to a greater or lesser degree, it was referred to not only for a set of requirements, but also for some indication as to how to approach the task, either implicitly or explicitly and

validate some of the thinking. But the brief was also employed as a brake or dampener against some of the more divergent ideas under the guise of focussing the session. In this instance particularly given the specific focus on innovation, it would seem that the brief, as a stimulus for concept exploration and development should have set that trajectory more clearly, both in the approach that might be employed to respond to it, and the real intention of the task. Consequently in this instance the brief would seem to have been somewhat lacking.

Secondly, in all the groups, even though not formally structured, the facilitator played a significant role in provoking and in some ways constraining a design thinking approach.

The intention of this exploratory research was to observe and assess the processes and modes of behaviour of interdisciplinary teams evidenced by group communication, decision making and control within the context of design thinking and the pursuit of innovative concept development. While the activity of the groups varied, in some ways the consistent, yet unsatisfactory, elements which became evident, were the importance of facilitation in provoking a design thinking approach within an interdisciplinary team when this is not the standard approach, and a reliance on the brief to perform or support the process in multiple ways, ranging from creating clarity of intent, consolidating the potential solution drivers in a way that provokes productive exploration and focussed problem solving, through to an encapsulating essential requirements and deliverables. In this instance it was the central artefact that both the non-formal facilitators and all of the other participants looked to, to evoke, if not actually determine, a conceptualisation of the task at hand, imply an operational framework enabling the relevant creativity skills to manifest themselves, and to provide a unifying point around which all of the separate domains skills could focus and integrate their specialist knowledge.

This is no small challenge for a single artefact. As Löwgren and Stolterman suggest the “the design of the design process...may well be the most important design work in a typical project” (Löwgren and Stolterman 2007 pg 16). To work effectively and support all the tasks and calls made on it, the brief must genuinely be an embodiment of, and provocation for, that design process.

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Locality

Making all voices heard and understood:

a Web architecture to support global design communities

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Abstract

The achievements of social media, Web 2.0 and advanced information technologies lead to an upward diffusion of global design communities, geographically distributed, that collaborate asynchronously on the same projects. The members of global design communities belong to different cultures, therefore cultural boundaries need to be transcended. To respond to these challenges, this paper presents the BANCO Web architecture that supports 1) an interaction localized to designers and end users' culture, role played in the context and digital platform in use and 2) the collaborative creation and evolution of knowledge and software systems. Moreover, a case study related in which the architecture is implemented is presented.

Introduction

Increasingly organizations require their members to act not only as end users but also as developers of their tools, i.e. to create, shape and adapt the software systems they use without becoming computer experts [13][7] but exploiting their creativity. In this way, they move from being mere consumers to active producers of knowledge and developers of software systems [6].

Moreover, the achievements of social media, Web 2.0 and the advanced information technologies lead to an upward diffusion of global design communities, geographically distributed, that collaborate asynchronously on the same design projects. The members of global design communities belong to different cultures, therefore cultural boundaries need to be transcended.

The mantra “making all voices heard” [16] has to be evolved into “making all voices heard and understood” to allow the proper participation of end users to knowledge and software systems creation, sharing and evolution.

To respond to these challenges, the paper presents BANCO architecture [4][3], a Web architecture that supports 1) an interaction localized [9] to end user's culture, domain of activity and digital platform in use, and 2) the collaborative creation and evolution of knowledge and software systems.

Making all voices heard: cultures of participation

Cultures of participation is a recent concept born to describe a context in which consumerism has been surpassed. However, participation of users in computer science is not a recent phenomenon. The approach adopted in this research stems from the Scandinavian approach to cooperative design [12]. The approach is grounded on the rationale that users are "owners" of the problems in their domain and that software engineers are "owners" of the technology and their active cooperation is necessary to develop software systems which are usable and well accepted by the users [5].

Members of collaborative design team belong to different communities of practice [17] and each of them owns specific knowledge that is crucial to the design process but not sufficient to solve the whole puzzle. This situation, defined as symmetry of ignorance [10][15], requires that each team member's knowledge is shared and integrated with others' knowledge.

End users who participate actively in the design team are not necessarily experts in computer science, but are experts in the domains in which they work and act (e.g. industrial organizations, business organizations). In 2006, the research performed by the members of EUD-Net, the network of excellence on end-user development (EUD), led to the publication of the book edited by Lieberman et al. [13] in which EUD is defined as a set of methods, techniques, and tools that allow users of software systems at some point to create, modify, or extend a software system.

In this context, end users still use software tools that are provided by professional developers, but they become also co-designers, being actively involved in the continuous development, use and evolution of software, and exploit their creativity. In order to permit EUD activities, a two-phase process must be considered: first, software engineers design the design environment. This phase is called meta-design phase and leads to the second phase of the process in which end users develop applications for themselves or for other people by using the design environment developed in the first phase. The two phases are executed several times since the design environments evolve both as a consequence of the progressive insights the different stakeholders gain into the design process and as a consequence of the feedbacks provided by end users working with the software.

BANCO architecture implements the Software Shaping Workshop (SSW) design methodology [7]. The SSW methodology adopts a meta-design approach allowing a team of stakeholders (end users, domain experts, HCI experts, software engineers) to cooperate in the design, implementation, use and evaluation of software systems, determining their continuous evolution in time. The software systems are designed as a network of software environments called workshops, each of them being both an environment through which the stakeholders perform their activities and an environment through which they participate in the design of the whole system, even at use time. The

network of workshops is organized in three different levels based on the different types of activities the workshops are devoted to: 1) the use level, lying at the bottom of the network hierarchy, includes workshops (application workshop) that are used to perform specific activities in an application domain; 2) the design level, located at the middle level of the network hierarchy, includes workshops (system workshop) used to perform the collaborative design and development; 3) the meta-design level, at the top of the network hierarchy, includes system workshops used to create and maintain all the workshops in the network.

Making all voices understood: global design communities

Collaboration is made difficult by the communication gaps existing among the people involved in a common project. For example, end users and software engineers actually possess distinct types of knowledge, users being the “owners” of the problem and developers being the “owners” of the technology to solve the problem. They follow different approaches and reasoning strategies for modeling, performing and documenting the tasks to be carried out in a given application domain; end users do not understand software developers’ jargon and developers often do not understand user jargon.

Clashes among cultures become particularly evident when the system requires end users to perform development activities. The problem is thus how to allow end users to define and develop their systems according to their own style of reasoning and to their mental models of the activities to be performed. In the context described in the previous section, the World Wide Web plays the fundamental role of medium for international communication, participation, and transaction. It stimulates in fact the evolution of methods and techniques for interface design for multi-cultured environments [1]. In literature several sets of cultural dimensions have been proposed. For example, Yeo [18] categorizes the factors that need to be addressed in the internationalization process of software into covert, publicly observable elements (e.g. date, calendars, time, address formats, character sets, punctuation, currency) and over, intangible and culture-dependent elements (e.g. colors, sounds, metaphors).

The design and the development process of internationalized products passes through the performance of four distinct activities [9]: globalization, internationalization, localization, and translation. To globalize means to extend a product to different international contexts in order to make it usable by the different potential users. Internationalization is the process of generalization of a product so that it can handle multiple languages and cultural conventions without the need of being redesigned. Localization regards not only the product itself, but also the entire documentation related to it and consists in making a product linguistically and culturally appropriate to the target. Translation is included in localization, in that it represents just one of the actions required to localize a product. While translation is aimed at maintaining the meaning of original information by exposing them in different languages, localization transforms the information in equivalent ones but adapted to a different culture.

BANCO architecture, presented in the next section, considers three different aspects to which the software systems should be localized:

- *Users' culture*: both the language and the cultural conventions deriving from the country of origin are considered. Colors for example are interpreted differently in different cultures and play a fundamental role in interface design because of the information that they convey. The same importance has to be given to the shapes of the entities and to their position on the screen. In fact, shape, size and positions of the affects the way in which information are recognized and used.
- *Users' role played in a specific context*: the role of a user in a community influences the choice of tools and the notations to be used in order to make it usable for her/him.
- *Digital platform in use*: the same software system could be accessed and used through different digital platforms and devices, having different display dimensions and resolutions and offering different interaction modalities.

BANCO architecture

BANCO (Browsing Adaptive Network for Changing user Operativity) architecture (B-architecture for short) is a Web architecture that implements the SSW methodology. It is Ajax-like, component-based, and underpins re-use and evolution of software.

It supports collaborative activities, among users belonging to different communities and cultures, and allows the exchange of multimedia documents and annotations supporting the generation of shared knowledge bases. An overview of B-architecture structure and of its elements is given in Figure 1.

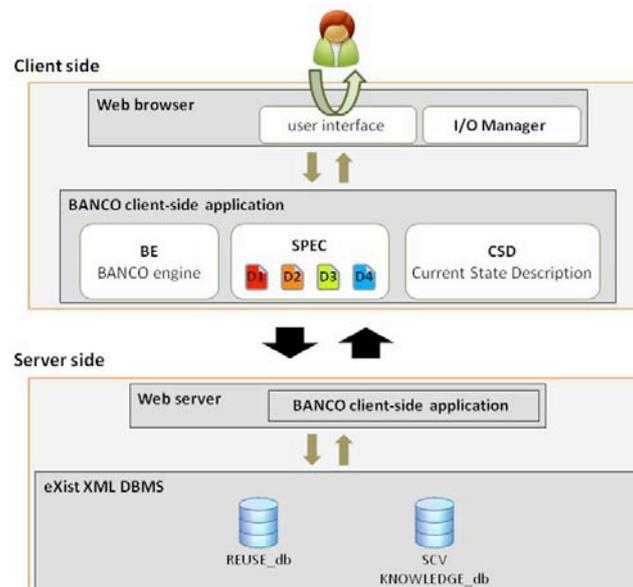


Figure 1 – BANCO architecture.

B-architecture client side

On the client side, B-architecture is constituted by four elements: BANCO Engine (BE), the specification of the initial state and the dynamics of the system (SPEC), the Current State Description (CSD) and the I/O Manager.

BANCO engine (BE) is an application-independent interpreter, i.e. it is used for each instance of system created on B-architecture because even if the application domain changes BE is neutral respect to it. It manages the instantiation of the localized system and the interaction process through the interpretation of the specification documents (SPEC).

SPEC documents are four and are written in different languages to be interpreted by BE:

- *D1*: specifies the description of the initial states of each entity that constitutes the current instance of the system abstracting from localization and materialization;
- *D2*: specifies the localization parameters of the current instance of the system;
- *D3*: specifies the materialization parameters of the current instance of the system;
- *D4*: specifies the dynamics of the current instance of the system.

CSD, the current state description, is created by the BE by interpreting the SPEC documents. BE creates the initial state of the environment by using a library of instantiation functions, and then manages the dynamic of the environment (environment's reactions to the user's actions), by using a library of interaction management functions. The presence of an I/O manager allows the dynamical creation of the current configuration and the management of the I/O interaction between the user and the environment.

B-architecture server side

On the server side, B-architecture is constituted by two elements: an archive of existing software and configuration components (REUSE_db) and the knowledge base related to the current application domain (APPLICATION-X KNOWLEDGE_db).

The REUSE_db archive is accessible by the whole community of BANCO users and developers. In it all the documents describing the specification of the initial state of all the possible virtual entities are stored. The documents are used both to materialize the system in use by the user and to be used for the design and development of new systems. In this archive, also copies of ongoing projects may be stored in order to make them available the whole community. This element can be seen as the blackboard for the people who perform EUD activities using the B-architecture.

The APPLICATION-X KNOWLEDGE_db is accessible by the community of the developers of the specific domain. In it all the annotations created by the users and related to a specific application domain "X" are stored.

B-architecture current implementation

This section describes the current implementation of B-architecture in terms of languages used and behavior at run time.

BANCO engine is composed by two libraries of scripts: a) the client-side application, constituted by a set of scripts in ECMAScript language, and b) the server-side application, constituted by a library of scripts in PHP language.

On client side, for each specification document, a specific language is used. The languages used in the current implementation of the architecture have been defined in [11].

Document D1, that describes the initial states of each entity that is materialized on the screen, is written in IM2L (Interaction Multimodal Mark-up Language). This language allows to describe virtual entities and the relations among them abstracting from localization and materialization aspects and is related to a specific application domain and a specific role played by the user in a context. D2 is written in LML (Localization Markup Language) and gives all the values to be assigned to the parameters that affect the materialization of the system interface in terms of localization. All the values to be assigned to the parameters that affect the materialization of the system interface in term of adaptation to the digital platform, are given in document D3, that is written in TL (Template Language). Document D4, i.e. the dynamic of the system, is written in ECMAScript language. The I/O Manager is the component of the Web browser that is in charge of managing the visual materialization of the interface of the system. For SVG materialization, the I/O Manager is a third-part plugin for the Web browser.

On server side, since all the specification documents are written in XML-based languages, the server-side archives management is based on the use of eXist, a XML-native database. This choice facilitates the interoperability among machines and the independence from the different digital platforms.

When a user accesses a system, the Web Browser loads the BANCO engine client-side application. BANCO engine starts the instantiation of the system by checking the user profile (in terms of culture, role, and digital platform in use). Then it loads D1, D2, D3, and D4 documents and by merging them in the appropriate way it materializes the system. Moreover, the archives stored on the server side are used to present and manage the knowledge base associated to the current application domain.

The state of the system materialized in the Web browser in a certain instant of time, is called Current State Description of the system and is given by the DOM of the current application. Whenever as a consequence of users' interaction with the system, a new entity is required to be materialized on the screen, the correspondent entity IM2L specification is loaded by the BANCO engine, is localized applying the values given in the LML and TL documents and is materialized by joining it to the Current State Description of the system (the current DOM tree). Therefore, after each interaction, a new Current State Description is reached.

The SCV case study

This case study is developed in the “Sistema Culturale Valchiavenna” (SCV) project that aims at promoting tangible and intangible assets relating to artistic, historical and cultural heritage of the Valchiavenna valley in north Italy [14][2].

The project goal is the exploitation of interdisciplinary capabilities and experiences developed by researchers of several institutions. It is realized through the creation of a shared knowledge base used for dissemination among the experts and for tourists that wish to discover Valchiavenna valley. Therefore, all the stakeholders are provided with software systems created on the basis of B-architecture that offer tools for knowledge accumulation and dissemination.

Since B-architecture implements the SSW methodology, the stakeholders are not only allowed to collaboratively create a shared knowledge base, but are also enabled to design and develop the software systems to be used by others.

The domain expert, supported by other members of the community of interest (e.g. HCI experts), design and develop the tourists’ software environment, by choosing the tools to be provided to them. The environments used by the HCI expert and by the domain experts are designed, developed and maintained by software engineers who receive requests and suggestions by all the stakeholders through the use of annotation tools.

Figure 2 illustrates the SSW network of workshops implemented for this case.

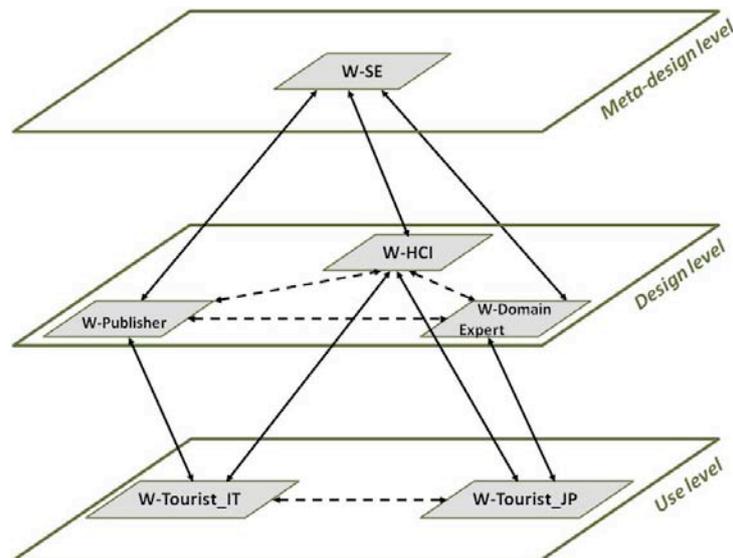


Figure 2. SSW network for the SCV case study.

At meta-design level the software engineer uses her/his workshop (W-SE) to design the workshops for the other levels in the network. At design level HCI experts, publishers, and domain experts collaboratively design the workshops to be used at the use level by

the tourists. Each community of practice is provided with specific workshops that offer the tools adapted to the role of their members. At use level the tourists are provided with workshops that are localized to their culture, role and digital platform in use.

The design level represents the core of the system network because their workshops are used by the domain experts to both create a shared knowledge base related to Valchiavenna region and develop and maintain the workshops to be used by the tourists to access the knowledge base and to leave annotations.

The shared knowledge base is the result of the social interaction among tourists belonging to different cultures and domain experts. They all jointly enrich the knowledge base with certified or personal annotations, which illustrate relevant topics referring to the maps or with impressions from their travels in the region represented by the map.

The dashed arrows in Figure 2 indicate the paths of communication that exist among the communities that work at the same level in the SSW network. As an example, at use level, data related to the activity at hand is exchanged, while at design level, HCI experts and domain experts exchange the results of their design in order to collaborate in developing the application workshops. On the other hand, the solid arrows indicate the way in which lower levels communicate with the higher ones and vice versa. This communication is supported by the use of annotation tools that allow the users to annotate their problems and to send their comments to the experts that are available in the SSW network.

Figure 3 shows the domain experts' workshop where s/he can select by a set of repositories available on the right side of the screen the functionalities to be added. After the composition of the workshop, it is saved and used at use level and its visual materialization will be localized according to the end user (the tourist) profile.

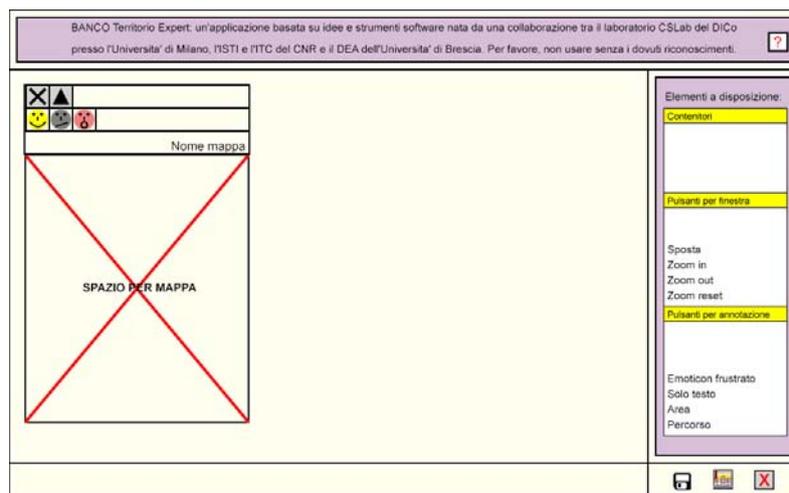


Figure 3. The domain experts' workshop.

Two instances of tourist workshop are shown in Figure 4 and Figure 5. The first instance (Figure 4) is the one devoted to an Italian tourist. She accesses the

Valchiavenna map and may read all the comments left by other tourists. The emoticons are the links to the comments and represent the liking expressed by the creators of the comments in relation to the annotated point of interest.

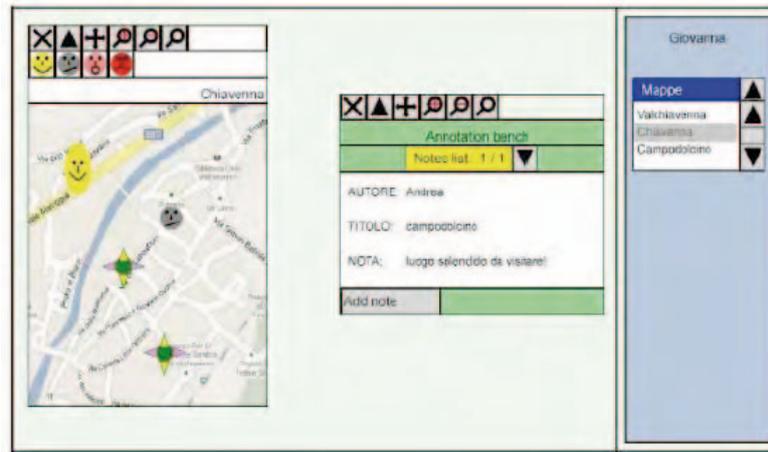


Figure 4. The tourist workshop for an Italian user.

In Figure 5 a male Japanese tourist accesses the Valchiavenna map and may browse the comments as done by the Italian tourist.



Figure 5. The tourist workshop for a Japanese user.

In the two systems the same scale of liking is used, however the materialization of the emoticons differs according to cultural rules. In Figure 6 the four emotions appreciation, surprise, disappointment, and sense of danger are represented with different shapes and associated to different colors. The specific case of Japanese culture is representative because the shape of an emoticon should change according to the gender of the user. In fact, the traditional Japanese culture prohibits to women to show their teeth when

smiling. Therefore, for the SCV case, two different localization documents (D2) have been developed, one for female Japanese tourists and one for male Japanese tourists.

SCALE OF LIKING					
Emotion	Italian colors	Italian Shape	Japanese colors	Japanese male shape	Japanese female shape
Appreciation	yellow		Green		
Surprise	lightcoral		Lightcoral		
Disappointment	Gray		Blue		
Sense of danger	Red		Red		

Figure 6. The scale of liking used in the SCV project.

Conclusions

This paper presented the BANCO architecture to support global design communities. The collaboration among the members of the communities is supported by offering systems that are localized to their culture, role played in the contest and digital platform in use and allowing them to communicate with each other using annotation tools. BANCO architecture has been evaluated through two different approaches. Its feasibility and flexibility has been proven by means of its application to various case studies in the last years. The validity of its use in collaborative design projects performed by global communities has been tested by performing several evaluations on the various workshops implemented in the SCV case study and in the other cases. The evaluation techniques used are heuristic evaluation, user test and semiotic engineering methods [8].

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Acknowledgments

This work is supported by the Initial Training Network “Marie Curie Actions”, funded by the FP7 People Programme (reference: PITN-GA-2008-215446-DESIRE) entitled “DESIRE: Creative Design for Innovation in Science and Technology”.



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Abstract

Education in every sense determines a country's competitiveness and plays a very crucial role in securing economic and social progress and improving income distribution (Ozturk, Ilhan, 2008). Undoubtedly, the changing dynamics of the global economic environment is asking for a redefinition of roles and classification of expertise, and creative/design thinking should be the protocol of the new education approach.

This paper outlines the development of education in Hong Kong and draws upon research through interviews and observations during the series of workshops under the project 'Design to Empower' (Hong Kong Design Centre, 2006-2010), to identify the essence of teaching and learning design/creative thinking across different target groups so as to discover the transferable values which can enhance the overall learning experience.

This initial research through the project 'Design to Empower' aims to discover how creativity can be taught to audience of different age groups to learn of how creativity can be strategically built into the pedagogy based on the outcome-based teaching and learning approach. Further study examines the alignment of teaching, learning and assessment, looking also into 'affordances' and 'constraints' as a result of the age differences, experiences and the environmental effect. The findings will contribute to the development of a model for implementing creative thinking in reference to the outcome-based approach, which can then be used as a framework for structuring new education programmes to nurture talents under the new economic environment.

Full text

1. THE HONG KONG ECONOMY AND ROLE OF EDUCATION

Education in every sense determines a country's competitiveness and plays a very crucial role in securing economic and social progress and improving income distribution (Ozturk, Ilhan, 2008). Hong Kong's well-structured education system which comprises of a wide curriculum nine-years compulsory primary to secondary education and a publicly-subsidized diversified tertiary education offered by the nine universities¹, has been the foundation of its economic development and decades of prosperity.

But in the report "From Creative Industries to Creative Economy: The Role of Education" published by Hong Kong Design Centre and Asia Case Research Centre in 2008, references were made to national successes of Spain, Finland, and South Korea through economic and educational perspectives to highlight shortcomings of the education system in Hong Kong. The fact is that until the late 90's, Hong Kong's education has always been seen as under heavy influence of Confucian thinking and was considered more or less a fault-phobic system. Two major flaws with such system are: i) it promotes student to seek for expected answers to questions, and ii) it encourages students to 'play safe' – to favor tradition and familiar over the novel and untested. Such system confines students to think and work under a defined set of guidelines with within closely defined scopes, thus limits creativity. The case studies of the overseas education systems further explained the importance of cross-referencing knowledge from different disciplines so as to equip talents with a spectrum of expertise to engage themselves in creativity and innovation, in order to eventually create values for themselves and for the economy.

A television programme produced by Hong Kong Television Broadcast Ltd. (TVB) shown on February 28, 2009 discussed two cases that further reinforced the phenomenon of the overseas references. Two professionals from the banking and finance sector, one found redundant as his company restructured and the other laid off as her company withdrew from the Hong Kong market suffering the effect of the financial tsunami, has gone to work for a lifestyle magazine as columnists and started one's own business by establishing a photography studio respectively. The two cases demonstrated that in times of unprecedented economic and workforce challenges, creativity is a critical survival skill (Farhoomand, 2008).

Undoubtedly, the changing dynamics of the global economic environment is asking for a redefinition of roles and classification of expertise, thus creative/design thinking should be considered more of a protocol in the new education approach. Whether truly we are training a 'designer' (as literally meaning somebody that designs and produces design output) or not is not important; the thing is that the talent is exercising relevant creative/design thinking in everything he/she does (Lau, 2008). Creative/Design thinking is an important skill that can be lifelong-learned for all ages.

¹ Hong Kong University, University of Science and Technology, Chinese University, Baptist University, Hong Kong Polytechnic University, City University of Hong Kong, Open University, ShueYan University, and Lingnan University.

2. THE RISE OF OUTCOME-BASED TEACHING AND LEARNING

All along, teachers when planning curriculum and teaching units were well aware of what they wanted the students to learn, how they wanted to deliver the knowledge; teachers then evaluate the students' learning by allocating a quantitative index to 'learning outcome', usually in form of a paper or a report. Until recently, the way of measuring learning has changed as educators started to realize that there are other dimensions that cannot be defined by a quantitative index or a single physical output.

In a memo from University Grant Commission (UGC) to all Universities of Hong Kong issued in late 2007 suggested that it is necessary to change the teaching and learning approach to prevent students from confining to the fault-phobic system, and to collaborate with the Government's direction to promote creativity by enhancing the learning experience; and therefore recommended to have all tertiary education providers to adopt Outcome-based Teaching and Learning (OBTL).

2.1 THE ESSENCE OF OBTL

The simple logic of OBTL is "*Say what you want students to be able to do, teach them to do it and then see if they can, in fact, do it.*" as stated by J. Biggs & C. Tang of Open University of Hong Kong is (Teaching for Quality learning at University, 3rd Ed, p.177. Open University, 2007).

A central aspect of OBTL is constructive alignment (J. Biggs 1999) - a concept that helps in deciding what learning activities and assessment tasks may best achieve the Intended Learning Outcomes (ILO's) based on two key ideas: i) students may construct their own meaning out of learning by actively participating in the learning activities, ii) alignment of the key elements of an academic unit – learning outcomes and assessment, through effective synchronization of learning activities.

While traditional teaching starts from the perspective of the teacher, OBTL focuses on the perspective of the learner; moving away from the 'content delivery' model to the 'capacity building' model. The core spirit of the new approach is what ultimately matters is not what is taught, but what is learned; the quality of teaching is judged by the quality of learning that takes place. 'Outcomes' under OBTL does not necessarily constitute a physical 'output', but rather 'things' that happen to the students, and/or the teachers or even the institution.

2.2 OBTL AND CREATIVITY

According to the OBTL guideline (City University, 2005), creativity is a kind of knowledge that can be elicited by 'project' (a form of teaching and learning activity), which facilitates the learning of 'designing'; the alignment is shown in the diagram below (Fig.1). The 'folio' is considered a relevant assessment task in this case.

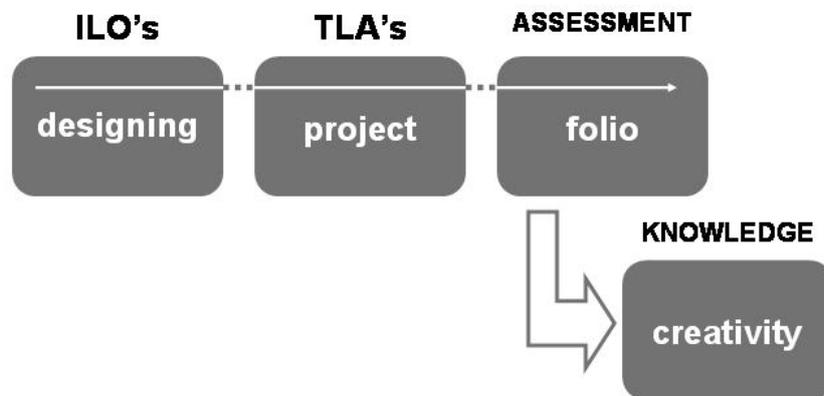


Figure 1 - Alignment of ILO's, TLA's, and assessment for learning creativity

Although the general understanding of the word 'design' usually refers to a product when viewed as noun, but when 'design' becomes a verb, it is about the process when designing takes place. The relationship of the ILO's, TLA's and outcome listed above correlates well with design and designing under actual design practices. Charles Burnette in his IDeSIGN curriculum defines design thinking as *"a process of creative and critical thinking that allows information and ideas to be organized, decisions to be made, situations to be improved, and knowledge to be gained"*. Designers work with objectives in mind, go through a series of development activities, come up with a variety of solutions, and analyze them based on the objectives to arrive at a best possible solution. Ultimately, the designer not only comes up with a design output, but also acquires additional skills in design, gains knowledge on process, material, lifestyle and user-preference etc.

If the activity of designing has always been outcome-based, design project is therefore an effective form of activity for students to gain knowledge on creativity, demonstrating constructive alignment under the OBTL guideline.

3. TEACHING AND LEARNING CREATIVITY

'Design to Empower', rides on the theme of 'Learning Design through Monster' and 'Learning to Design through Marine Conservation', is a series of workshops that invites participants to participate in the conceptualization to production of either a Monster (or a family of monsters) or a Water-world in both 2-D and 3-D forms.

Participants were grouped by age – the groups of 10's include kids of age 6-12, the groups of 16+ include upper secondary and university students, and the group of 30's and beyond are mostly professionals of different disciplines. The workshops take the participants through three major stages of designing: i) research and problem identification, ii) idea development, and iii) analysis and refinement (depending of the

capacity, some groups will proceed to final production). The aim is to teach creativity through learning by doing using a participatory approach (Corbett, J. and Keller, P. 2006) in a step-by-step manner.

The duration of the projects varied, ranging from two days with practicing professionals² to three days with kids of age 6-12 as well as secondary school students, and over 13 weeks with final year design and communication students in universities.

The Intended Learning Outcomes (ILO's) of the projects were that upon completion, participants should be able to:

- a. apply thinking skills and concepts in design
- b. relate materials and tools to develop ideas
- c. generate multiple solutions to solving problems
- d. reflect on the process of designing
- e. describe how designing can be applied to their daily life

The five ILO's were an elaboration of the verb 'designing'. A sequence of TLA's, extending on the basis of a 'project', were designed for each stage of the 'project' that aligns with the ILO's. In stage one, participants were asked to explore the environment and brainstorm ideas. In stage two, participants were to engage in mind-mapping, lateral thinking, cross-referencing, and copying and enlarging using tracing paper and copiers. In the final stage, students had to work together in groups of two to conduct sharing and refinement sketching. The matching of ILO's and TLA's is shown in the diagram (Fig. 2) below:

	Stage One	Stage Two	Stage Three
a. apply thinking skills and concepts in design	○		
b. relate materials and tools to develop ideas		○	
c. generate multiple solutions to solving problems			○
d. reflect on the process of designing		○	
e. describe how designing can be applied to their daily life			○

Figure 2 - Matching up ILO's and TLA's

² In building and construction, visual arts education, marketing and engineering fields.

4. RESEARCH METHODOLOGY

The study covers a period of four years (2006-2010) during when 30 workshops were conducted in which roughly 150 adults of age 30 and above, 200 secondary to first year university students of 16-20, and 80 kids of age 6-12 participated.

Participation observation was used as a systematic approach to collect data on-site and allows the researcher to participate in the social milieu with the participant and interact with them. Analysis was made on the participants' documentation of ideas to identify variation of learning outcomes. Interviews with participants were held after each workshop to discover additional outcome(s) of the teaching and learning.

5. OBSERVATIONS AND RESULTS

Design to Empower is an ongoing project, but so far from the workshops conducted, there were interesting phenomena discovered which are discussed below:

5.1 LEVELS OF PARTICIPATION

As the project takes on participatory approach, participation is one of the main concerns. The groups of 10's were able to participate enthusiastically in the early stages where they were allowed to explore freely with material and ideas. The enthusiasm dropped in the analysis stage where they had to work within a more structured framework of evaluating things and knocking ideas down to final solution. Similar level of participation was observed in groups of 16+. While the level of participation of the groups of 30's and beyond in the final stage was higher because they found it more manageable in terms of seeing a more systematic approach; but this group experienced minor problems in the early stage of exploration and ideas development as they found those two stages too abstract and loose.

Although the different levels of participation in the different age groups could relate back to the education background and the life experiences of the participants; the level of participation also varied between the engineers and the marketers within the groups 30's and beyond. Participants with a science background showed less willing to participate in stages that involved less structured directions from the teachers.

5.2 AGE DIFFERENCES AND CREATIVITY

The 30 workshops were age specific, and therefore easy to learn of the creativity of different groups by comparing the outcome of the individual groups, qualitatively and quantitatively. The groups of 30's and beyond tended to relate the final artifact more to obvious shapes, forms and texture. Like most of the Monsters they created had eyes, arms, bodies and legs, while the Water-world developed by this group has obvious fishes and definitive sea creatures in them. The groups of 10's and 16+ were able to develop more unique Monsters using obscure forms and structures and their Water-worlds were more organic and original in form; they were also able to develop artifacts

out of material they obtained on-the-spot or anything that came in handy. A lot of the monsters developed by the groups of 10's and 16+ were not confined to anything that resembled a known figure; even when some of them tried to include eyes, mouths, hands and legs in the design of the monster, those body parts could be objects that were not normally categorized as such. It was also interesting to see that the groups of 10's and 16+ got inspirations from experiencing the physical environment. Some of them used a spotlight to shine on the monster to create special visual effect that exaggerated the fearfulness, another one groups chose not to design a monster, but just hung a plate over the door and claimed that the monster was locked inside the room behind it. One of the Water-world has adopted the shape of the floor lamp in the participant's home and another was the form of bubbles being blown into the air by small children in the park.

In sum, the groups of 10's and 16+ like to create/design based on intuition and used unfamiliar forms and shapes, and were more original in their presentation; the number of ideas produced was also larger. The groups of 30's and beyond were more rational when working on their designs and less able to relate to the context around it, very much focused on the shape and form itself; consequently, the number of ideas produced was relatively less, and very 'expected'.

5.3 ABILITY TO EXPLORE MATERIAL AND TOOLS

The ability to observe and understand the environment around us is crucial for developing creativity; and the ability to make use of relevant material and tools around is a basic requirement of designers. Material exploration can help participants to learn of the things, dimensions and possibilities that were available to them. The exploration involves two major aspects:

- i) Understanding design material: knowing what's available in the design world and what could be used.
- ii) Studying new material: everything from the nature to things in the trash are possible material that can be used or reused for creating ideas and developing new ones.

The groups of 10's and 16+ were very adventurous in exploring new use of material, and some participants were able to even discover new material from the environment and recycle used ones. The groups of 30's and beyond somehow found it difficult to move away from 'paradigms' (Kuhn, 1962) and required a lot more directions from the teachers to look into alternatives use of tools and materials. The difficulties of the groups 30's and beyond faced demonstrated that knowledge and experience could be a hindrance to exploring unfamiliar possibilities.

5.4 ENVIRONMENTAL IMPACT ON LEARNING

Brent Dean Robbins of Duquesne University (1999) has proved that emotion is fundamentally relational, and the terminology of 'emotion' is an "*embodied, temporal and languaged movement in interpersonal space*".

The study also shows that participants' involvement directly relates to the setting of the environment. Out of the 30 workshops, 23 were conducted in the classrooms or meeting rooms that were familiar to the participants, and the rest in an environment that was atypical to regular meeting place or classrooms for the participants. Participants have shown different levels of participation and involvement as the setting of the rooms differed. Most participants who attended the workshops in a familiar environment needed to warm up for a longer period of time. These groups were less willing to go beyond the expected and came up with less number of possible solutions, and their ideas were less creative. While participants were more excited in an unfamiliar environment, and their ideas could sometimes be inspired by it. Like for one participant who attended the workshop in a dance studio sponsored by a dancing school came up with a series of monsters using 'dancers fear' – missing a step, losing the grip of the partner, etc.

As Kathryn Robin in her book 'Emotional House' (Newhabringer, 2005) stated that, "*each room meets a corresponding soul need that matches the function like a metaphor*", it seems relevant that to conduct a creativity project, the room where it is conducted needs to have the ability to engage the participants in creative thinking help them to construct their own meanings out of the learning process; a (too) familiar space may not be an appropriate choice.

5.5 AFFORDANCES AND CONSTRAINTS

'Affordance' was coined by James Gibson in 1996 in his book "The Senses Considered as Perceptual Systems". Chawla & Heft's (2002) concept of 'affordance' emphasizes participation, empowerment and a holistic approach to enhance development and learning. Not only are 'affordances' relational to an active individual, their relationality also extends into the context of which the affordance is a part (Heft, 2003). In this case, whether the environment where the workshop is suitable for learning is determined by the participant's individual characteristics (preferences, intention, background, etc.) and by the context in which the environment is set-up. Each individual perceives the world through his own 'affordance spectacles', although affordances look different to each individual through his or her 'affordance spectacles', affordances can be more or less shared.

An individual's earlier experiences as well as social and cultural factors, play a part in the perception of the meaning of affordances. Given the 'constraints' underpinning the learning capability of the participants who have 'suffered' the two major flaws of the Hong Kong education system discussed in Paragraph 1 of this paper, those who attended the workshops in traditional classrooms will be confined by their 'perception' of what a classroom can 'afford' them to do and behave. Classroom represents a behavior setting that has a complex collection of rules and regulations. The findings clearly indicated that the number of constraints in the minds for those within the groups 30's and beyond reduced the scope for idea development thus reducing the willingness to participate given the low affordances they encounter in the traditional classroom environment.

Given that constraints and affordances and relational, and that negative impact of constraints can be reduced by creating positive affordances to develop a more inviting environment for learning.

6. ASSESSING PROJECTS

OBTL is criterion-referenced in that the ILO's are referring to as the 'criteria' for the assessment. Assessment is also a constructive alignment exercise in OBTL, and is a contextual factor that most strongly affects how students learn.

In a 'project', students are assessed on a continuous basis, using both qualitative and quantitative measures, and a 'folio' is considered a relevant assessment task under the OBTL guideline. For both the 'Learning to Design through Monster' and the 'Learning to Design through Marine Conservation' workshops, participants were asked to document their work throughout the workshop sessions in form of a 'folio'. The assessment of the projects did not calculate to a score or grade, but all individual assessment were being analyzed together to review knowledge on participants' behavior and to compare effectiveness of the activities based on the ILO's defined. The four worksheets of visual on the following page (Fig. 3) shows an example of the 'folio' prepared by a participant of the groups of 20's in the 'Design to Learn thru Monster' workshop.





Figure 3 - Worksheets for Folio Presentation

The analysis shows that participants in the groups of 10's and 16+ attained higher level outcome in ILO's (a) (b) and (c) by showing better participation in activities of Stage One and Stage Two and the refinement activities of Stage Three, while the 30's and beyond groups shown increasing ability to meeting the three ILO's in activities of the two stages. The groups of 30's and beyond on the other hand were able to attain higher level outcome in ILO's (d), and (e) in exploration activity of Stage One and the discussion activity of stage three while the groups of 10's and 16+ shown only adequate achievement to the two ILO's in activities of those two stages.

The findings reflect that Child's Play (M. Wenner, 2009) acts positively to enhance the exploration spirit and participation rate of participants. The late theory of Child's Play in adult stresses the enhanced use of play to help release pressure and to foster creativity and innovation in adults. Thus by actively engaging the groups of 30's and beyond on activity that motivates them 'to be a child again' in early stages should be able to boost their creativity.

7. THE NEW 'PROJECT' MODEL

The new model contributes mainly to teaching and learning creative thinking, in the form of a 'project'.

For most 'project', the teacher sets the brief and provides on-going feedback; while students apply knowledge to create new idea. So for a project like writing a report

based on a research, it could be a simple linear Point A to Point B activity; matching up a series of TLA's, such as creative writing and research skills, to the relevant ILO's. According to the OBTL guideline, the ideal case is that each ILO should align with one TLA; low level ILO verbs should be replaced if there exists a higher ILO verb on the listing; and if an ILO aligns with two or more TLA's, the extra TLA(s) that is redundant could be eliminated. So to match with that criterion, the TLA's of the two projects that were used for the study only matched to one ILO.

In a design project, where designing involves a more complex process, like the three stages of designing used in the two projects of 'Design to Empower'; it seems more logical and effective to have ILO's and TLA's, extending from 'core' ILO's and TLA's, for every stage which clearly define the learning outcomes of each stage; so as to implement relevant assessment task for each. The ILO verbs should also be tiered and builds up as the 'project' (design) progresses; using verbs of higher level understanding for advanced stages.

The new 'project' learning model is shown in the diagram below (Fig. 4).

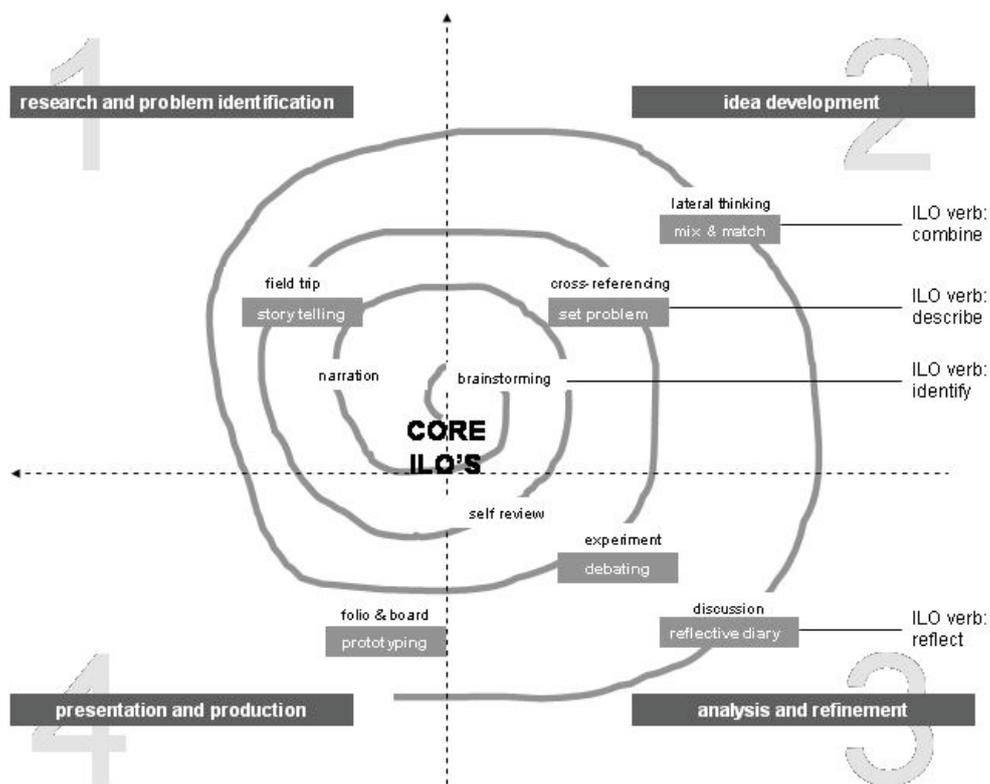


Figure 4 - Model for Teaching and Learning Creativity

The model (Fig. 4) indicates with one set of ILO's (core ILO's) and one TLA format – 'project', other TLA's are created and allocated to the different stages within the project with their own ILO's (sub-ILO's) verbs. For example in Stage Two – Idea Development, a separate set of ILO's should be developed for that stage, which then the

activities brainstorming (to identify), cross-referencing (to describe) and lateral thinking (to combine) activities will align with. The ILO's verbs should build up in a way that involves higher level outcome as the designing progresses. For example, ILO's verb such as 'identify' is a verb regarded as 'unistructural' and is used for indicating low-level understanding; while ILO's verb such as 'reflect' which is regarded as 'extended abstract' will be used for showing high-level of understanding. The TLA's should also be developed in a way that aims to foster students participants to create other activities (TLA's in grey boxes indicate possible activities to be created by students); and different activities can be developed for different age groups as students are inspired by different activities and combination of activities.

The assessment task for each stage can still be a 'folio' – in this case, the individual sheet that documented the work of particular stage. The different 'folios' are then combined together to become one 'folio' for the one big design project. Given that *"folio assessment as means of encouraging students to take responsibility for the quality of their learning"* (Tiwari A. and Tang C., 2002), it is therefore an effective means to assess effectiveness of student's learning of each stage, as well as the project as a whole, as it clearly documents the learning process and the final collective outcome.

The new model makes reference to the 'Spiral Model' (B. Boehm,1988) that is an effort to combine advantages of top-down and bottom-up concepts and involves interactive development – an incremental development using a scheduling and staging strategy, in which the various parts of the system are developed and integrated.

8. CONCLUSION

The advancement of technology is allowing the world to be more interactive and integrative, inviting people to look beyond the surface of things. OBTL could have been a rigid guideline if there's insufficient creativity in executing the constructive alignment and the designing of the activities itself. In designing the TLA's, teachers should be aware of the fact that activities could in fact drive new activities; the same as explained in the case of measuring outcomes, as there are always intended and emergent learning outcomes (Hussey and Smith, 2003) that could reflect added values of the new activities. Moreover, the activities should also help to expand the 'affordance spectacles' in relation to the learning environment to invite active engagement so as to really enhance the overall learning experience.

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Acknowledgments

This work was developed within the support of Hong Kong Design Centre (HKDC) and with the sponsorship of SCOPE, City University of Hong Kong

LESSONS FROM THE ROAD:

Meaning and Community Identity Examined Through the Lens of the Roadside Attraction

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Abstract

The North American roadside attraction has historically been viewed as amusing vernacular marker of place, of notice to the roadway traveler, the passerby, the novelty-seeking tourist, but not of any greater significance than this. Normatively viewed by the outside world as a visual, three-dimensional one-liner, the roadside attraction, upon closer examination, reveals much more than a desire to entertain the passerby. Its very existence speaks to more than the function of tourist attraction. At the root of the phenomenon of the roadside attraction lie communities seeking meaningful representation through these apparently simple structures. Within the process and result of choosing these attractions lie potential lessons for urban communities seeking to manifest local meaning and significance within the built environment.

A recent study of roadside attractions on the Canadian prairies was undertaken with the goal of examining the history and meaning of roadside attractions through visits to communities, and interviews with town residents, municipal officials, and tourism and economic development authorities. This paper represents the beginning of the analysis of what is the first phase of a study that will eventually encompass the examination of roadside attractions across Canada, and will culminate in a comparative study of similar attractions in the US. This study encompassed visits to forty-eight communities across 6100 km in Alberta, Saskatchewan and Manitoba, and included key informant interviews with representatives of twenty-two communities. The database created for this study includes over two hundred communities across these three provinces with some form of roadside attraction; these communities will be surveyed through the form of questionnaires that will cover the same questions utilized in the interviews. The interviews have been examined for the purpose of this paper with the goal of lessons learned for urban communities in mind, the results of which are organized here in the form of a selection of three community 'stories' that have the most significant, and commonly shared lessons.

This paper examines vernacular architectural expression in the form of roadside attractions as a lens through which to examine the constitution of meaningful identity through built form for North American small town populations. In addition to exploring the origins and history of these attractions primarily through key informant interviews, this research study winds through tangled issues relating to communal desire for identity, municipal processes, methods of community self-identification, community survival, and external validation through built form. The results of this study confirm age-old lessons learned but perhaps forgotten in recent years, as technical considerations and infrastructure development have gained prominence in urban decision-making. At a time when architects, urban designers and planners are challenged to respond both to technological as well as civic needs, it is perhaps useful to recall that most basic of human needs: community.

Sites for Sore Eyes

The North American roadside attraction is commonly viewed as an amusing vernacular marker of place, of notice to the roadway traveler, the passerby, the novelty-seeking tourist, but not of any greater significance than this. Terminology such as ‘fun,’ and, ‘whacky,’ are commonly used to describe these structures that take the form of objects such as the world’s largest duck, ball of twine, frying pan, peroghy, banana, and so on. Generations of roadside attractions have become common features of the North American Landscape, glorified in outlets of popular culture as varied as film (the movie, “Michael,” 1996), books, and magazines; the phenomenon has even been used as the name for a film production company (www.roadsideattractions.com). The distinction of being ‘the world’s largest’ is a common characteristic for the roadside attraction, naturally leading to the assumption that these strange structures were erected solely for the pleasure and entertainment of the visitor. Often, but not always erected by the side of a road or highway, the roadside attraction does, indeed, attract. But is this all there is to their significance? This research is premised on the assumption that there is more at play with the roadside attraction than mere entertainment; that at the root of the phenomenon of these oddities lie communities seeking meaningful representation through these apparently simple structures.

The advancements in automobile travel generated an opportunity for a new form of engagement with an audience in motion. Physical manifestations of roadside culture that developed in the twenties and thirties included gas stations, motels, and restaurants, many of which turned to fantasy as inspiration for their design. Intended as mechanisms for visual marketing to an audience speeding by in their cars, oddities such as large ducks, hamburgers and hot dogs, elephants and milk bottles sprung up across the US roadway systems. Andrews presents this development of fantasy construction as being uniquely American, given the country’s history of immigration fueled by dreams of freedom. [1] A national propensity for expressing freedom in the form of the biggest, best, newest and fastest found its way onto the roadsides of America in the form of ‘wacky’ structures now referred to as roadside architecture.

Normatively viewed by the outside world as a visual, three-dimensional one-liner, the roadside attraction, upon closer examination, reveals much more than a desire to entertain the passerby. Its very existence speaks to more than the function of tourist attraction. The intentions behind roadside attractions are diverse, ranging from the establishment of a

regional landmark, the cultivation of a vernacular identity, commemorating a historical icon, and other forms of boosterism. The purpose of these roadside oddities spans a variety of intentions, with the most common being a physical representation of a community's identity. In some instances, the attraction has taken the form of a resident waterfowl, wildlife, historical figure, or representational of a local industry. Fraser Ross of Semaphore Design Company reflected on the purpose of these roadside attractions as, "historical landmarks in both a literal and figurative way...[t]hey literally mark a location, but they also mark a time and place." [2] Roadside attractions are often referred to as hokey; however the majority of travelers find them captivating, and as Ross describes, "[o]n family vacations, we all stop; we stare; and we rarely leave without a picture." [3] Within the process and result of choosing these attractions lie potential lessons for urban communities seeking to manifest local meaning and significance within the built environment. This research asks why communities choose to represent themselves through a roadside attraction, and how the physical manifestation of their particular roadside attraction identifies them as distinct from their neighbours.

Architectural scholars have largely ignored the roadside attraction, although roadside architecture and its cultural import have received some attention. [4], [5], [6], [7], [8] Scholarly depictions of roadside attractions are scant to non-existent, with publications on the subject largely in the form of popular literature intended for the lay audience. [9], [10], [11] Descriptive and historical in nature, scholarly accounts of roadside architecture depict the phenomenon from the conceptual framework of the 'outsider,' the visitor and tourist, or the historian, almost entirely neglecting the viewpoints and intentions of the communities that produced the structures. While Andrews focuses on the programmatic nature of inhabitable roadside attractions, [12] his brief descriptions of each structure do not delve further than their historical development. Any connection with the community that spawned the structures is absent throughout the literature, possibly due to the commercial nature of the structures under consideration. With most writings on the subject, the questions of how and why the structures exist are presumed to be subsumed within the realm of popular, roadside commercial culture. Notably, the work of the Society for Commercial Archeology and its membership focuses exclusively on this aspect of the phenomenon, and is the "oldest national organization that encourages the study of the unique historic significance of twentieth-century commercial landscape and culture." [13] Herein lies a useful distinction between most structures that fall into the category of roadside architecture, and those referred to roadside attractions. Structures erected for commercial purposes (gas stations, motels, diners and restaurants) utilize the unusual and bizarre for marketing purposes, seeking to gain the attention of the motorist passing by. Although equally desirous of attention, the community generated roadside attraction couples this with the additional intention of representation of identity.

At this point a distinction between the Canadian roadside developments and their US counterparts requires articulation. While the American development of roadside architecture and attractions are well documented, analogous documentation of the spread of the phenomenon to Canada exists primarily in the form of scattered websites devoted to showcasing roadside attractions for the purposes of tourism, [14], [15] and numerous personal blogs documenting family travels, [16] with some mention on Federal and Provincial government websites. [17], [18] Some provincial governments are providing

tourism incentives to visit the rural communities that have created roadside attractions, such as Travel Alberta's Roadside Attraction Passport program (2010), but there is no scholarly, or even popular, published accounts of these structures.

Initially documented with delight by aficionados and the curious primarily in the form of photographic and tourism publications [19], [20], [21], [22], [23], [24], [25] these structures for many years escaped the attention of the architectural establishment, which is not surprising, given the absence of professional architectural input. Because of the absence of professional design in the development of roadside structures, one might argue that roadside architecture and attractions are a form of vernacular design, and it is in this realm that one finds some discussion of the subject. [26], [27], [28] However, the most noteworthy contribution to the field, which originated directly from the centre of the architectural profession, was the seminal 1977 work in of Venturi, Scott Brown, and Izenour, *Learning from Las Vegas*, which posited the everyday landscape and road culture as a new urban form. One year later, Italian semiotician and novelist Umberto Eco furthered this shift of interest from the everyday to the spectacular with his essay *Travels in Hyper Reality*, documenting and analyzing wax museums, Ripley's Believe it or Not, the Palace of Living Arts and Disneyland as part of his romp through the wonderland of America. Through his analysis, as seen through the lens of semiotics, Eco put forward the built vernacular and spectacular as repositories of significance, and, therefore, as worthy of study. [29]

Since Venturi and Eco, over the course of the last twenty years or so, scholarly interest in roadside architecture has surfaced, with motor-age landscape scholarship and historic preservation work appearing as a topic of consideration in academic publications. [30], [31], [32] Similar scholarly interest in roadside attractions has yet to surface, however.

A recent study of roadside attractions on the Canadian prairies was undertaken by the authors with the goal of examining the history and meaning of roadside attractions through visits to communities, and interviews with town residents, municipal officials, and tourism and economic development authorities. This paper represents the beginning of the analysis of what is the first phase of a study that will eventually encompass the examination of roadside attractions across Canada, and will culminate in a comparative study of similar attractions in the US.

This study encompassed visits to forty-eight communities in Alberta, Saskatchewan and Manitoba, across 3,800 miles (6100 kms), and included key informant interviews with representatives of twenty-two communities. The database created for this study includes over two hundred communities across these three provinces with some form of roadside attraction; these communities will be surveyed through the form of questionnaires that will cover the same questions utilized in the interviews. The interviews have been examined for the purpose of this paper with the goal of lessons learned for urban communities in mind, the results of which are organized here in the form of a selection of three community 'stories' that have the most significant, and commonly shared lessons.

This is what we learned.

Banana Belt

Situated in the southwestern corner of Manitoba, 340 kms from Winnipeg, Melita is a community of just over 1,000 that enjoys particularly warm weather for this part of the country. Known for many years by the TV weathercasters in nearby Brandon as the ‘banana belt’, the residents of Melita have chosen this moniker as representative of their community in the form of a “bright yellow, Walt Disney-like banana wearing a brown belt with a buckle that reads ‘Welcome to the Banana Belt.’” [33]

As with so many small agriculturally based communities, Melita has experienced a decline in population and prospects in recent years. Their younger populations leaving for brighter opportunities in larger centers, these communities are seeking not just tourists, but visitors and residents. Following the pattern set by other communities, Melita decided that it needed a roadside attraction. After years of searching for ways to inject new life into the community, in 2007 a tourism committee in Melita determined to build an attraction that would, well, attract. They chose to draw on their externally recognized reputation as the banana belt, and audaciously decided that a giant banana would be their representation of community identity.

Known as “grasslands bird capital of Manitoba” due to the abundance of birding opportunities for enthusiasts who travel from as far away as the US, many in the town felt that a bird would be a more appropriate representation. However, the tourism committee determined that Melita needed something unique, given the dozens of bird statues and attractions already in existence across the Prairies.



Figure 1 - The Banana in Melita, Manitoba

The decision to choose a banana drew immediate and strong response, with residents loudly opposing the choice of a banana to represent their community. A vote in the local paper resulted in an opposition of 69%, against support of 39%. A national article in the National Post headlined the controversy as, “Banana Splitsville,” unable to resist the obvious wordplay. [34]

Despite the opposition, as well as internal dissention, the tourism committee persevered, and produced a design that included a blue jay sitting on the arm of the banana, in deference to those who preferred the bird capital identifier for the community. Funding for the attraction was raised through donations and fundraising efforts (no government funding was used at all), and the banana was unveiled on August 7th, 2010 amongst a weekend event that produced 536 banana splits for attendees and many photo ops with the new celebrity.

Visited two weeks after opening, the banana was already attracting passersby who couldn't resist having their picture taken at the foot of a 30-foot banana. More visitors have been noticed in town stores by residents, and, according to tourism officials, naysayers are gradually turning their opinion towards a more positive view of their banana. The media exposure has been intense for a small community, which is following the initial splash of coverage for the unveiling with a new “Name the Banana” contest that is being covered well beyond the community. The town has now branded itself as a “town with a-peel.” Time will tell, of course, if the banana in Melita will fulfill local expectations for increased visitation and economic benefit, as well as continue to improve in approval. The controversy and uniqueness of their attraction has afforded the community with an advantageous opportunity, however, for building towards fulfillment of their goals.

Lessons Learned I

Proponents of the banana expected a certain degree of opposition, given their very unusual choice of symbol, but one unexpected outcome for the town was the bringing together of the community through fundraising efforts, as well as through the debate that produced broad-based discussion of appropriate representation for the town. It would appear that everyone had an opinion of the banana. The debate has been viewed as positive for the town, “because people are talking about what to build, not where to go.” [35]

Resident participation in meaningful discussions about community identity was not an expected outcome of this process, which was essentially closed in nature. Despite overriding the preferences of the majority of the population, the end result of the process has the potential to benefit the community in the short and long term. The longer-term effects of both process and result are unknown, but there lies the potential in this experience for the town to continue awareness and decision-making regarding both their fate and their physical form. It will take long-term resident commitment, or, buy-in, however, to ensure the longevity of the banana as an effective and useful tool for the community through continued inclusion in marketing, branding and events. It will also take this long-term commitment on the part of the community to ensure that the banana is maintained physically, and therefore, maintains its appeal to visitors and outsiders. Although born in an environment of controversy and dissent, sustainability of the banana as a working and

living town symbol will require broader support than the relatively small group that brought it into being.

The strength of will and personality that produced a giant banana as a symbol for a rural Manitoba town despite significant opposition is indicative of the results that can be achieved through singular vision and determination. For good or ill, the result of this process has initiated a response that can be embraced through continued effort of promotion and development, or neglected, and therefore become a missed opportunity. Of course, even a banana on the prairie may eventually fail to surprise or interest, but the town of Melita has the ability at this time to influence its future through a symbol that was little loved at the outset. Perhaps town leaders can look to Paris and its once despised, now famed tower, for inspiration.

What the Heck is a Bunnock?

Situated just off Highway 31, and 3 miles east of the provincial border between Alberta and Saskatchewan, the pride of the town of Macklin is in full view and easy to spot at any speed from the highway. Rising vertically in the air and visually unencumbered by anything else remotely manmade, is a 32-foot, fiberglass bunnock. The average person will reasonably ask: what is a bunnock? What, indeed.

The word bunnock is Russian for 'bone.' In this case, bunnock refers to the anklebone of a horse. Early settlers in the Macklin area brought with them from Russia the game of bunnock, apparently developed in the 1800s by Russian soldiers stationed in Siberia with nothing to do but attempt playing horseshoes on the frozen tundra. Failing to penetrate the frozen ground, and therefore, failing to play the game, the innovative soldiers utilized something that would stand on the ice and was in abundance: horse anklebones. And thus, the game of bunnock was born, and found its way on to the Canadian prairie in the early 20th century. [36]

The game remained popular in this region of Saskatchewan, and has spread across the globe to Australia, Africa, Chile, Mexico, the UK, the US, and Japan. As many as three hundred teams descend each year on the town of Macklin in August to participate in the World Bunnock Championship, effectively tripling the size of the town of 1400. This singular provides economic benefit to the area estimated to be \$500,000-\$1million. [37]

Begun eighteen years ago by the Manager of the Macklin Credit Union and a Credit Union committee, the global tournament of this highly unusual game has singularly put the town of Macklin on the global map. Media coverage has been high and international, as the novelty of the game has appealed to the curious. Looking for a means of promoting both the game and the town, the committee determined that a roadside attraction that doubled as a tourist booth would be designed and built. The natural choice, of course, was a bunnock. Vertically oriented, the shape lent itself well to creating a marker visible from miles away, as well as providing space for a tourism booth inside. Constructed of a steel frame and shaped by chicken wire covered with white fiberglass, the bunnock is lit from within at night, glowing bright orange, almost lighthouse-like.



Figure 2 - The Bunnock in Macklin, Saskatchewan

The shape of the bunnock is highly unusual, and entirely unrecognizable, if not vaguely reminiscent of ... something. Newspaper columnist Dave Barry has described it this way: “Your family is sure to enjoy viewing the giant plastic Macklin bone, which looks vaguely like an enormous naked woman with no arms or legs or head.” [38] That is exactly what it looks like, which only appears to add to its appeal and mystery.

It is estimated that visitors to the tourist booth number approximately 2,500 per year, based upon the numbers who sign the guest book inside, with many if not all taking their photos with the peculiarly shaped bunnock. It is unknown, of course, how many stop for a bunnock photo when the tourist booth is closed, which includes the winter months. According to Kim Gartner, Macklin Town Administrator, the bunnock even serves as background for wedding photos, providing, perhaps, an interesting contrast to the wedding dress. [39]

In addition to the numbers tracked at the tourist booth are those coming to Macklin for the tournament; these number 3,500-4,000 each year over the course of the August long weekend. Most stay overnight in the town’s campground, and events such as beer gardens, dances, concerts and other entertainment throughout the weekend keep the visitors entertained. The number of teams allowed to register is limited to 320, presumably to keep the numbers within a reasonable number.

Lessons Learned II

By all appearances, eighteen years after their inception the tournament and its namesake roadside attraction are highly successful, as measured by annual visitation to the town, economic infusion into the community, media coverage, and international reputation. There appears to be full community support for hosting the bunnock as representative of the

community's past cultural heritage, as well as its current international stature as home to the World Bunnock Championship. Through the tournament the community's heritage is celebrated and renewed annually and into continuing generations; this is contemporary, living history. Through the roadside attraction, this identity of heritage is manifest and broadcast to every vehicle that passes along this major highway, and well beyond the geographic confines of the town.

Perhaps, herein lies the secret of Macklin's success: the authentic coupling of the built attraction with a living, breathing event that nurtures community spirit, while simultaneously connecting the town to the larger world. This community's relationship with its attraction is not on 'cruise control;' it is active and continuous over a span of almost twenty years. Unlike many towns visited in this study that are no longer entranced by, or even interested in their unusual structure, Macklin continues to be known as the town with the Bunnock. As the Mayor of the town told the *Globe and Mail* in 2006, "Bunnock has really put Macklin on the map. We're the envy of a lot of small towns. They're looking for an event that will bring people in. Well, well, we have it – we have bunnock." [40]

They also have the three dimensional, 32-foot high bunnock, a structure that is a real "traffic stopper." [41] As popular as the game might be, it is the structure that garners the most media attention and tourist attraction, accessible as it is to the far larger population who do not even know what it is. Through continued connection with the event that brings Macklin to life each year, and the town's commitment to maintain the structure physically and symbolically as essential to the community, there is no reason why the bunnock in Macklin will not continue to feed local, national and even international interest and attention. And in so doing, continue to feed Macklin as a living, surviving community.

Spock Goes Home

Contrary to what popular culture enthusiasts might think, Vulcan is not actually a planet out there somewhere in the planetsphere; it is, in reality, a small town in rural southern Alberta. Named in 1915 by the town's Canadian Pacific Railway surveyor for the Roman god of Fire, Vulcan was laid out with streets also named for other assorted gods and goddesses. A predominantly agricultural community numbering approximately 2,000 in population, Vulcan's history has been intricately linked with its agricultural base, and is known regionally for its originally nine grain elevators, a staple of the Canadian prairie landscape. Today only one of the original nine remains, a silent testament to the changing face of agriculture over the years. Despite the loss of the elevators, however, the town maintains strong pride and attachment to this local history.

With its arrival in the 1960s, and exponential growth in popularity in the 1970s and beyond, the TV show *Star Trek* has organically given Vulcan another identity: home of the intrepid Mr. Spock. What began as a trickle of visitors looking to have their pictures taken with town signage mushroomed in the late 1980s as local business leaders seeking to diversity their failing economy turned to this 'gold mine' in their backyard for potential benefit. [42] Beginning with the formation in 1989 of the Vulcan Association of Science and Trek

(V.A.S.T.), the town began to engage in promotional events and activities linking it directly with Star Trek.

In 1991 a radio station in the nearby city of Lethbridge and the Calgary Herald newspaper held a contest, “Voyage to Vulcan,” and in 1993 the first Start Trek Convention, VulCon 1 (also now known as Spock Days/Galaxyfest), was held, and included the authors of Start Trek books as guests. The momentum continued with this annual event, culminating in the 1995 unveiling of the Vulcan Starship replica of the famous Star Trek ship as an entry marker to the town, and the opening of the newly created Tourism booth at the Trek Station. Seeking to continue building the potential of this new brand for Vulcan, the town hired Dayna Dickens from Ontario to serve as Director of Tourism. Vulcan Tourism quickly developed a new attraction for the Trek Station, the Vulcan Space Adventure, which garnered international media attention, as anything Star Trek related tends to do. By 2001, the visitor statistics had been growing steadily, reaching approximately 14,000 per year by the end of 2007.

An attempt in 2007 to hold the premiere of the new Star Trek movie in Vulcan, despite not having a theatre in town, ultimately failed, but did succeed in attracting the attention of the man himself: Mr. Spock, also known as actor Leonard Nimoy. Reaching out to the town to lend his support for their bid to host the premiere ultimately led to the largest event in Vulcan’s history: the coming home of Mr. Spock in April, 2010. Held in conjunction with the Calgary Comic Expo, and attended by the international print and television media, including the Sci-Fi Channel, the event was covered by almost 100,000 internet sites; and drew crowds of an estimated 6,000 from across the province and attendees at the Comic Expo. There are over thirty YouTube postings alone for the event. Mr. Nimoy was congenial, gracious, and genuinely interested in the town as he toured the Trek Station, and later unveiled a statue of Spock. It was a big day for little Vulcan.



Figure 3 - “Enterprise” float, Welcome Home Spock event, Vulcan, Alberta, April 2010



Figure 4 - TrekStation, Welcome Home Spock event, Vulcan, Alberta, April 2010

After reaching this branding dream scenario and pinnacle of international exposure, however, the future of the relationship between Vulcan and Star Trek lies in uncertain waters. Within months of the Spock event, Dickens left her position in Vulcan to take on consulting work, following differences held with the Town Council over strategic planning for Vulcan Tourism. Despite soaring visitor numbers of over 20,000, and the level of coverage and exposure, the town is uncertain as to how to proceed next. [43]

“It’s time to see what direction Town Council wants to take the [tourism] department,” says Vulcan Mayor Tom Grant. “Another question Town Council and the tourism committee needs to answer is whether the department should accelerate, break or put on the cruise control.” [44]

Lessons Learned III

The source for this uncertainty regarding direction for Vulcan Tourism is unknown, but it is inconceivable as to why a town that has won the tourism jackpot, so to speak, and would be the envy of small towns across the country, would hesitate to continue to capitalize on this gift of branding and exposure. The very notion of putting this momentum on ‘cruise control’ would be unfathomable to anyone in the tourism and economic development industries.

Perhaps the answer to this oddity may lie in the source of Vulcan’s fame, which came unbidden and unexpectedly from the larger world beyond the fields of southern Alberta. Although initially welcoming the potential for the economic boon that might follow an association with Star Trek, the town was not actually prepared for the level of fame and tourism growth that resulted, and their very public rebranding as the hometown of Spock. [45] Still attached to their historical association with the nine grain elevators, the local response to this new identity has been mixed. This is nowhere more evident than in the

cover of the town's brochure, that bizarrely overlays an image of the Starship Enterprise over an historic photo of the grain elevators.

So, the town has a difficult choice to make, and it is doing so without the guidance of experienced tourism or economic development professionals. Whether Vulcan chooses to capitalize on the opportunities it now has to continue and grow the new brand, or vacillate sufficiently until the momentum and interest fade, only time will tell. If Mr. Spock were asked this question, however, it is possible that he would choose the logical path, and advise the town to boldly go where Vulcan has not gone before.

The dilemma faced by Vulcan's Town Council is illustrative of the disconnect that can occur when initiatives are externally driven and imposed upon a community, and do not authentically arise from within. The town has been caught off guard by what is, by anyone's standards, phenomenal success in achieving a tourism and development brand that can last far into the future, and provide the basis for a solid and sustainable economic boon for the community. Despite the fact that the initiative to use the brand to diversify and grow the economy did originate in the town does not negate the additional fact that the townspeople themselves do not identify with this brand. This points to the need for a community to achieve buy-in and active participation with an initiative, particularly when it originates externally. Without a sense of community ownership, long-term continuity and sustainability of an initiative will always be in question.

If You Build It

The examples cited in this paper are but three of many, and have been chosen for their ability to represent the most significant commonalities found amongst the larger field of roadside attractions in this study. Each in their own way manifests noteworthy lessons to be learned about how these communities function, and, in turn, offer potential lessons for their urban counterparts seeking similar goals of meaningful self-identification through built form.

One of these lessons deals with the need for community participation, buy-in, and support in the visualization and design processes. Without the development of a sense of community ownership in these processes, a successful outcome may be jeopardized in the longer term, despite the appearance of initial success, as it is through this sense of ownership that the physical outcome (whatever 'it' may be) will be maintained and supported, both physically and economically. The unfortunate scenario of longer term neglect was observed countless times during this study, as numerous roadside attractions had fallen into disrepair after the initial vision and energy of a small group of enthusiasts had decayed over time. Although not a guarantee in and of itself of longer term sustainability, initial and continuous community support and buy-in, as seen in Macklin, does contribute positively to the 'living' aspect of the outcome, and therefore, presumably, to its survival.

Another commonality found across most of the attractions studied, but not explicitly articulated, is the significance of the distinction between the external and internal point of view of the community in question. Many communities studied understandably view the

world from the inside out, but do not supplement their normative viewpoint with that of the outside looking in. A small, but significant example of this are the communities which do not see the need to couple their roadside attraction with tourist information, either through joint physical presence, as in Macklin, or through informative signage. When asked where visitors to the attraction could obtain souvenirs or tourist brochures and information, the response was often that these could be found in X store in town, although the visitor had no means of learning this. The point here is that failure to understand how it is being viewed by the outside world or the visitor, can likewise lead to failure of intention. Macklin fully understands this, Melita is on the cusp of it, but Vulcan verges on missing this altogether. Without this understanding, communities can fail to ‘connect the dots,’ the economic dots, in particular. When the goal is economic gain, as it is with virtually all of the attractions studied, this failure can doom the endeavour entirely, or, at best, put it into ‘cruise control,’ resulting in a failure to benefit from the effort of constructing the attraction in the first place.

It would appear from these examples, as well as all of the others in this study, that it can be primarily external validation and attention to the roadside attraction that is of value to the community, both economic and otherwise. That much would be obvious, even without a study of any sort. The question that is begged, though, is: if you build it and they do not come (or like it), does it matter? The corollary to that question could be: if you build it and they do come (as in Vulcan), what then? These questions are faced by communities large and small who undertake civic projects, whether they be small roadside attractions, or large-scale urban design. The answer to both questions likely depends upon where on the spectrum of the commonalities noted above the community in question lies. Although the rural community’s project may be jeopardized by the failure to understand the external point of view, the urban community’s work can be just as threatened should the reverse be true, and the internal point of view be neglected. Likewise, obtaining community support and buy-in at the outset of any project can only be beneficial in the longer term, and assist with short-term success.

These ‘lessons’ are not new, historically speaking. The results of this study only point towards, and possibly confirm age-old lessons learned but perhaps forgotten in recent years, as technical considerations and infrastructure development have gained prominence in urban decision-making. At a time when architects, urban designers and planners are challenged to respond both to technological as well as civic needs, it is perhaps wise to recall that most basic of human needs: community.

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Acknowledgements

In addition to those mentioned in this paper, the authors would like to gratefully thank all of the town administrators and representatives who gave so generously of their time, and so openly shared with us their stories of community aspirations and achievements. Although these towns may be small by urban standards, they are big in spirit and energy.

THE CHILE MINER RESCUE—

A HUMAN-CENTERED DESIGN REFLECTION

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Abstract

This paper looks into the successful rescue of 33 Chilean Miners in 2010 and explores the event in light of principles and practices of human-centered design. It begins with a review of key elements and characteristics associated with human-centered design in design theory. A clarification of the nature of the design problem the Chile Miner Rescue presented follows before particular human-centered aspects in the planning and execution of this rescue operation are being highlighted. From this reflection, questions arise about the role and place of human-centered design in fields dominated by technicians and engineers. Can the Chile Miner Rescue serve as an example for the value of a human-centered design approach in these domains? Aside from stimulating thoughts, discussion and research into these questions, the intent of this paper is to illustrate a design situation in which design approaches and design problems reach beyond products and services. The deliberate focus on a current event is meant to challenge the reader to apply design theoretical concepts and methods to social and organizational questions. With that, this case study of the Chile Miner Rescue is presented as an opportunity for testing the boundaries, relevance and validities of some of our design concepts.

Human Centered Design

For many people, interaction design refers mainly to man-machine interfaces and involves digital engagement of some sort. It is therefore tempting to equate human-computer interaction design, or “hci” with human-centered interaction design. This is despite a list of researchers who have pointed out how people “interact” through analog objects, services, social environments—or products in general [1, 2, 3, 4]. The ways in which people are being encouraged or discouraged to engage with these products—objects, services and environments—support certain kinds of relationships. It is for this very reason that human-centered interaction design theories are being explored in service design, particularly in the context of public services [5, 6, 7]. It is clear then that the ideas, practices and methods of experience design and its related concepts, such as, for example, user experience, find consideration in human-centered interaction design. The individual experience remains a key for designers to generate new paths forward towards better products and services through the complex mazes and systems that need changing to fulfill their roles in a better human society. As Buchanan [4] states

Interaction design suggests that we shift our perspective from the massive totality of the system to the pathways of individual human experience – to our

major pathways through the city and through the organization to accomplish our goals.

Interaction design in this sense is an intrinsic element of human centered design. For example, in another paper, Richard Buchanan discusses human-centered design in the context of “First Principles” [8]. He uses the example of the developments in Post Apartheid South Africa to show that human-centered design, taken by itself, addresses general and fundamental human concerns: issues of human dignity and human rights. If human-centered design focuses on the rights and the dignity of an individual person, it has to make the individual experience in a given situation a key element. However, human-centered design makes a bigger argument in terms of the collective humanity. This is where it differs from the concepts, theories and practices of experience design. Experience design is generally concerned with how someone experiences a situation but this situation can be isolated from other situations and events that are happening at the same time. For example, how a patient experiences a waiting room or the procedure to refill a medication represents a one-to-one interaction. Human-centered design based on First Principles, in addition to the individual experience, also explores implications for ethics, sustainability, social justice and human dignity. A person may have a wonderful experience with a product that becomes a liability to society and a detriment to the environment. Yet, both society and the environment are essential to human well-being. Harming the environment or society can therefore not constitute human-centered design. Krippendorff [9] cites work by Agre [10] to describe this social or collective element of a human-centered design approach as

[a]cknowledging that artifacts are not necessarily good for everyone, and aid not just individuals but influence also how they live together, *design must support the lives of ideally large communities* (Agre 2000). Design cannot avoid ethical questions. And, finally, because improvements must be understandable and decidable by those affected, not imposed by lone designers or authorities who are not acknowledged by the community in question, *artifacts must make sense to most, ideally to all of those who have a stake in them*. [Krippendorff, p.26, all italics in original]

Krippendorff, too, points out how human-centered design pays attention to the tensions between the individual relationships and experiences and collective ones. As more and more practitioners and scholars turn their eyes towards the role of design in shaping and re-shaping the lives of many, for example through re-designing public services, it is a good time to revisit and clarify what human-centered design might imply in specific practices.

One of the obvious conclusions is that human-centered design practices have to involve comprehensive design inquiries into all elements that directly and indirectly constitute a particular system for people to live in or live with. The term comprehensive refers to the breadth of the necessary inquiries, which seek to explore the system’s elements. These “elements” include an analysis of the relationships people have or can have with people (within a given system), the material and structural constraints as well as the ideas, vision and purpose on which a particular system is founded. One of the criteria the rescue operation needs to satisfy in order to demonstrate human-centered design practices and principles is evidence of a comprehensive approach.

:: *Limitations of this Reflection*

By choosing to highlight a particular design perspective, I am aware that I am downplaying and at times even ignoring other aspects that some may argue, had a role in the outcome and the progress of this rescue operation. For one, it is quite feasible to look at this problem as a major PR problem for the Chilean government and the mining company itself. Such an analysis would focus on the legal and political contexts of the events. Design is never a-political, and so perhaps this warrants a further discussion.

Yet, the aim of this paper is to stimulate a discussion around human-centered design and the kinds of design problems it can address beyond traditional products and services.

Some readers may criticise that the paper makes few distinctions between “engineering design” and “design design.” A key argument here would be that the problem is already articulated. Indeed, the rescue operation presented a clearly defined problem which aimed at a singular and best outcome—to get the people out alive. With that, the situation was determined, that is, the problem did not fall into the category of a “wicked design problem” in the sense we understand it in design today: one where the situation is so indeterminate that only through inquiry into people, materials, environments and purpose we begin to understand the constituent elements and relationships and from which we can formulate a problem [11] No, the task was pretty clear here. There were rocks burying 33 men and the challenge was to keep the men alive and to create a rescue pathway in as short a time as possible while preventing any new collapses in the mine. In many ways, this case presents a vivid illustration of Klaus Krippendorff’s criticism of Herbert Simon’s design interpretation [9; 26]. Sticking to Krippendorff’s view, one could easily make the argument that the mining accident did not pose a design problem per se because it

... assumed consensus on what is to be accomplished, it also takes for granted that the outcome of the design process can be implemented by decree, similar to how the components of a mechanical system are installed. [9; 26].

Is it then possible—or worthwhile—to reflect on the Copiapó Mining Accident rescue operation from a human-centered design perspective? I argue that, if anything, it is particularly important to discuss human-centered design approaches in these contexts where, too often, the focus remains on the technical realities and rationalities. The Copiapó Mining Accident might serve as a reminder that human-centered design practices permeate many realms and are being applied in many different ways. Sometimes their practices are articulated and conscious and at others, they are not so clearly stated. Aside from saving the lives of every trapped miner, this rescue operation saw the development of novel products and the creation of value: the rescue capsule “Fénix,” designed specifically for the purpose of lifting miners above ground, is said to be worth almost two million US dollars today. I argue that human-centered design practices and principles drove this rescue operation and were key to its success. What follows is a brief description of the accident and the rescue operation. I then highlight aspects that are part of human-centered design practices and represent human-centered design principles.

:: Human-Centered Design and the 2010 Copiapó Mining Accident

On August 5, 2010, a disaster happened in the Copiapó mine in the Chilean Atacama Desert. 33 miners got buried 700 meters (2000 feet) below ground. The situation appeared hopeless. It was feared that the rocks caving in killed all 33 men—young and old. Against the odds, all men were found and brought to safety during a final, 22-hour long rescue operation that began on October 12, 2010. For this rescue, a new pipe had to be drilled, which had to be broad enough to fit a rescue capsule, which, in turn, had to be big enough to fit a person. The drilling of the pipe posed further risks to loosen rock into the tiny space the miners had. The capsule had to be designed. The mechanism to lift the capsule up and down had to be designed. The rock had to be examined. All this had to be done carefully and expedient. There was no room for error. Yet, trial and error were part of the process of developing the capsule and in drilling the rescue pipe.

The challenge I propose is to take a closer look at the approach the rescue teams took and to explore how this approach fits with our understanding of a human-centered design. Existing resources and structures were carefully and creatively explored while new resources and structures were invented. The purpose of the rescue operation remained focused on the people and rather than focus on the individual alone (the

experience of the individual), provisions were made from the beginning to involve the families and the community. I will now list some of the key markers of human-centered design practice in this rescue operation. I will discuss some of these only lightly in order to discuss others in more length. I have relied on descriptions; interviews and background stories published in newspapers and online media sources, to identify a range of human-centered design practices and principles that guided this rescue operation. From these, we can establish that the rescue operation took the form of a comprehensive inquiry into the given situation with a keen eye to all concerns human. Among these key markers are:

A Human Purpose: The rescue operation centered on human beings and therefore had a literal human purpose: its goal was to rescue 33 people and to help their families and their communities to avoid a disastrous loss. All technologies, expertise and cost concerns were subjected to this overarching purpose. No matter what the differences might have been, the goal unified the various rescue teams, the miners, their families and their communities.

Empathy and Consideration for the Individual Person: From the start of the operation to its conclusion, the rescue efforts remained focused on the individual needs and the personal contexts of the people involved:

Each miner was treated as an individual human being with individual needs, ranging from consultation by a psychologist, private family communications to assigning him a particular role in the social group underground and in the rescue operation. Physical, emotional, psychological and social factors all were considered and tasks and responsibilities adjusted as the operation went on.

But it was not only the miners themselves who were considered in this rescue operation: Above ground, individual family members, including a very pregnant wife, families and friends also received support.

Empathy and Consideration for the Community: The rescue teams recognized that these human relationships were crucial in keeping up the spirits of the trapped men during their ordeal. Likewise, the rescue teams recognized the significance of this tragedy for the wider communities. Furthermore, it was understood that in order to work through this traumatic experience, both the family and the miner had to develop new skills capabilities.

There were rumors that Steve Jobs had wanted to send an i-Pod to each miner while they were captured so they could entertain themselves with games. Supposedly, the leading psychologists in the rescue task decided against handing these entertainment devices to the miners for fear that some of the men would retreat from the group and become too absorbed and isolated. Individual withdrawal was seen as endangering the group's ability to stick together and to work together. Thus the miners received their free i-pods only after they were rescued [12].

As part of the rescue operation, temporary housing for the families of the miners were set-up near the drilling zone. Many miners had their homes far away from the mine. This housing provision meant that family members could remain close-by, support the operations and get support themselves when necessary.

Communication, Collaboration, Participation & Co-designing: The latest technologies were used to communicate with the miners regularly and consistently. The progress above ground was communicated honestly to the miners. Throughout the rescue operation, a sense of transparency and trust existed.

The miners underground were given tasks and responsibilities in the rescue operation and with that an element of control and participation. They had to reorganize themselves

in the mine and had to collaborate in their rescue. Their importance as partners in the rescue operation is highlighted in their ability to make demands and decisions. The rescue operation relied on the miners' expertise. The miners took responsibility for clearing the rocks that would fall down as part of the rescue operation. They organized themselves in three shifts to be able to work around the clock [13].

The rescue operation combined the knowledge of laymen (families and friends) with the expertise of psychologists and engineers.

The miner who was appointed as spokesperson for the trapped men, Mr. Urzua, "received three daily briefings: One from a doctor, another from a psychologist and the third from a miner updating him on the technical aspects of the rescue operation." [14]

Careful Analysis of the Material Environments & their Constraints: The geological make-up of the rock structures were carefully studied. Although time was a critical element, no shortcuts were taken in order to minimize the risks to the overall rescue operation and to avert further danger from the 33 trapped men. The air, the light, the temperature, the humidity inside the cave was being monitored and improvisational devices were developed to maintain an environment in which the miners could survive.

The Discovery and Invention of Procedures and Processes: The uniqueness of the circumstances, the physical and natural constraints forced the engineers to experiment with various technologies and to improvise devices as the operation went on.

The Conception and Development of a New, Specific Product and the Creation of Value: The *Fénix* rescue capsules were designed by a team of Chilean Navy engineers and engineers from the United States space agency NASA. Australian engineers provided the pulley mechanism used to drop and raise the capsules inside the rescue canal. The drills were provided by a US-company (Center Rock), which specializes in drill bits for mining purposes [13]. The *Fénix* rescue (also referred to as Phoenix Two) capsule was valued at one million US dollars in October 2010 [15].

Managing Time Pressure and Managing Risk: No deadline is as imminent as the one that might mean death of people. Yet, despite the time pressure, the implication of each decision has to be explored and considered. The rescue team worked speedily but avoided rush actions and decisions. Before drilling the pipe, several probe drills were made to find the best position, understand the rock formation and reduce additional earth movement. Plans were made for how to deal with the falling rock inside the mine, work was being organized and schedules developed. A total of four capsules were conceived of, developed and tested. Capsule number three was the one used in the final rescue.

Leadership: The search and rescue operations were overseen by one Chilean engineer who was also head of a state-owned copper mine therefore an expert in the technical and engineering demands. At the same time, he understood the human challenges that needed to be overcome in order to make this a successful rescue. He had direct access to the President of Chile and thus the ability to make quick decisions and take quick actions.

Yet, the most insights in regards to design leadership can be gleaned from the miners' spokesperson, Mr. Urzua. His leadership turned out to be crucial in the successful outcome [14]. While the engineers "upstairs" had to come to terms with their own challenges, these paled in comparison with the complexity and at the uncertainty of the situation for the miners. They could not be sure that their actions would result in their rescue. They had to trust the information they were given. It is not surprising that Mr. Urzo's leadership has caught the attention of management scholars [16].

Teamwork: Several instances of teamwork can be observed. The rescue operation itself was performed through interdisciplinary and international collaborations to build the rescue pipe, to design and to construct the rescue capsules.

This engineering team was in constant contact with a team of international and national psychologists. It was immediately recognized that the situation for the miners showed many parallels with astronauts spending extended time in confined spaces. Thus experts from NASA also were brought in to consult on the physical and mental health issues for the miners.

Inside the cave, the trapped miners were forced to reorganize themselves and after early struggles, assigned tasks that connected them to life and humanity beyond their current experience. They appointed a speaker who spoke for them with the rescuers, an official biographer who documented their experiences for the future and a poet [17].

Finding common ground despite cultural, social and linguistic differences: The men trapped in the mine, their families, the engineers from the US, Australia and Chile, the medical team all represented different cultures from various social, national and disciplinary backgrounds. They spoke many different dialects and languages.

:: *Summary & Conclusion*

In summary, we can observe that the Chile Miner Rescue Operation undertook a comprehensive and collaborative design approach, in which the concern for people, both as individuals but also as members of families and communities, was paramount. The engagement and commitment of the operation was marked by individual courage, passion and resilience in pursuing a common purpose. There are many factors that clearly point to human-centered design practices and principles. There does remain a bit of softness in the claims made here as the “evidence” is derived from news reports and online media background stories. Many of these outlets have a clear interest and potential bias in their reporting. Nonetheless, there are enough similarities in these reports to feel confident about the relationships the miners had with the rescue teams, the relations of the different engineering and rescue teams and the families and communities at the time.

The Chile Miner Rescue Operation highlights once more that human-centered design comes in many forms and shapes and applies to many different situations. Undoubtedly, there are currently many human-centered design efforts underway that concern themselves with improving the lives of thousands, sometimes millions of people through one design project or another. Their aims include social well-being, social inclusion, social businesses and the search for new ways to tackle some of the most pertinent issues people face today: human rights, human dignity and sustainability. Does this diminish the human-centered approach that led this rescue effort to success? Au contraire, I would argue. If we learn to deal with more of these “smaller” situations with the commitment, creativity, collaboration and concern that has marked the Chile Miner Rescue, we might become more effective at generating, implementing and institutionalizing desirable outcomes in our immediate environments. In tough times, in complex and uncertain situations, we need to stay focused and remember that we all bring different skills and knowledge to the table and that working together, we can arrive at solutions that benefit all. It seems obvious that a rescue team is particularly trained in this, and with that, it should not come as a surprise that we find human-centered design practices and principles in place here. Yet, as design practices go, they often are part of the less salient design activities that Gorb & Dumas aptly described as ‘silent design’ [18].

Let’s also not forget that human catastrophes can confront people with very different kinds of design problems. Another intriguing case study for human-centered design involves a 1972 plane crash high up in the Argentinian Andes. Only sixteen of the forty-

five people on board survived what turned out to be a harrowing seventy-two day struggle for survival in the harshest conditions known to humans. Fernando Parrado, one of the sixteen survivors, rightly pointed out that he and his Argentinian comrades found themselves completely cut off from civilization, in freezing temperatures and icy storms without food, shelter, medicine or any other kind of support that would help them stay alive. Survival came down to having to eat the flesh of their dead co-passengers—friends, colleagues, and crew. Parrado points out that the Chile Miners “had food, warmth, psychological and physical support” [19]. The accident victims in the Andes had none of that. How are people to find a way out of such a situation? It is a remarkable story how Parrado and his co-survivors had to come to terms with fundamental ethical questions, address social issues and make creative use of available resources (for example: turning airplane insulation into sleeping bags) in order to survive. How does such an extreme situation fit with our concepts and notions of human-centered design? And can something be learned from it?

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Nomadism

Not all “Designers are Wankers”: Connecting design, enterprise and regional cultural development.

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Abstract

This paper reports on how a University’s *Designer in Residence Scheme* has contributed to both the local cultural and economic regeneration of the design sector in the North East of England. This case study specifically reflects on how the schemes ‘practitioner mentoring’ has created a significant community of practice through the collaborations of a Design School, Enterprise Campus¹ and regional development agencies.

British design education is often bemoaned by the creative industries for failing to properly equip graduates for the ins and outs of the business of design; whilst at the same time it has become a truism of British industry that it innovates but does not make and sell. Northumbria University’s Designer in Residence scheme was established with a view to addressing both of these issues.

A modern university is not wholly or even mainly just an academy. It could rather be seen as a context for the non-academic acquisition of higher-level practical skills, especially in creative fields. This is quite a different activity from the conventional teaching and tutoring process in which most universities, even today, are educationally landlocked. The industrial workshops, studios and ateliers that used to provide the context for this practical skills development no longer exist. It could be argued that they anyway never offered the grounding in independent, effective, self-management that a present day design sector needs. In the Designer in Residence Scheme such independence is routinely imparted and acquired by succeeding ‘breaking waves’ of designers.

As academic partners on the scheme, the authors reflect on the value and methodologies of the initiative evolved throughout its ten-year span, focusing on the nature of the community of practice established between successive residents, academics and Enterprise Campus and crucially how the designers have owned the process of developing directional design practice. This creative dialogue has resulted in a number of key findings to be discussed in this paper on the relevance and value of design enterprise to regional development, cultural identity, and economic growth. The paper concludes by discussing the value to Higher Education in developing an integrated approach to the culture of design, enterprise and manufacture.

Keywords: design practice; enterprise; manufacture; collaboration; regional development

¹ ‘Enterprise Campus’ is a facility of Northumbria University. It provides assistance to Students and Graduates in the creation and development of their own businesses.

Introduction

“For developed countries who cannot compete on natural resources and low labour costs, success demands a more service-led economy and high value-added industry. In the 21st Century, our natural resource is our people – and their potential is both untapped and vast.”
(Lord Leitch, 2006).

It is widely accepted that design innovation has an integral and vital role to play in the health of British industry, indeed our ‘creative industry’ is often cited as the last great competitive edge we have in a global economy of increasingly resurgent new economies (Bayley 2010). The Cox Review of Creativity in Business (Cox 2005) spawned numerous studies and initiatives aimed at highlighting and better exploiting the potential of creative industries within the UK economic and cultural landscape. Viewed together a large number of these documents place a common emphasis on the importance of up-skilling to enhance the UK’s industrial competitiveness and also serve to reinforce the perceived tensions that exist between education and business particularly in terms of skills and employability (Leitch 2006). The broad tenure of ‘High-level skills for higher value’ (Design Skills Advisory Panel 2007) was to highlight and address the skills gaps in schools, colleges and universities and the design industry and in their subsequent ‘Design Blueprint’ (2008) these gaps are specifically identified as being related to design graduates having a lack of business and professional skills and the need to bring design education and industrial practice closer together. A lack of professional experience in design graduates. Whilst many of the reports findings and proposals are pertinent and relevant, little real change has been enacted in a way that serves to alleviate these tensions at grass roots level. The creative industries still bemoan Higher Education for failing to properly equip graduates for the machinations of the business of design, whilst education often feels that industry is often contradictory in that it expects graduates to be creative mavericks’ that whilst possessing huge technical competences on the one hand at the same time have a deep understanding of business and related skills commensurate with making them capable of commercial exploitation from day one of employment. In order to begin to bridge this divide Northumbria University’s School of Design established its Designer in Residence Scheme of practitioner mentoring to exploit and develop the commercial design potential of its graduates to draw support from the design profession and regional development agencies.

The creative North East

If the UK as a whole is accepted as being relatively poor in terms of its investment in the value of design then the North East of England could be said to stand out as a dubious beacon in this landscape *“Only 6% of North East businesses see design as integral to their operations. Only a further 19% see it as significant. UK averages 15% and 22%. Nowhere else are businesses less positive about design.”* (Design Council 2007) Whilst design as a commercial activity in the region has historically maintained a low visibility and therefore sustained limited commercial and cultural impact, the region’s universities annually produce hundreds of highly skilled design graduates with the vast majority being forced to leave the region to gain employment. One of the prime objectives of

the Designer in Residence Scheme has been to retain graduates in the North East and thereby contribute to the growth of design as a cultural and commercial driver within the region. Northumbria University's school of design is not alone in its wish to improve this situation with recent initiatives such as Design Event and Dotto7 proving that there is both a cultural appetite for engagement with design and the beginnings of a diverse community of design practitioners fighting to establish themselves and their businesses in the region. Prior to the recession the North East increased its productivity in the creative and cultural industries by 2% compared to a national decline of 7% and in its 2009 regional plan for the North East Creative and Cultural Skills are optimistic for a return to growth as the UK economy begins to recover.

Designers in Residence

The Designers in Residence (DIR) scheme is a 2-year post-graduate initiative designed to support Northumbria alumnae wishing to develop their own professional design practice. It is run within Northumbria University's School of Design by BA (Hons) Three Dimensional Design staff for graduates from this programme with its professional practice being centred on the activities of furniture and product design. The signature of the scheme is perhaps its particular engagement with the design of products that both celebrate the value of traditional craft manufacturing qualities but which are also contemporary, rich in narrative and market ready.² The DIR scheme in its current form was formally established in 2000 and since 2003 has worked closely with Enterprise Campus to develop the provision of resources for its activities, particularly to support residents to show their work at national and international trade fairs. Residents are given enterprise start up support to encourage them to view their practice not simply as a creative activity but also as a commercial enterprise capable of generating income and employment for themselves and others.

One of the key opportunities available to graduates who undertake the scheme is to exhibit work both nationally and internationally. This not only gives residents a unique opportunity to develop a real understanding of the market for their products/services, an awareness of competitors, how to reach and interact with potential clients, but also raises the profile of the School, the University and its staff. Support for the residency has facilitated regular participation at national trade shows such as 100% Design - part of London Design Festival and the International Furniture Fair at the NEC Birmingham. Internationally the scheme has shown in the Salon Satellite at Milan Furniture Fair. In 2004, 2005, 2006 and 2007 Northumbria University's Designers in Residence were the only UK based designers to be selected to exhibit in the 'new designers section' of the Stockholm Furniture Fair. The scheme is currently working to progress this activity into North America and intends to show work at the 2011 International Contemporary Furniture Fair in New York.

2010/11 marks a particularly apposite point to reflect on the value and methodologies of the initiative evolved throughout its ten-year span, particularly the nature of the community of practice established

² Richard Sennett argues for the importance of recognising and valuing modern craft skills in his book 'The Craftsman' (2008)

between successive residents, academics and enterprise campus and crucially how the designers have owned their own transformation from design graduates into creative entrepreneurs.

Methodology and findings

The Designers in Residence scheme has so far supported a total of 30 graduates and from this group 12 were selected for detailed analysis. The group was selected to reflect the full range and nature of activities undertaken on the residency and their tenure spans the full ten years of the schemes existence. Qualitative evaluation was gained by developing a structured series of questions to use in a recorded interview with each of the participants. Questions were developed to ensure that reflections were made on their experiences at key stages of the residency i.e. the beginning, midpoint, end and beyond. Findings ultimately also gave rise to a retrospective exhibition of residents work at 100% design.³

1 Beginning – why do the residency?

“I loved being a student in the North East. The residency is an incentive to stay” participant 3.

“... after graduation I realised I didn’t want to work in isolation but in a both creative and supportive environment” participant 6.

“The cost of hiring or buying the equipment I need is unrealistic at this stage.” participant 7

The responses to questions reflecting on the beginning of the residency made it clear that the designers had been actively looking for reasons to stay in the northeast having enjoyed their time in the region as students. The example set by residents to undergraduates revealed the idea of business start-up not as something to aspire to later in ones career but an option immediately after graduation. The dialogue between students and residents working in the same physical spaces can lead to the growth of informal relationships and support networks that go beyond the structure of the academic degree programme. The practical benefits of access to facilities in the designing and making of prototypes allow the designers to utilise the facilities with which they became familiar as undergraduate students.

2 Midpoint – getting it out there?

“Working towards exhibiting with other residents at Stockholm (furniture fair) is great. It’s a real deadline! We are all doing different things and looking for interest from a variety of different people at the event but we seem to be working towards the same thing” participant 3

“I’m learning things about professional practice at my pace and when I need it... its real, not pretend anymore” participant 6

³ Retrospective of Designers in Residence at Northumbria (Stand F111) at 100% Design. 23rd -26th September 2010

“I can’t imagine a job I could have applied for that would have given me this much experience of design and business in just one year. I’ve developed a product and launched it at an international furniture fair, worked to commission, worked alongside others doing similar things and received advice from both business people and designers with regard my own ideas.” participant 7

The responses to questions reflecting 14 months in to the residency made it clear that supporting design entrepreneurs in the creation of their businesses when they need it leads to very meaningful learning experiences. The act of ‘doing’ business rather than dwelling on theoretical models out of sequence leads to valuable insights into what is required of making a living from design. The interviews made clear the value of participation at regional, national and international trade fairs.

3 End – was it worth it?

“As a designer I have learnt by ‘doing’, for example when I’ve designed a chair I made prototypes and tested them. The model of learning about the business of design by ‘doing’ it, therefore, really suits me” participant 3

“I’ve had experiences that had I tried to do this (set up a furniture and product design business) on my own I simply would not have been able to have. I’ve travelled to interesting places showing work to potential clients, had practical advice when I have needed it and been able to use specialist equipment and workshops without the hassle of hiring or buying it. The best thing is that it will be easy to stay connected with that community that surrounds the residency because I am in contact people that have been through the residency before me and over the last year I have worked with people just coming on to it”. participant 6

“It has given me a couple of years to really focus on product development. There was no other way I could have developed the Louis (furniture) range at that time”. participant 7

The responses to questions reflecting on the full 2 years of the scheme clearly reveal the value of learning via professional practice. By the end of the residency designers recognise the lasting benefits are the not physical resources to which they have had access but the connections made with both the markets with which they have connected and the support network of people of which they are a part.

4 Beyond – what next?

“Although we have sold products to many parts of the world: London, Seoul, New York, ... we are staying in the North East. The contacts we have made over the last few years mean there are practical reasons to stay here. Studio space is readily available and we have a network of specialist manufacturers from upholsterers through to steel fabricators almost on the doorstep. The creative scene in the North East is still relatively small but we are part of something that is growing. ”. participant 6

“Although I’ve left the region to follow up business opportunities I began exploring as a resident I am still connected to it via the network of designers that have come through the residency”. participant 7

In 2004 Dan Ziglam & Elliot Brook completed two years of the Designer in Residence scheme and with the support of Northumbria’s Enterprise Campus initiatives were able to attract support from a number of regional organisations including the Arts Council and Business Link to establish ‘Deadgood’. The company acts as exemplar of the value and potential of the scheme, not just in terms of their own successful business practice but also in its contribution to the nurturing of subsequent residents through mentoring support and commercial development of products under the Deadgood brand.

Deadgood have not only sustained healthy profitability and growth but have also built a reputable and high profile name for design innovation. This commercial side of their business is complimented by a genuinely altruistic approach whereby they will champion and develop the work of other complimentary but less well established designers. In 2005 they established the design event ‘Launch’⁴ as a response to the lack of opportunity to promote themselves as designers within the North East. Over a three-year period ‘Launch’ positioned itself as one of the regions leading design showcases, promoting the latest products from over 50 emerging designers and creative businesses. These annual exhibitions contributed to the development of a more visible design culture within Newcastle upon Tyne and attracted over 3500 visitors helping generate new business for the local creative community and raising the profile of North East based designers to both regional and national audiences.

“What can I say? Launch is beautiful and if you could bottle it, you’d take it home! It isn’t just an exhibition, it’s an experience.”⁵

In September 2008 Dan & Elliot secured £150K of seed funding from the North East Finance ‘Design & Creative Fund’ and officially incorporated Deadgood Trading Limited to specialise in the design and distribution of furniture and interior products. Since then they have begun to build a portfolio of intellectual property from a number of leading young British designers, have established an exceptionally strong brand identity and have started to carve out a niche within the luxury domestic and high specification commercial markets. Deadgood’s commercial client list currently includes the NHS, ING, Manchester Airport, Liberty of London, Lane Crawford in Hong Kong and La Rinascente in Milan.

⁴ <http://www.deadgoodltd.co.uk/NewsDetail.php?id=6> (last accessed 13.01.11)

⁵ <http://www.deadgoodltd.co.uk/NewsDetail.php?id=6> (last accessed 13.01.11)

Conclusion

The research project set out to identify how a community of practice established through the collaborations of a Design School, Enterprise Campus and regional development agencies has contributed to both the local cultural and economic regeneration of the design sector in the North East of England. The value of the DIR scheme is ultimately evidenced in the success and reputation of the designers who have been through it. They demonstrate their excellence not only in the physicality of their creative outputs but more importantly in the way that they are able to recruit support from the commercial world to profitably create and widely distribute ideas and products. Whilst in pedagogic terms the residency has contributed to a culture of undergraduates understanding the opportunities that exist within the region for design that has an international reach and profile.

As Roger Candy Of Northumbria University's Enterprise campus states, "Our approach is to progress the start up companies of students and recent graduates to full trading as soon as possible.... We are aided by the nature of the academic culture in the University. Northumbria is highly vocational. This means that - especially in relation to design and other creative fields - a large proportion of learners have vocational skills that they can rapidly employ through establishing their own companies." (Candy 2009)

The research identifies that participating in shows/trade fairs is central to the success of the residency as exhibiting products gives structure to the process of targeting specific audiences for the businesses/enterprises created and supported via the scheme. The learning experience for the designers is invaluable not just in terms of meeting clients but also understanding the process of preparing, constructing and manning the events and then following up business generated. These are not theoretical exercises but direct links to customers and industry. Ben Evans director of 100% Design argues "The simple premise about most showcasing events is by concentrating activity by date, geography or type, you dramatically increase your chance of talking to the people you want to talk to and those you don't yet know. Audiences are everything and everyone wants new audiences."⁶

Preparation for these activities gives real deadlines and meaningful frameworks to the mentoring process and become 'event hubs' that give focus to designer's activities throughout the tenure of their residency and perhaps more importantly maintains links between the various members of this community of practice not only whilst formally on the scheme but beyond into their professional careers.

⁶ Evans, B., 2009 "Showcasing" in Holden, J., Kieffer, J., Newbiggin, J., Wright, S. (ed), 2009, **After the Crunch** available at: www.creative-choices.co.uk/upload/pdf/After_the_Crunch.pdf (last accessed 13.01.11)

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ACNOWLEDGMENTS

This work was developed with the support of Roger Candy and Graham Baty of Northumbria University's Enterprise Campus.

Design and the Cognitive Sciences: from *a* to *b* and back again

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Abstract

Whenever one creates an object, a system of thought, an equation - with full consciousness of one's objectives - one can never know for sure which will be the full nomad extent of the provoked phenomenon.

In this sense, we hereby propose an itinerary which has entertainment as its starting point, then taking us through Design, Cognitive Sciences, Psychology and back to Design, Sciences and Life.

In the present case, we take a tool developed as a videogame controller and – through an experimental process – the extrapolation of this tool for the field of Sound Design.

This device belongs to the BCI (Brain Computer Interface) class, and was originally developed to substitute the use of the mouse/joystick in videogames. Nevertheless, with the development of specific software it is now practicable to employ this device for controlling any music production software, which means the possibility of modulating sound with the mind.

By the means of three sensors placed on the user's forehead, the 'NIA' (Neural Impulse Actuator) reads the electrical impulses generated by the Alpha and Beta waves of the brain and translates them into command messages.

Therefore, this investigation becomes also an attempt to understand the connection between the brain and its object. This leads us directly into the field of Cognitive Sciences and Psychology, since we're asking the brain to operate an innovative performance regarding our intuition. The plasticity of the brain is a main issue in this process, for it allows unexpected possibilities in what concerns learning and changing throughout life.

If we know how to deal with our brain to control the frequency of its waves, how to use the different capacities of each hemisphere, how to develop and restrain some areas, we might in fact approach a state of consciousness where rationality also integrates highly developed instincts and intuitions.

Back to Design, mental training can - on one hand - allow us to better control these new tools in the context of experimental processes in Design, as it can – on the other – lead us to a more adequate view and practice of Design: one that manifests our commitment to the world.

Entertainment

In the present case, we take a new tool developed as a videogame controller and – through an experimental process – the extrapolation of this tool for the field of Sound Design (in which Sound Design is an example from which one can foresee further uses of this tool in other fields of Design).

This device, called NIA – Neural Impulse Actuator - belongs to the BCI (Brain Computer Interface) class, and was originally developed to substitute the use of the mouse/joystick in videogames. It has also been used to include people with limited mobility that can't actually use their hands to play games, since with the NIA one can control the game without needing keyboard strokes or mouse clicks, using only brainwaves and/or facial expression.

(Sound) Design

Entertainment taken as starting point, one can now move on and cross borders: what if, with the NIA, we can apply brainwaves and facial expression to creative uses, such as, let's say, Sound Design? Actually, with the development of specific software it is now practicable to employ this device for controlling music production software, which means the innovative possibility of modulating sound with the mind.

By the means of three sensors placed on the user's forehead, the 'NIA' (Neural Impulse Actuator) reads the electrical impulses generated by the Alpha and Beta waves of the brain and translates them into command messages: these command messages are then translated by our developed software into MIDI or OSC messages, which can be read by any music production software such as MAXMSP, Pure Data, Reactor or Ableton Live.

[1]

Cognitive Sciences and Psychology

Due to the nature of our study, this investigation becomes also an attempt to understand the connection between the brain and its object. This leads us directly into the field of Cognitive Sciences and Psychology, since we're asking the brain to operate an innovative performance regarding our intuition. The plasticity of the brain is a main issue in this process, for it allows unexpected possibilities in what concerns learning and changing throughout life.

Brain plasticity: the tool for changes

Neuroplasticity can be understood as the brain's capacity to reorganize when submitted to changes, which can be, in fact, related to several practices.

The concept of neuroplasticity is somehow recent. Not long ago, the immutable structure of the brain in its adult state was an accepted fact: neurons died without others being born to replace them. Today it is proved the neurogenesis exists, though the neurons are born in a much smaller amount than the ones that die. Brain plasticity is nevertheless much more relevant in what concerns the amount and quality of synapses – functional connections between neurons – that can multiply throughout all our life, as easily as they can break, since the brain follows a law of economy which one can translate by the expression: “use it or lose it”.

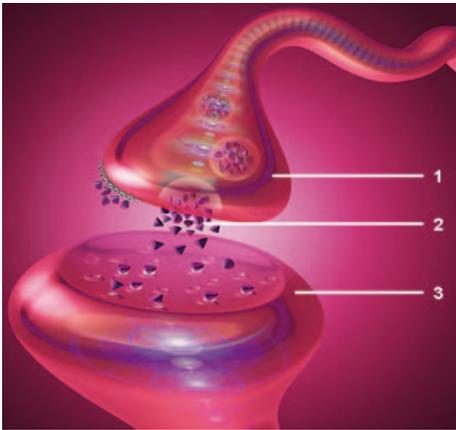


Figure 1- Synapse

On the other hand, it is known that learning is possible not only through new connections, but also by reinforcing the existent ones. This function's fundamental part is the hippocampus, a core zone of memory, since its primary function is to transform short term into long term memory, with multiple and consistent connection cables. Another great expression arises here: “Neurons that fire together wire together”.

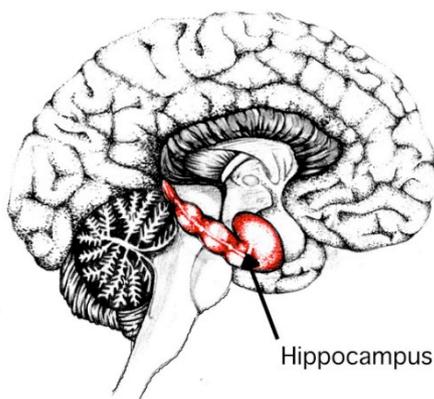


Figure 2 – Hippocampus

The most interesting issue about brain plasticity is that some changes in brain circuits occur very fast and can even include our attitude towards life. In fact, if one stimulates one's left prefrontal area, and inhibit the excessive activity of the correspondent area in the right hemisphere, will result in switching from a more pessimist and aggressive state to a more optimist and conciliatory one. Therefore, brain plasticity allows (and is allowed by) brain modulation as well as the awareness of this modulation.

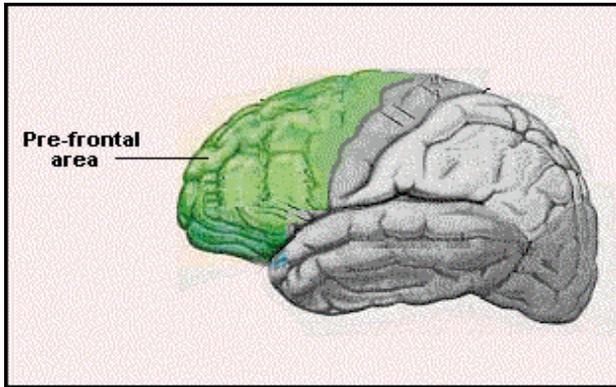


Figure 3 – Brain pre-frontal area

Regarding the amplitude of this plasticity, one question immediately arises: which is the relation between brain plasticity and genetic determination? As a matter of fact, genetic determination is as meaningful as environmental and psychological determinations, articulated through brain plasticity. What we have here is a

“modulation of the expression of a genotype (the genetic constitution of an individual) by environmental or cultural factors, beyond the concept of interaction” [2] (Ansermet and Magistretti 2004, p. 24).

This means that if there are many, nowadays, who consider that brain plasticity is the founder of a new paradigm, that's because it opens the possibility of thinking about the transformation of brain circuits through epigenetic changes (external to the genome) like cultural factors, educational and environmental variables, etc. The environment stimulates and the brain reacts, through changes in neuronal circuitry, in the frequency of the mind waves, and changes in some actions and behaviors.

The role of the trace in the creation of automatisms

Experience leaves a footprint in memory, a mark, a “trace” (in psychoanalysis) that modulates behaviors. The brain has very fine mechanisms to store these pieces of information and to manage their recall whenever necessary. It is clear that the hippocampus plays a fundamental role in this process, since it holds responsibility for turning short term into long term memory, which can last a whole life.

Sometimes, when we already possess the appropriate *savoir-faire* for a specific situation, the footprint gets spontaneously imprinted. These are the cases where continuous experience creates automatisms.

Trace, in fact, being a place of reinforcement and reinforced throughout life, is in many circumstances unconscious, in others just interiorized, which allows us to take action through instincts in a progressively more adequate way, on one hand, or a progressively more creative way, in the other. [3]

In cases of extreme persistence and efficiency in learning (great reinforcement of the trace), the modulation can be of such order that the function of a component of the brain can be altered like in the case of the chess champion, Susan Polgar.

The nomadic case of Susan Polgar

Susan Polgar spent her childhood and adolescence playing chess and studying catalogs of famous games, at least six hours a day: it was astonishing to see a little girl winning against famous chess players. Later, in adulthood, she developed a skill that allowed her to win a chess game in sixty seconds only. But how does she manage to play – and win – without time for thinking?

About this incredible performance, Susan Polgar stated that she plays using only her intuition, to which scientists have responded with a comparison between this process and some kind of direct line from brain to hand.

Since Susan Polgar accepted to submit herself to tests concerning new brain imaging, one was able to better understand the process used in her 60 seconds games: it was verified by functional magnetic resonance that the fusiform gyrus, responsible for the recognizing of faces, acted on her also as an recognition operator for chess configurations, allowing decisions to be as fast as our most intuitive responses, like recognizing a face or escaping a collision trajectory. [4]

From this case we can draw an essential conclusion regarding both brain plasticity and intuition: neuroplasticity can operate the nomadic passage of reasoning to intuition and automatisms.

Other nomadisms concerning the brain

In case of injury, or in the specific case of loss of the kinesthetic sense – responsible for feeling one's body and for the pressure and effort necessary to undertake actions – most people become immobilized. Nevertheless in some famous cases, due to the persistence and intelligence of the situation, some patients could act autonomously without ever arriving to recover feeling of the body. In fact, they developed automatisms that made it possible for them to acquire a “second nature” without nevertheless feeling their own body ever again.

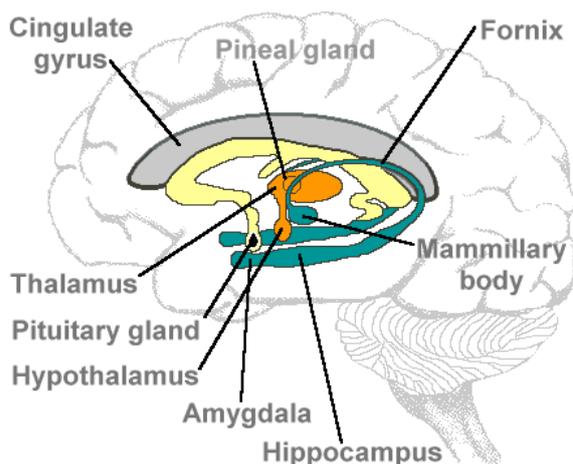
These automatisms are only made possible by the plasticity of a brain that reorganizes itself, after persistent reinforcement of the new feedbacks for action. These new excitements of the neuronal device allow the individual to move forward from perception to creative action. Therefore, neuroplasticity is always modulating the brain, like an architect that lets his technical knowledge be guided and achieved by the

inspiration of the context: place, landscape, regional materials, weather, and even a tree that grows alone in the horizon of the vision. The modulation of the brain goes from imprinting experience - its persistence and new variables - to the construction of a singular imaginary. [5]

Plasticity of emotions

This process alone is enough to explain why we act and develop adequate behaviors, like cutting the cake at one's wedding, making a toast, kissing, (Ansermet and Magistretti 2004. p. 44). . [6] But this process doesn't explain, nevertheless, why the middle sister loses her appetite when she remembers her older brother's wedding, to which she had attended with her husband, who in the meantime left her

When a stimulus from the external world is associated to a perception, it is also associated to a somatic, body state, which originates the perception of an emotion. It's highly understandable that anxiety for example, couldn't exist without the accelerated breath and heart beat, sometimes cold sweat, stomachache, trembling legs. [7]



The Limbic System

Figure 4 – The limbic system

Also according to Ansermet and Magistretti, the amygdala - the organ that plays the main role in cases such as fear and anxiety

“connects perception and its imprint to the unfolding of somatic reactions, and, at the same time, it sends information to the procedural memory through the pre-frontal cortex” (2004, p. 185) [8].

It is known that António Damásio's great thesis lies on the fact that the pre-frontal area is responsible for emotions and the decision making ability (Damásio.1995 and 2010). [9] Thus, it shouldn't surprise us that the unconscious traces – the ones directly imprinted in the amygdala– constitute the unconscious reality that may also constitute new stimulus (Ansermet and Magistretti 2004, p. 185) [10] .

The more the brain is modulated by mechanisms of synaptic plasticity, the more there is the possibility of creative action.

Back to (sound) design: introducing the NIA

BCIs were originally developed regarding health purposes such as assisting, augmenting, or repairing human cognitive or sensory-motor functions. It was nevertheless impracticable to ignore the infinite possibilities and incredible potential concerning creative and experimental uses of this kind of device.



Figure 5 - NIA device

Aiming to put in practice our study of the relations between brain and object in the context of experimental processes in Design, we found a Brain-Computer Interface called NIA (Neural Impulse Actuator), a device which seemed simultaneously accessible, affordable and simple enough to use as starting point for our tests on the subject.

The NIA belongs to the non-invasive BCIs category, meaning that the sensors that translate brain activity into information aren't implanted inside the grey matter of the brain (invasive), neither are they implanted inside the skull outside the brain (partially invasive), but rather outside the skull. This kind of device is easier to wear and safer to use, though in comparison to the others it produces poor signal resolution - since the skull dampens signals, dispersing and blurring the electromagnetic waves created by the neurons. It seemed nevertheless much more practicable for this kind of context.

The NIA makes use of a headband placed on the user's forehead, featuring three sensors that will read the frequencies of the user's brainwaves, as well as eye movement and

facial tension. Though there are several other kinds of brainwaves, the NIA only works with alpha and beta waves, which are respectively 9-14Hz and 15-40Hz. [11]

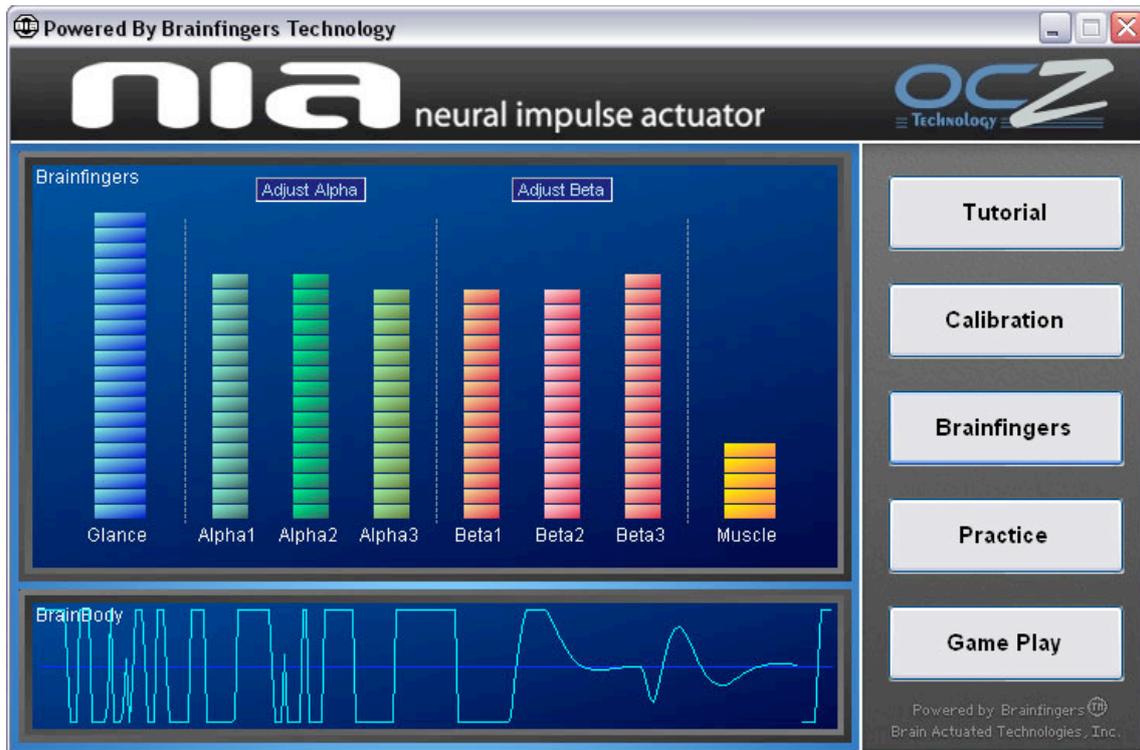


Figure 6 – Neural impulses

Input 1: brainwaves

Brainwaves display electrical activity emanating from the brain. Let's consider four different types of waves, according to amplitude, frequency and level of brain activity.

Beta waves are the fastest (15 to 40 cycles a second) and so they have relatively low amplitude. They are generated when the brain is aroused and actively engaged in mental activities. They correspond to states of outward awareness and are also generated by fear, anger, worry, hunger or surprise: beta waves are characteristic of a strongly engaged mind.

With 9 to 14 cycles a second, alpha waves represent non-arousal. They are slower than beta waves and higher in amplitude. Corresponding to a lesser engagement and arousal, alpha waves are generated during non-drowsy relaxation, like tranquil states of consciousness, pleasant inward awareness, body/mind integration, and meditation. Someone who has completed a task and sits down to relax, or takes time out to reflect is usually in an alpha state.

Theta brainwaves are of even greater amplitude and slower frequency (5 to 8 cycles a second). They are usually generated when performing tasks that become so automatic that one can mentally disengage from them - like driving on a freeway and noticing that one can't recall the last five minutes. The continuous and repetitive nature of the action draws them from outward and focal to inward and peripheral attention, generally

leading to states of recall, creativity, imagery and visualization, free-flowing thought, future planning and inspiration. Theta waves are also dominant during dreaming and REM (Rapid Eye Movement sleep: a normal stage of sleep characterized by the rapid movement of the eyes, where most vividly recalled dreams occur) states.

The fourth kind of brainwaves, delta, are of the greatest amplitude and slowest frequency (1,5 to 4 cycles a second). As far as we know, they correspond only to deep dreamless sleep. When active dreaming takes place, delta brainwave frequencies increase into the frequency of theta brainwaves. [12]

All four brainwaves are common to the human species, and though a brainwave state may predominate at a given time or situation, depending on the activity level of the individual, the remaining three brain states are also present at all times.

The knowledge of brainwaves and their corresponding states, together with an active modulation of the brain according to these principles, can optimize one's ability to make use of the specific characteristics of those states, and enhance the brain's plasticity over time, allowing us to be more mentally productive across a wide range of activities, such as being intensely focused, relaxed or creative.

Input 2: eye movements and facial tension

Both muscular activity and eye movement – which constitute, along with alpha and beta brainwaves, active inputs to the NIA – are also determined by emotions. For instance, the dilation and retraction movement of the pupil of the eye, usually attributed to the amount of light that reaches the eye, is also determined by the emotional state of the individual.

Output: command messages

The electrical impulses generated by Alpha and Beta waves, (frequencies to which the NIA is receptive) along with eye movement and facial tension will be translated by the NIA into command messages: originally developed for gamers to substitute/aid the use of the mouse/joystick in videogames, the development of specific open-source software made it possible to transform these command messages into MIDI messages.

Defined in 1982, MIDI is an industry-standard protocol that enables electronic musical instruments (synthesizers, drum machines), computers and other electronic equipment (MIDI controllers, sound cards, samplers) to communicate and synchronize with each other. Being able to convert brain signals ,via NIA, into MIDI messages, means that it is now practicable to employ this device for controlling - amongst other things - any music production software, which means the possibility of modulating sound with the mind. [12]

Experimental use of the nia in sound design for video

Taking Sound Design as a starting point and test zone for our research, let's consider, for example, designing sound for a video work: having already prepared a basic set of sounds, rhythms or melodies, the sound designer can then use the 'NIA' (in substitution of the mouse and keyboard or the knobs and buttons of a MIDI controller) to work on the remaining creative choices – like the variation of sound levels over the time, or the employment of diverse sound effects. [13]

Self sound design in real time

Through this instinctive and connection between image and body reactions, in this experimental context, Sound Design for video emerges as a result of an intuitive process, highly variable from individual to individual, since it finally depends on the emotions that result in organic actions related to the brain, the eyes and the muscles. Furthermore, it is also variable concerning the same individual, depending on how many times he has watched that specific video, the circumstances in which he's watching it, his state of mind, etc.

One can imagine an experiment in which the Sound Design work is done simultaneously to the visualization of the video (without stopping or rewinding). In this context, our brainwaves, eye movement and facial tension are surely influenced by the visualization of the video in real time, so, in a certain sense, we are letting the video itself (via the reactions caused to our brain, translated in electrical signals, captured by the 'NIA' and applied to the music production software) decide on a certain number of creative choices. Could this not be regarded as a kind of 'self Sound Design in real time'?

further developments

Enhancements to this investigation can now take place through the extrapolation of this particular experimental process into other areas of Design and creativity. One can also achieve better results by testing the use of other devices which can more effectively put our ever learning intuition and instincts to a progressively more direct use concerning the creative process.

To succeed in this task, not only the right technologies are required but also a persistent and effective study of the brain, together with intense mental training. A trained, clear, receptive brain, can much more effectively receive outside input, converting it into the output command messages that will determine the result of the creative act, guided by the use of intuition.

Enlightenment

It's somehow not usual to find words such 'Enlightenment' in a Design paper. In fact, in spiritual terms, "Enlightenment" refers to a spiritual revelation or deep insight into the meaning and purpose of all things, a profound spiritual understanding: a fundamentally changed consciousness whereby everything is perceived as a unity. [14]

In a secular context though, the word often means the full comprehension of a situation, and takes the broader sense of wisdom, understanding and clarity of perception. The concept refers to the 17th and 18th centuries' European intellectual movement known as the Age of Enlightenment or Age of Reason, in which major philosophical developments related to scientific rationality took place.

Concerning our present study, "Enlightenment" is seen here as a progressive synchronization of the subject with the world, though a process in which rationality also integrates highly developed instincts and intuitions.

If we know how to deal with our brain in order to control the frequency of its waves, how to use the different capacities of each hemisphere, how to develop and restrain some areas, we might in fact approach a deeper 'comprehension of the situation': a state of consciousness close to what we can call "Enlightenment", one that grants us better perception of the world and its present needs.

Back again to design and life

Back again to Design, mental training can allow us to better control these new tools in the context of experimental processes in Design (it is proven that meditation provokes physical changes in the brain – which we now know are allowed by neuroplasticity).

The further we develop the right technologies and interfaces for receiving and converting brain data into command messages, and the better prepared our brains are – allowing us to achieve deeper control over the use of our intuition and instincts (like in the case of Susan Polgar) – the better we will be able to depend solely on our brains in order to control software and also hardware in virtual and real environments. The experimental, creative and practical applications for this kind of brain-computer interaction both in the field of Design and in other fields of human activity, are almost infinite. [15]

Mental training, together with neuroplasticity, allows changes in brain circuits which can even include our attitude towards life. Through the progressive synchronization with the world we like to call "Enlightenment", this process leads us to a much more adequate view and practice of Design: one that manifests and reflects our deep comprehension and commitment to the world.

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Abstract

Improving innovation through design has been a strand of government policy for some time, eg, DTI [1] and Cox [2]. The rationale being that companies that invest in design will improve their innovative capabilities, add value to products and services, ultimately resulting in an increase in productivity and competitiveness. However, there is not an established and recognised set of metrics by which design effectiveness can be assessed and like-for-like comparisons made.

This paper presents a review of the extant literature in the design effectiveness arena to include the work of authors such as Potter et al [3], Roy et al [4], Borja de Mozota [5] and Livesey and Moultrie [6]. It also touches on measures of effectiveness in other business disciplines such as marketing and accounting. It considers the commonalities between past work, as well as the issues arising from such a study and the gaps in the current literature.

For this work, design effectiveness and design value are taken to have a similar meaning relating to how investment in design has resulted in benefits, both financial and non-financial, over and above those expected if the investment had not been made or was less. This could be at a project, company, market/industry sector or national level.

In order to further the development of an agreed set of metrics, the paper presents an embryonic methodology for measuring design effectiveness and suggests metrics that could be used in specific business functions, eg, sales, human resources and production.

It is proposed that such metrics would be useful for both government and private industry alike in order to demonstrate the tangible and intangible benefits that investment in design can bring.

Introduction

Traditionally, it has proved difficult to measure how the use of design within an organisation increases financial performance. Throughout the 1980s and 1990s evidence for return on investment (ROI) in design was largely anecdotal (Hertenstein and Platt [7]) and, although it was and is perceived wisdom that design improves company financial performance, little solid evidence was available.

In the last ten years, little has changed. In their exploratory survey of spending on design in UK companies Livesey and Moultrie state “The relatively small number of studies that attempt to estimate design spend, either at the company or country level, highlights the difficulty of this task. Also, the results that are available show high variation depending on what is included and what is excluded from the definition of design (for example, architecture).” (Livesey and Moultrie [6])

The difficulties in producing robust metrics for business measurement are also to be found in the marketing industry, suggesting that it is difficult to separate out the effectiveness of just one company function. In 2004, a report by the CMO Council in the US found that less than 20% of companies felt they had developed effective metrics for measuring marketing performance (CMO Council [8]).

This then causes difficulties, particularly in the current straightened economic times, when persuading public and private bodies alike to invest in design-focussed projects. These issues are discussed in more detail by Burns [9]. This work examines the relative merits of publicly funded design interventions through the formation of cluster groups compared to the knowledge transfer partnership programme.

In an attempt to address these issues and to make some inroads, previous work has been investigated. This literature search is described in the following sections.

Methodology

For this review, a search of the literature in the area of design effectiveness and design value has been made. This has used established Internet search engines, as well as electronic library searches of the best-known design journals to elicit the relevant papers and reports.

Much of the resulting literature is, in effect, based on opinion with little evidence to back up the general assertion ‘design is good for business’. In the main, this has been ignored, due to not being robust enough to provide a sound basis for current reflection or future work.

The remaining literature is then rather sparse, spread over nearly 25 years and tackling the topic with a range of research methodologies. It also covers a wide range of base units, ie, product/project, company, market or industry sector and national. As a result, it has proved to be very difficult to draw a coherent picture, but the following attempts to bring some semblance of order to what is a complex topic with a plethora of inputs and corresponding outputs.

Findings

To address the lack of firm evidence for design effectiveness, various studies have been undertaken to examine the role design plays in improving the economic performance of companies. These studies (eg, Potter et al [3], Roy et al [4], Hertenstein and Platt [7], Design Council [10]) have offered some convincing evidence that companies that use design do better in terms of sales, profitability, market share and the stock market compared to competitors in similar market segments or industry sector. The studies suggest that design can be a significant tool for adding economic value to a company, if effectively managed.

The most extensive investigation found in the research was that of the Design Innovation Group (DIG), a partnership between the Open University and University of Manchester Institute of Science and Technology.

The first project, Commercial Impacts of Design (CID), ran from 1987 to 1990 and studied the financial results and design activity of 221 companies that had received government help for design, described by Potter et al [3]. Key results were considered to be that around 90% of the implemented projects made a profit. The average payback time was 15 months from product launch, although 18% of the implemented projects recovered total costs within a year or less of market launch. The average cost of the successful projects was around £60,000, those that failed lost an average of £8,300. Successful projects were considered to be those that had had financial benefits, eg, positive payback or increase in sales or exports, or non-financial benefits, eg, changed design resources or learned design management lessons or entered new markets.

CID also found that sales increased by an average of 41% against the sales of less design oriented products and that exports for successful products increased. Additionally, companies recorded reduced manufacturing costs, stock saving, increased profit margins and improvements in external image.

In the 1990s, the DIG undertook a further study, Market Demands that Reward Investment in Design (MADRID) described by Roy et al [4]. This project gathered information from 42 companies, 8-9 years after the original CID study. It attempted to determine empirical evidence on whether the returns on investment in design differ according to the market segments in which a firm is operating, where market segments were defined as 'price-sensitive' or 'quality-sensitive'. It also investigated how design and innovation may be best employed to improve product competitiveness.

The researchers used a semi-structured interview to gather information on: product sales; exports; profit margins; manufacturing costs; market share and on-going marketing and support costs.

Re-analysing the data from the CID report, MADRID found that the most commercially successful product development projects had focused on improvements in user issues, quality and features. Loss making projects had tended to focus on styling or costs. Successful products tended to be competing in quality-sensitive markets and design had been used to move products into these segments.

Roy et al [4] proposed that the most satisfactory measure for firm growth was turnover taken over the past five years. However, they recognised that this could be affected by

how fast the market it operates in is growing, the number of competitors and the relative maturity of the products in the sector.

MADRID then mapped company growth onto market types and found that 83% of declining firms operated in static or declining markets and had several competitors. Successful products were the ones where the company planned to increase quality or where the company was satisfied with market position. Companies considered lowering the price for commercially unsatisfactory products in order to increase competitiveness.

Other signs of the benefit of investment in design reported by Roy et al [4] were that those companies which had grown rapidly over the past five years had increased their R&D staff, had more often used external expertise for development and had introduced new more products more frequently than the slow growing or declining firms. There was also a significant correlation between management attitudes and company growth (Roy et al [4]).

Hertenstein and Platt [7] tracked 51 USA companies across four industries using 12 different measures of financial performance. The companies were selected as having 'good design' based on the opinion of a panel of design experts including measures such as awards won and the quality of products and services. The authors used traditional accounting methods to determine the financial performance of companies, grouped into four areas: growth rates, ratios related to sales, ratios related to assets and stock market returns. To allow for differences between sectors, the values are normalised by dividing them by the average for the sector concerned.

Their results are generally positive as they show that those companies judged to use design effectively also had consistently robust financial performance using several different measures. Of note is that these companies may also have had good marketing and organisational skills, which generally helped to contribute to success (Hertenstein and Platt [7]).

In a similar vein, between 1994 and 2003 the Design Council funded the Design Index, which tracked the share value of a set of UK companies that had been identified as using design well (Design Council [10]). The work tracked 166 design-using companies in several different industry sectors. Companies deemed to be using design well were those that won, or been commended or nominated for a design award. The study found that the design-savvy companies outperformed those not using design well by 200%.

The work presents a methodology for company selection, where 'use of design' is a very broad term and is refined in the selection criteria only in terms of graphics, product, service, etc. It is assumed that all the successful companies use all forms of design and use them equally well. It supports using design, but does not link the results to case studies of how the companies used design to increase profits.

Difficulties in how to measure design inputs and outputs are also discussed in the literature. This is particularly relevant at the industry sector and national level. Livesey and Moultrie [6] describe four categories of design spending: technical, user, promotional design and identity design. They use these categories to survey 358 companies, asking for an estimate of spend in each of the areas as well as the likely precision of that estimate. The results indicate that the total design spending the UK is

of the order of £50billion. Livesey and Moultrie [6] suggest that future work should include developing a standard for design spending that is applicable across sectors.

At a project level, BS7000, (BSI [11]) recommends forecasting of investment requirements and cash flow implications for design at the beginning of projects and presents examples of cash flow during a project lifecycle. It recommends sales forecasting, gross and net profits, payback period and ROI among a range of other techniques. The standard presents earned value analysis as a method to compare useful work (or earned value) performed at a chosen date compared with planned and actual costs.

Borja de Mozota [5] describes two problems that designers encounter when petitioning for support from senior management: their lack of familiarity with business and management methods and the difficulty of implementing a value model in their everyday practices. She suggests that a value model, based on Porter's value chain model, could be used to create a common language between designers and executives, in order to demonstrate the value that design might bring to products, company culture and company value. Porter's original model was a tool to help analyse specific activities where the company could add value, to maximise value creation and build competitive advantage. The four areas where design can add value are from the customer perspective, as a differentiator, from a process perspective as a coordinator of company activity, from a learning perspective as a transformer of company and customer knowledge and from a financial perspective, as good business (Borja de Mozota [5]).

Similar problems are also to be found within the market research industry, with an identified gap between executive decision making and market research management, where research is often viewed as a cost rather than an investment (Tanner [12]). Tanner presents a three step system for demonstrating research value to those who make budget decisions: link research objectives to corporate objectives; prove the value of the potential investment; and communicate the success in 'bottom line' terms.

Demonstrating the value of service design to clients, including public sector clients, can also be a challenge according to Løvlie et al [13]. To be effective, service design needs to focus on the process of customer interaction with the service, rather than focusing on the product. Løvlie et al [13] present three ROI-capturing metrics that have been tried and tested on live projects: GVA; triple bottom line and service usability index.

As described by Løvlie et al [13], gross value added (GVA) is a public sector metric to measure the value that something brings to society. This can be used in conjunction with the ROI on a given project to assess the contribution of the project to the economy. Alternatively, triple bottom line has been developed from the sustainability movement of the 1990s. It assesses economic, social and environmental outcomes, thus covering a broad range of issues and allowing the combination of hard and soft measures.

The service usability index is a service quality measurement tool, described by Løvlie et al [13], that is adapted from web usability testing and service marketing theory. It marks proposition, experience, usability and accessibility to produce a single final score.

Discussion

As described by Roy et al [4], there is evidence for companies that invest in design tending to have more profitable products and achieving higher returns on investment than companies that do not invest in design. Using design properly can enable a company to move its products from price-sensitive to quality-sensitive markets and achieve growth in market share. Other benefits may include increased sales, reduced manufacturing costs, stock saving, increased profit margins and improvements in a company's external image.

However, as given in the above findings, there is no one agreed set of metrics for measuring design effectiveness. Many of the studies focus on ROI outcomes as a way of judging the success of a project and find it difficult to calculate a precise 'return on design'. Due to the complex nature of much design activity, it is difficult to isolate precise levels of investment. Further, the lag between investment and the realisation of sales may also be problematic.

It appears that robust accounting methods, to track design spend throughout all stages of company activity that contribute to product success are needed to calculate accurate figures on the product and company scale. However, it may be possible to isolate the ROI on design by testing new designs on the market in a small way, unaccompanied by any marketing or price changes, but this may prove too time-consuming and slow to be realised practically.

Further, it is often noted in literature that designers lack the business training to confidently evaluate the economic impact of their design activity within a company and so are not equipped to persuade and convince company executives of the value of design. Without it, business executives are reluctant to plan and invest strategically in design as they do not understand the value it can bring. Thus, there is scope for specific business training for designers, aimed at helping them both understand the value that design can add to company activities and also to help them communicate bottom line benefits to executives.

Indeed, it is likely, although not measured in many of the long term studies, that effective design is underpinned by good management in all areas. Effective senior management may play a more important role in good organisational performance than the studies were able to determine.

At the project/company level a requirement for successful measurement of design is that there must be quantifiable objectives in the design brief if there is to be any hope of determining the value of design's contribution.

As a starting point, the elements of the project logic model may provide a useful basis. Project logic models comprise a number of stages as below:

Resources/inputs \implies activities \implies outputs \implies outcomes \implies impact

For more details, see for example AHRC [14], where the model is used to aid the evaluation of projects.

We suggest that this could be used as the basis of a theoretical model that helps designers to analyse the value that design can bring to company activities. It could aid

the prediction or retrospective identification of the results and impact of design investment through differing stages of company activity. Additionally, the model could be applied to quantitative or qualitative evaluations of design effectiveness, looking at how well design resources, including the design activity itself, were used to fulfil project and organisational financial and strategic objectives. This will need further work to become a reliable tool to evaluate design at the product to company level.

Figure 1 shows the range of financial and non-financial measures that could be used to assess the outcome of design activity in three business areas: HR, sales/marketing and production/logistics. These have been derived from the literature and could be used in conjunction with the project logic model to define design inputs and measure outputs and outcomes.

Due to time limitations, this study has not engaged with commercial design consultancies firsthand to investigate their techniques for measuring return on design investment. However, this may prove a fruitful activity. Further work could look at commercial techniques and methods, with a view to potentially engaging such existing expertise in any further study.

As discussed by Livesey and Moultrie [6], much remains to be done at the national level to establish a standard for reporting design spending in line with that currently used to report R&D spend. Ultimately, this should provide a valid measure to allow fair comparisons. However, this only provides a measure of design inputs. There is also a need to agree a set of design outputs in order to understand thoroughly design effectiveness.

Conclusions

- There is evidence that companies who invest more in design tend to launch more profitable products and achieve higher returns on investment than companies that do not invest in design.
- There is no one agreed set of metrics for measuring design effectiveness. Many of the studies focus on ROI outcomes as a way of judging the success of a project and find it difficult to calculate a precise 'return on design'.
- The metrics used for quantifying design effectiveness are commonly borrowed from accounting or marketing practices.
- Further work could look at commercial techniques and methods, with a view to potentially engaging such existing expertise in any further study.
- There appears to be scope for developing a model, based on project logic models, to measure design inputs and outcomes and define the relationship between the two.

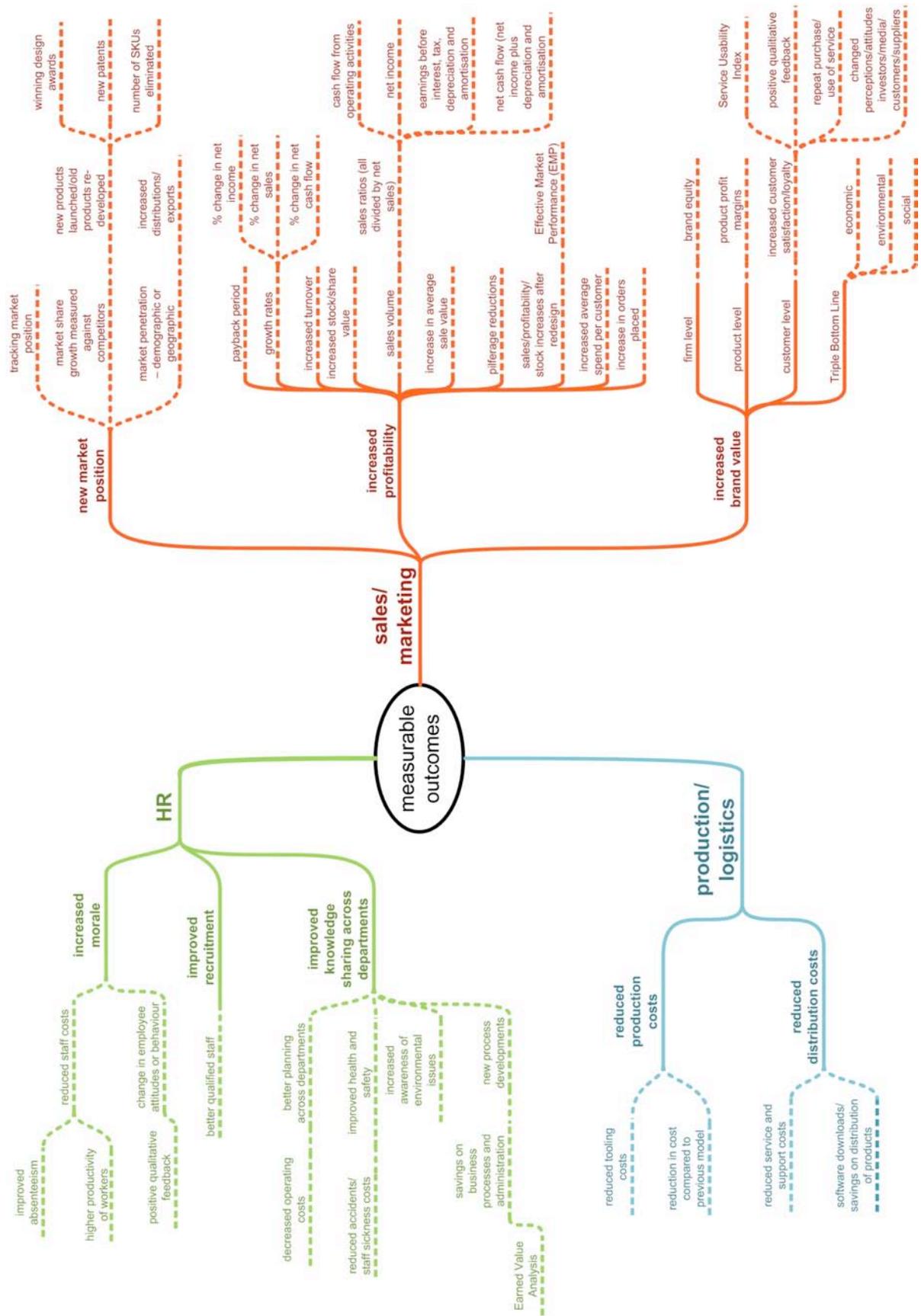


Figure 1 – measurable design outcomes for HR, production/logistics, sales and marketing

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Acknowledgements

The authors are grateful to Advantage West Midlands and the European Regional Development Fund for funding Design Knowledge Network and Interiors and Lifestyle Futures, the evaluation of which has inspired this work.



*A study of product typology and product attributes:
Low-involvement versus high-involvement*

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Abstract

The primary objective of this study is to understand and examine the tripartite relationships between consumers/user, product type and product attributes. There is ample evidence that young apparel consumers often select, evaluate and consume a product based on a wide array of attributes encompassing sensory experience (e.g., aesthetic appeal, tactile feeling), functional usage (ease of use, protection, performance) and psychological values (congruity of self and concept of self). Many prior researchers [1, 2, 3, 4, 5] have examined the impact of various product design and attributes through a single-cue or multiple-cue format. Design, fashionability, and style of apparel deem to be particularly important for consumers to evaluate the product as well as to determine their ultimate purchase [6, 7]. Moreover, consumers also use various product cues to identify and give meanings to a product [8]. However, limited attention has been devoted to the colour cue in particular. Colour is often considered the most appealing design element and the strongest visual feature of many products including clothing [9, 10, 11]. Several studies [12, 13, 14] have shown that the colour cue may play a more important role in choosing low involvement products than in high involvement ones. In order to understand the underlying motives of a consumer's perceptions toward low and high-involvement products and the complex interplay of product types and colour attribute, we deliberately selected three different types of apparel products encompassing evening dresses, t-shirts and socks as our exploratory stimulus for the present study.

According to our literature review, it was evident that the impacts of product attributes are closely associated with their product types [15, 16, 17]. In order to understand the young consumers' perceptions and preferences towards various product types and attributes, we employed a quantitative method to uncover and illuminate these complex issues. The results of this study clearly indicated that fit was ranked the most important evaluative cue for both t-shirts and evening dresses, followed by style and colour, whereas comfort was ranked the most significant cue for socks, followed by price and fabric. In terms of colour cue, it played relatively less significant role in evaluating low-involvement product (socks), and our finding is clearly inconsistent with Lee and Barnes [18] and Martindale and Moore [14]. Moreover, it is evident that fashion innovators tend to use abstract or symbolic cues to judge a high-involvement product rather than concrete or functional ones. In order to gain a better understanding, consumer's

experiential pleasure, utilitarian benefits, symbolic meanings and psychological values will be presented and discussed in this paper.

Introduction

There is ample evidence that young apparel consumers often select, evaluate and consume a product based on a wide array of attributes that may encompass sensory experience (e.g., aesthetic appeal, tactile feeling), function/practicality (ease of use, protection, performance) and psychological value (congruity and concept of self). Many prior researchers [1, 2, 3, 4, 5] have examined the impact of various modes of product design and/or attributes through a single-cue or multiple-cue format, and have discovered that design, fashionability and style of apparel are deemed to be particularly important when consumers evaluate and determine their ultimate purchases [6, 7].

Design, Fashionability and Style

Although design, fashionability and style are often used within the field of product design, they don't carry the same meaning across product types and cultures. The design of a product can be defined as a specific configuration of elements and materials of which the functions, forms and appearance can be constructed, and has been considered to be one of the most important evaluative determinants of new product performance [19]. Design also determines the procedures necessary for the production process that ensues [20]. Fashionability can be referred to as the prevailing style, mode, dress or adornment at a given period of time, whereas clothing style can be defined as a combination of distinctive features within a garment [21], or its inherent silhouette and structure [22].

Regardless of these aforementioned definitions, product design, fashionability and style play an important role on a product's acceptance or rejection by the consumer. According to a number of prior studies [19, 23], the design of a product can greatly influence consumer perception and behaviours in both the retail and industrial markets. Another study concerning clothing purchasing criteria [12] finds that fashionability and attractiveness were important for female consumers in the United States and Korea. Indeed, fashionable style plays a significant role on clothing evaluation including women's outerwear [24], women's blouses [25] and clothing in general [26].

Intrinsic and Extrinsic Product Cues

Product information is not merely limited to design, fashionability and style. Studies by Cordell [27]; Han and Terpstra [28] and Rahman *et al.* [2, 4] have shown that consumers often use a wide array of intrinsic and extrinsic product cues concurrently when they evaluate an apparel product. With this perspective, it is not difficult to understand why consumers seldom make purchasing decisions based on a single cue or factor. As such, single-cue studies have been criticized over the years due to the possibility of leading to biased outcomes. Several researchers [29] have proposed that using multiple-cue design research methods can bring investigation results closer to market reality and could avoid overemphasizing or inflating the effects of a

single cue. Therefore, for this study, we adopted a multiple-cue approach to explore and investigate the salient impact of both intrinsic and extrinsic cues among various apparel types.

According to cue utilization theory [30], intrinsic cues such as fabric, style and colour are related to the physical composition of a product that cannot be changed without altering the product itself. Extrinsic cues such as brand name, price and country-of-origin are related to the products' non-physical properties - these could be changed without modifying the product. Intrinsic cues usually have predictive or diagnostic values, and play a more significant role in product evaluation than extrinsic cues [31]. Many studies have found that consumers also tend to rely more heavily on intrinsic cues when assessing product quality than using extrinsic cues [6, 32].

In order to gain a better understanding of the salient effects of both intrinsic and extrinsic cues, we deliberately chose seven intrinsic cues (fit, style, colour, comfort, fabric, durability and wardrobe coordination) and three extrinsic cues (price, brand name and country-of-origin) for this study. We believe that these product cues are appropriate and applicable for various apparel products. Additionally, our selection is in line with a study conducted by [33], whose findings reveal that the most frequently used clothing cues were price, style, quality, size/fit, fabric, brand name and country-of-origin.

The Significance of Colour Cues

Colour preferences and perceptions are often learned from prior experience through various socialization agents such as parents, peers and/or the media. It is evident that individuals develop preferred colour choices for specific products/objects through associative learning (the old adage "pink is for girls, blue is for boys" for instance). In other words, certain colours are considered or viewed to be more acceptable and/or appropriate for specific products/objects or circumstances.

Although many different product cues play an important role on apparel purchasing, limited attention has been devoted to colour in particular. Colour is often considered the most appealing design element and the strongest visual feature of many products including clothing [9, 10, 11]. In particular, if consumers lack the motivation or ability, they may use visual signals such as appearance or colour to evaluate a product [30, 34]; and in general, the importance of colour is greater for visible or publicly consumed products than for less-visible or privately consumed items [35]. However, a few studies [18, 13, 14] have shown that the colour cue may play a more important role in choosing low involvement products than for high involvement ones. It is obvious that the results of prior studies are inconclusive. Therefore, it would be worthwhile and meaningful to further investigate on this particular topic.

Low- and High-Involvement Products

Involvement has been defined as an individual's perceptions of relevance towards an object based on their needs, aspirations, values and interests [36], or as the motivational state of arousal evoked by that particular object or situation [37]. High-involvement objects are often viewed and perceived as important – they carry greater significance and more meaning to the individual [38, 39]. A large body of literature research [40, 41] clearly suggests that consumers tend to spend more time and effort on the processes of information search, selection and evaluation for high-involvement products over low-involvement ones. Not only are they more emotionally attached to these products; they also devote a substantial amount of time, thought, emotional and

behavioural response when they search or interact with them. According to Jordaan and Simpson [42], higher fashion involvement is often associated with an increased acquisition of product information, higher frequency of purchase and product usage.

On the contrary, consumer interactions with low-involvement products tend to consider price as one of the most important attributes [43]. They have less interest in engaging with product design and attribute to obtain information, but rather tend to rely on brand name as a heuristic basis for judgment and decision-making [16].

In summary, this current study focused and investigated the salient effects of intrinsic and extrinsic product attributes (with the colour cue in particular) in regards to the cognitive and affective responses generated among low and high-involvement products.

Hypotheses

According to our literature review, it was evident that the impacts of product cues are closely associated with their product types [15, 16, 17]. For example, aroma is closely associated with food and beverage but not necessarily with apparel products, or style may play a more significant role on purchasing decision of evening gown than a pair of socks. Without a doubt, some product cues are more appropriate and applicable for certain products. Other than the congruency between product cue and product type, several other studies also reveal that the same cue might be used quite differently among various types of products [6]. Ahmed and his colleagues [44] found that consumers tended to rely more heavily on extrinsic cues (i.e. country-of-origin) when evaluating low-involvement products. In order to understand young consumer perceptions and their preferences towards various product types and attributes, we employed a quantitative method to uncover and illuminate these complex issues, and the following hypotheses were developed:

H1: Design, fashionability and style play a more significant role in evaluating publicly consumed products than for privately consumed ones.

H2: Extrinsic cues play a more significant role in evaluating high-involvement products than for low-involvement ones.

H3: Colour cues play a more significant role in evaluating high-involvement products than for low-involvement ones.

Objectives

In order to understand consumer perceptions and their underlying motivations toward low and high-involvement products, and the relationships between product types and colour cues, we deliberately selected three different types of apparel products as the exploratory stimulus for the present study. These included eveningwear (dresses/suits), t-shirts and socks, and there are several reasons to explain these choices. First, there is a great difference between these products in terms of the level of involvement. If a bi-polar continuum scale is employed to illustrate the involvement intensity of these products, socks would be classified as low-involvement, t-shirts as 'in-between' or mid-involvement, and evening dresses/suits would be considered to be high-involvement. Secondly, colour will often play an essential and influential role in product

evaluation and selection. And finally, most consumers are familiar with these products regardless of their cultural background.

The objective of this study is three-fold:

- (1) to explore underlying consumer purchasing motives and intentions of low- and high-involvement apparel products
- (2) to uncover the relative significance of intrinsic and extrinsic cues as evaluative determinants for low- and high-involvement products
- (2) to understand the role of colour cues in product evaluation and selection of low- and high-involvement apparel products.

Research Methodology

A total of 10 pre-tests were conducted to assess the applicability and efficacy of the measuring instrument for socks, t-shirts and eveningwear (dresses/suits). Based on the results and feedback of the pre-test, minor revisions were made and a final version of the self-administered questionnaire survey was developed and organized into two sections. Numerous questions were developed in Section 1 to investigate respondents' perceptions and attitudes toward both low- and high-involvement products. Five-point Likert scale questions (anchored by strongly agree = 5, 4, 3, 2 to strongly disagree = 1) were employed to measure the relative significance of seven intrinsic cues and three extrinsic cues. In Section 2, questions were developed to collect demographic data and behavioural information (such as colour preferences for various apparel products). To add further depth to our investigation, information regarding consumer's experiential pleasure, utilitarian benefits, symbolic meanings and psychological values will also be presented and discussed in this paper. All participants were recruited from a major university in Toronto.

Findings and Discussion

A total of 132 usable questionnaires were collected and the respondents were female college students ranging in age from 18 to 25 years, with the mean age being 19.86. According to the results of this study, respondents rated fit as the most important evaluative cue for both t-shirts and evening dresses, followed by style and colour. Comfort was rated as the most significant cue for socks, followed by price and fabric. It is evident that the respondents tended to use abstract or aesthetic cues (fit, style and colour) to judge high-involvement products such as evening dresses/suits over concrete cues of comfort, price and durability. It is reasonable to suggest that aesthetic appeal or the clothed body image played a more critical role in the evaluation of high-involvement and publicly consumed products than for low-involvement or privately consumed products such as socks.

The colour cue played a relatively less significant role in evaluating low-involvement products as it seemed that most respondents were primarily concerned about concrete or functional benefits--making our finding clearly inconsistent with Lee and Barnes [18] and Martindale and Moore [14]. In general, consumers do not want to spend much time and effort in thinking, searching and evaluating an ordinary and privately consumed product, as they usually are not used as an effective signifier or social communicator. In other words, it is more difficult for a consumer to

construct their identity, elevate social status and/or express personal taste and ideologies through privately consumed products.

On the contrary, if a product will be seen in the public eye, individuals become more concerned with aesthetics and appearance, and are less sensitive to price (as indicated in Table 1). Therefore, it is reasonable to suggest that design, fashionability and style play a more significant role in evaluating publicly consumed products than privately consumed products, and H1 is supported.

Order of Significance	T-shirt	Evening Dress/Suit	Socks
Most Important: 1	Fit	Fit	Comfort
2	Style	Style	Price
3	Colour	Colour	Fabric
4	Comfort	Fabric	Durability
5	Fabric	Price	Fit
6	Price	Comfort	Colour
7	Coordination	Durability	Style
8	Durability	Brand	Coordination
9	Brand	Coordination	COO
Least Important: 10	COO	COO	Brand

Table 1: The Significance of Product Cues

As shown in Table 1, all extrinsic cues (price, brand name and country-of-origin) played a less significant role in product evaluation of both low- and high-involvement products than intrinsic cues. Therefore, H2 is not supported.

Moreover, the significance of colour cues are often linked to product types. For example, the colour blue is normally associated with jeans and white is associated with western wedding gowns. Thus, the colour usage of a specific product has been both unconsciously and consciously embedded in a consumer's mind through associative learning, fortifying the idea that consumers are constantly influenced and shaped by societal values and norms. According to this study, the results (as shown in Table 2) clearly indicate that most respondents preferred certain colours for specific apparel products (such as wedding gown and socks). These products are closely related to their social appropriateness within a specific socio-cultural context. In other words, the colour choice is not necessarily associated with product involvement but rather with contextualized meaning and behavioural patterns. To summarize, clothing can be categorized into three types – basic commodities/staples, conventional attire and fashion clothing. In most cases, consumers have specific colour choices for both basic clothing (e.g., socks, underwear) and conventional attire (e.g., wedding gown, evening dresses/suits). However, the colour of fashion clothing is constantly changing. With this perspective, the colour choice is more dependent on the type of product but not the level of involvement. Therefore, H3 is not supported.

Product	Colour Preference: Top 3	Frequency	Percent
Sleepwear	Pink	26	19.7
	Blue	25	18.9
	White	13	9.8
Socks	Black	58	43.9
	White	54	40.9
	Grey	4	3.0

Hoodie	Grey	38	28.8
	Black	35	26.5
	Blue	20	15.2
Wedding Dress	White	73	55.3
	Ivory	48	36.4
	Red	4	3.0
Evening Dress	Black	51	38.6
	Red	20	15.2
	Purple	13	9.8
Summer Dress	White	29	22.0
	Yellow	27	20.5
	Pink	12	9.1
T-shirt	White	37	28.0
	Black	22	16.7
	Grey	13	9.8
Pants	Blue	59	44.7
	Black	52	39.4
	Navy	4	3.0
Bathing Suit	Black	40	30.3
	Blue	14	10.6
	White	7	5.3
Tank Top	White	36	27.3
	Black	30	22.7
	Grey	13	9.8

Table 2: Colour Preferences of Various Apparel Products

Other than the product type and colour choice, consumer perceptions of colour and the congruency of colour with individual self also play an important role on colour choice. It is evident that the vast majority of our respondents were concerned with their personal experience and self-contentment when it comes to colour choice. For example, high percentages agreed with the following statements (Table 3): “I wear certain colours that make me feel distinctive” (83.3%), “I buy certain colours to express who I am” (87.9%), “I don’t care whether people like the colour of my clothes or not” (80.3%), “I buy certain colours to make me feel good” (92.4%), and “I spend time to find colours that look best on me” (84.1%). According to the correlation matrix of consumers’ perception of colour, respondents tended to choose unusual colours to express self-identity and to differentiate themselves from others.

Consumers’ Perceptions of Colour	Percentage	
	Agree	Disagree
Q1. I am uncomfortable when the colour of my clothes are different from others	24.4	75.8
Q2. I buy the same colour of clothing as what others are wearing	6.8	92.4
Q3. I would not buy certain colours if my good friends told me they did not like them	10.6	98.4
Q4. I enjoy wearing unusual colour of clothing	78	22
Q5. I use colour to differentiate from others	61.4	38.6
Q6. I wear certain colour that make me feel distinctive	83.3	16.7
Q7. I buy certain colour to draw the other’s attention	59.1	40.9
Q8. I wear certain colour to appeal to the other gender is important to me	37.9	60.6
Q9. I buy colour to keep up to date on fashion	55.3	43.2
Q10. The current fashion colour trend is important to me	55.3	43.2
Q11. I buy certain colour to express who I am	87.9	10.6
Q12. I tend to buy clothing in my favourite colour	76.5	22
Q13. I don’t care whether people like the colour of my clothes or not	80.3	18.2
Q14. I buy certain colour to make me feel good	92.4	6.1
Q15. I choose colour to evoke thoughts of happiness	63.6	34.8
Q16. I buy certain colour because it makes me look more mature	49.2	49.2

Q17. I buy certain colour because it makes me look more younger	17.4	81.1
Q18. I spend time to find colour that look best on me	84.1	14.4
Q19. I spend time to find colour that coordinate well with my wardrobe	70.5	27.3

Table 3: Consumer Colour Perceptions

As revealed in Table 4, 'Q4 and Q5', and 'Q4 and Q11' were strongly correlated. These findings also support the notion that colour cues play a very important role in the evaluation of publicly consumed or highly visible products rather than ones considered as low-involvement.

	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19
Q4	1	.556[*] .000	.155 .075	.266[*] .002	-.009 .920	-.010 .906	.103 .245	.301[*] .001	-.011 .901	.233[*] .008	-.134 .128	.121 .170	-.187 .033	.047 .597	-.005 .956	-.202 .022
Q5	.556[*] .000	1	.313[*] .000	.384[*] .000	.073 .412	.130 .141	.130 .141	.337[*] .000	-.044 .621	.113 .201	.061 .492	.209 .017	-.126 .152	.201 .022	.031 .726	-.140 .113
Q6	.155 .075	.313[*] .000	1	.455[*] .000	.188 .032	.015 .869	.056 .527	.373[*] .000	.005 .959	.050 .575	.141 .111	.181 .039	-.041 .643	.048 .588	.162 .066	.085 .335
Q7	.266[*] .002	.384[*] .000	.455[*] .000	1	.281[*] .001	.136 .123	.042 .638	.261[*] .003	-.077 .386	-.039 .660	.174 .048	.127 .150	.031 .724	.104 .237	.093 .292	-.002 .978
Q8	-.009 .920	.073 .412	.188 .032	.281[*] .001	1	.189 .032	.093 .292	-.082 .352	-.146 .081	-.154 .423	.071 .423	.023 .796	.032 .721	.048 .589	.059 .508	.069 .435
Q9	-.010 .906	.130 .141	.015 .869	.136 .123	.189 .032	1	.563[*] .000	.243[*] .005	-.101 .252	-.141 .110	.032 .720	.092 .299	.233[*] .008	.166 .059	.029 .740	.013 .884
Q10	.103 .245	.130 .141	.056 .527	.042 .638	.093 .292	.563[*] .000	1	-.007 .938	-.064 .470	.059 .505	-.162 .066	.124 .159	.078 .381	.125 .155	.073 .408	-.066 .455
Q11	.301[*] .001	.337[*] .000	.373[*] .000	.261[*] .003	-.082 .351	.243[*] .005	-.007 .938	1	.052 .555	.027 .764	.324[*] .000	.210 .016	.099 .261	.096 .277	-.003 .971	-.050 .571
Q12	-.011 .901	-.044 .621	.005 .959	-.077 .386	-.146 .097	-.101 .252	-.064 .470	.052 .555	1	.126 .153	-.060 .495	.144 .101	-.055 .531	.103 .243	.197 .025	-.034 .701
Q13	.233[*] .008	.113 .201	.050 .575	-.039 .660	-.154 .081	-.141 .110	.059 .505	.027 .764	.126 .153	1	-.039 .657	.145 .099	-.079 .370	-.039 .658	.028 .755	-.031 .727
Q14	-.134 .128	.061 .492	.141 .111	.174 .048	.071 .423	.032 .720	-.162 .066	.324[*] .000	-.060 .495	-.039 .657	1	.011 .989	.128 .147	-.049 .580	-.015 .863	.055 .536
Q15	.121 .170	.209 .017	.181 .039	.127 .150	.023 .796	.092 .299	.124 .159	.210 .016	.144 .101	.145 .099	.011 .898	1	-.032 .716	.132 .133	.195 .026	-.030 .734
Q16	-.187 .033	-.126 .152	-.041 .643	.031 .724	.032 .721	.233[*] .008	.078 .381	.099 .261	-.055 .531	-.079 .370	.128 .147	-.032 .716	1	.302[*] .000	.109 .218	.247[*] .005
Q17	.047 .597	.201 .022	.048 .588	.104 .237	.048 .589	.166 .059	.125 .155	.096 .277	.103 .243	-.039 .658	-.049 .580	.132 .133	.302[*] .000	1	.192 .029	.064 .471
Q18	-.005 .956	.031 .726	.162 .066	.093 .292	.059 .508	.029 .740	.073 .408	-.003 .971	.197 .025	.028 .755	-.015 .863	.195 .026	.109 .218	.192 .029	1	.278[*] .001
Q19	-.202[*] .022	-.140 .113	.085 .335	-.002 .978	.069 .435	.013 .884	-.066 .455	-.050 .571	-.034 .701	-.031 .727	.055 .536	-.030 .734	.247[*] .005	.064 .471	.278[*] .001	1

*: Correlation is significant at the 0.01 level (2-tailed).

Table 4: The Correlation Matrix of Consumer Colour Perceptions

In conclusion, the colour cue played a relatively less significant role as compared to fit, comfort and style. It is reasonable to suggest that colour cues become less important when other product cues are available. Nevertheless, the present study should provide valuable contributions, insights and information on product design and development for fashion practitioners in general and for designers in particular.

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intergenerational relationships

an academic design project
at the University of Aveiro

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Abstract

This paper aims to show the design process of a project being developed by the 3rd year students of the Licenciatura in Design of the Universidade de Aveiro. The project is part of a wider challenge launched to all Portuguese Design Universities called “Action for Age”, an initiative of the Royal Society for the encouragement of Arts, Manufactures and Commerce (RSA) in partnership with Experimenta Design and sponsored by the Caloust Gulbenkian Foundation.

This initiative intends to raise awareness amongst Portuguese young designers to the problematic of population ageing and its consequent social transformations, as well as to prompt reflections on Design's contributions in this new framework.

Hence, and using Strategic Design tools, it is intended to showcase new approaches to the process of project in design, focussing in Service Design, contributing towards the consolidation of an emerging field in the Design area.

As brief, the students were asked to identify a place and design a solution that would stimulate intergenerational relationships. Following this research phase, students were prompted to define their own brief, which led them to develop flexible solutions: a service, a network, an environment, a structure, an infrastructure, an object, a shop, a function or initiative. The purpose was to conceive an integrated solution that could respond to the identified need of enhancing intergenerational relationships, resulting in better integration of the elderly, as well as other individuals, in the community.

To kick off the project, students had to pinpoint all characteristics of the selected place and then proceed with the mapping of its ongoing activities. Those activities were regarded as social innovations, and as such their goal was to analyse them thoroughly and propose ways to perfect, strengthen and connect them.

On a second phase, students were first engaged in scenarios' building, which worked as a tool to facilitate a strategic discussion amongst the different stakeholders involved, and later designed the toolkits that would enable the implementation of those scenarios. The results of these projects will be presented, although the focus of this paper is more the process and tools used for their development.

1. Context

1.1 Ageing Society

Global population ageing is a well-documented fact. The success of the health policies implemented in the last decades will be reflected in a world's population that, in 2050, will comprise around two thousand million senior citizens[6], that is, a number equal to that of the entire world's population about 50 years ago¹. That alone raises a number of pertinent social problematics, namely the emerging signs of tension between generations, which undoubtedly implies rethinking the way modern societies are organised. Even the welfare state is under threat, precisely due to the critical unbalance between the retired and the active populations.

Simultaneously, there is a marked trend towards the urbanisation of the world's population. The consistent movement of people from rural to urban areas means that in today's Europe, for instance, 75% of its total population lives in urban areas, and it is estimated that in 2050 that number will reach 83%².

This social change becomes particularly worrying between senior age groups, mostly on the level of families' cohesion and the ability to maintain the remaining social networks consolidated throughout life. The organization of the urban space, the new professional paradigms and high mobility, all have been contributing for the disappearance of the extended family's concept, the interdependency between family members, by and large what guarantees to its older members the necessary support in the last phase of their lives.

If, besides this aspect, we factor in other elements, such as the significant life expectancy difference between men and women, the abrupt breakup in social relations after retirement, feelings of insecurity, inadequacy or fear due to the loss of psychological and motor skills, we realize that the tendency for isolation increases and that when this estrangement between the individual and its community becomes established, the very perception of their level of social interaction also decreases, driving them, in extreme cases, to loneliness.

It is therefore essential to intervene to maintain and reinforce solid social ties, typical of communities where relationship dependencies are clearly established and where the support between members is established, in other words, wealthy in what is presently known as social capital. In order to do so it is important to invest in the promotion of intergenerational practices, authentic and honest, based on dynamic and

¹ <http://esa.un.org/unpd/wpp2008/index.htm>

² <http://esa.un.org/unpd/wup/index.htm>

sustainable social networks, allowing the elderly to maintain an active role in society for longer, thus potentiating a rich human capital that nowadays is widely wasted[2]. Building on these premises, if we can also act on the promotion of intergenerational relations, through the development of solid and entrepreneurial social networks, we can aspire to convert this phase of life into an even richer experience for all.

1.2. Designers' Role in today's world

In an interview filmed for his 1969 Paris exhibition, "What is Design?" at the *Musée des Arts Décoratifs*, Charles Eames was asked: "What are the boundaries of design?" His response was: "What are the boundaries of problems?"

The world we are living in is complex[7] and everybody in it designs[5]. This apparently simple proposition locks the elements articulating the debate on design's and designers' role in contemporaneity. If we consider that everybody designs and that issues are ever more complex and ambiguous, calling for holistic and all-embracing strategies for their tackling, this means that designers need to update their practices to actively participate in the mesh of designing networks that characterise contemporary society, feeding them with their specific design knowledge: design skills, capabilities and sensitivities[4].

In this context, a new idea of design activity is emerging. For instance, RED[1] is applying design in new contexts, using designers' core skills and the design process to transform the ways in which the public interacts with systems, services, organisations and policies. Manzini[4] believes that a new design activity is emerging and to participate designers have to positively accept that they can no longer aspire to a monopoly on design, and if appropriately harnessed this change in the designer's place in society is not reducing their role but, on the contrary, it is increasing it, endowing it with the responsibility of being a key driver of social innovation. And Thackara[7] argues that designers have to enhance the ability of all citizens to engage in meaningful dialogue about their environment and context, and foster new relationships between the people who make things and the people who use them, as design should be about delivering value to people.

What we see in this approach is that it places the individual at the core of new solutions, and builds the capacity to innovate into organizations and institutions. This new approach could be key to solving many of society's most complex problems, but its emergence is not without controversy. There are those who argue that it's not design because it doesn't look or feel much like design in the familiar sense of the word - its outputs aren't always tangible, and may be adapted and altered by people as they use them[1].

Nevertheless, and even if controversial, there are several projects developed by diverse institutions, companies and designers. Cases such as the RCA Helen Hamlyn Centre that works with a range of academic and business partners, whose core research focus is the study and application of Inclusive Design through a more socially inclusive approach to design, and DesignAge, that explores design for ageing populations.

Another example is Dott 07 (Design of the time 2007), a year of community projects, events and exhibitions based in North East England, which explores how life in a sustainable region could be like – and how design could help us get there. Several projects were delivered in partnership with Culture10, based at NewcastleGateshead Initiative, and ThinkPublic, a social design agency that helps tackle big social challenges working with the public sector, third sector and communities. Dott 07 projects aimed to improve five aspects of daily life: movement, health, food, school and energy.

In Portugal, for instances, the Calouste Gulbenkian Foundation sponsors intergenerational projects, involving different organisations and institutions, highlighting the cooperation with Design professionals.

1.3. Action For Age Project

Along with these projects, the *Action for Age* (AfA) initiative was created in 2009 by the Royal Society for the Encouragement of Arts, Manufactures and Commerce in the United Kingdom, and subsequently implemented in Portugal in partnership with the Experimenta Design, supported by the Calouste Gulbenkian Foundation and the public charitable organisation Santa Casa da Misericórdia de Lisboa.

The work proposal presented, adapted from the original brief so as to adjust it to the Portuguese reality and now named Action For Age 2, had as departing point the identification of a place where to intervene (district, association, company, ...) and, in that specific context, the design of a proposal that would stimulate intergenerational relations translated in clear improvements to the quality of life of the elderly. Topics such as loneliness and social isolation were signalled as central, as well as the concern that the whole intervention, sustainable and sustained in reality, was translated in clear benefits, transverse to the whole society. On the other hand, the involvement of users in the final design of flexible solutions was highlighted, be it products, communication plans, scenarios, networks, services or occasional and ephemeral initiatives.

What is the role of design in view of the “complex challenges brought about by the phenomenon of the generalized ageing of the population”?[2]. This was the central question of the challenge proposed to the schools of design.

2. AfA Project at the University of Aveiro

The teachers of the subject Project inDesign IV (Teresa Franqueira, Gonçalo Gomes e Rui Costa) regarded the ExperimentaDesign challenge as an opportunity to explore new approaches to the project praxis. The different professional backgrounds (Industrial Design, Service Design and Graphic Design) have allowed for the synergies created in the Project Design class of the University of Aveiro to be strengthened and enhanced with new methodological approaches. In fact, Design at the University of Aveiro has the peculiarity of merging all design fields in one.

2.1. Design at the University of Aveiro

Education in Design at the University of Aveiro is organized “around a structure that recognizes in the trilogy author, technology and programme, the three main points of view of project in design. It promotes "knowing how to think" as a basic requirement of "knowing how to do", and emphasises the dual aspect of this relationship in the cognitive construction”[3].

In order to attain a progressive autonomy of students, the axis of projects proposed during the three years of the degree course progresses from the semantics to the syntax, and from syntax to pragmatics. It is in the scope of pragmatics, during the third and final year, that the pertinence of the AfA initiative becomes apparent. In fact, a close proximity between the objectives of the discipline³ and the goals set by AfA is noticeable. Firstly because students themselves are asked to define their scope of action, following the idea that the programme is the “project’s authorial partner”. The answer to specific and already identified problems in the context of senior citizens’ inclusion would be a very good challenge for a student finalist in design. Some of the examples mentioned before (HHC, Dott, etc.) allow to understand the role of the designer in a society that resolves problems raising new ones in the process. The focus of the project in intergenerationality identifies a question, without predefining the programme. This is regarded as the main difficulty of this project, and perhaps the characteristic that brings it closer to the conception of design postulated in the University of Aveiro – a supra functional artefact of communication.

2.2 The Design Process

Starting with around 50 students, and having as main objective the development of a project that should mirror the projectual practices of a design atelier, the class was divided in groups of seven students, and a specific area of the city of Aveiro was assigned to each group, following a previous geographical division of the city in seven different areas.

To strengthen the work dynamics, each group was asked to choose on a team leader on a weekly basis, whose job would be to set and monitor the strategies and priorities during the week he was in charge. This function would be assigned in a rotation scheme, and each week a new leader was to be designated.

First Step

In a first phase, the groups were asked to conduct an exhaustive research of their area, followed by a description, representation and analysis of the data obtained. In this specific task, all groups opted for the use ethnographic approaches to collect information, conducting detailed audiovisual and photographic inventories, as well as a series of interviews to the resident population and small businesses.

These data collection allowed them to understand the singularities of each particular area and its unique potential within the scope of the proposal.

³ <http://www.ca.ua.pt/PageDisc.aspx?id=2786&b=1>

The data collected, besides being recorded and stored as potentially relevant information, were also entered in the *GoogleMaps* (Figure 1, 2 and 3), platform, so as to originate a map of activities available to the whole class. This enabled the crossing of information between groups, and thus the cross-fertilization between different projects' ideas and useful information. Since geographic delimitations are "blind", these information exchanges enabled all groups to understand the network of associations or entities transversal to, and affecting, the whole city. This tool also helped in the definition of a more detailed research strategy, in the identification of problems and opportunities, allowing them to constantly refine the interactive map.

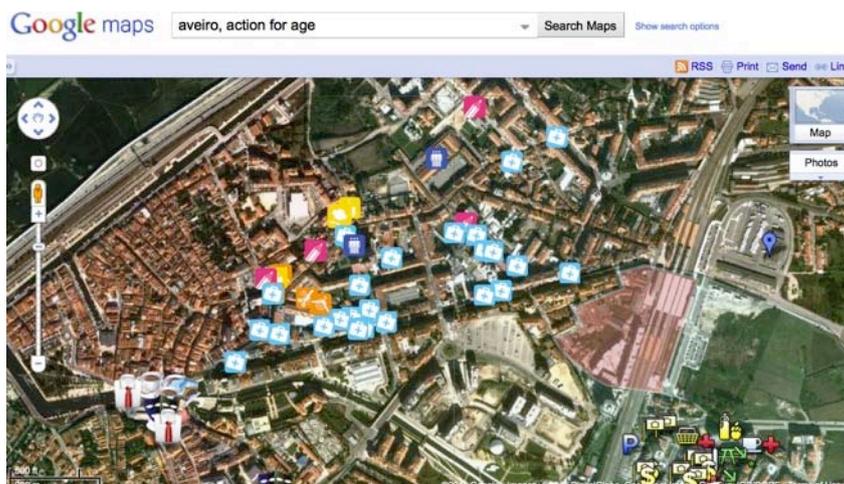


Figure 1 - GoogleMaps



Figure 2 - Activities' mapping



Figure 3 - Detail of activities mapping

Second Step

In a second phase, the groups had to define the scripts for their projects' development. The identification of needs and opportunities specific to each area of the city led them to propose different fields of action, always with design's scope and vision. The scripts' design and the justification for the central role the designer should play in these initiatives has been the main challenge for the teams. The first proposals opened a lively debate between students and teachers, extended also to professionals coming from different areas, so as to guarantee a multidisciplinary approach. To reinforce the project's transverseness, experts in gerontology, children's education and health researchers from the University of Aveiro were

involved. The importance of this external collaboration was key to support the scripts' soundness, especially thanks to the confrontation with external and specialized opinions on the topics analysed.

The initial drafts were prepared and worked as a pre-definition of the whole product-service system presented, and as a way of identifying the different stakeholders involved and their specific roles. As a test to the soundness of these first solutions, an intermediate evaluation was a role playing session (figures 4,5, 6 and 7). Starting with the identification of the stakeholders and their inherent roles, this role playing session intended to identify the weaknesses of the service proposed, and, at the same time, to develop a more realistic approach to the very project.



Figure 4 - Role Playing



Figure 5 - Role Playing



Figure 6 - Role Playing



Figure 7 - Role Playing

This phase turned out to be crucial for the development of the project. It was from this point forward that the students fully realised that their decisions as designers are the result of interactions, whose complexity is difficult to apprehend from the analysis of bidimensional schemes only. New discussions arose around the briefs, concurring for their enhancement and fine-tuning, which ultimately helped each team to present the proposal of the virtual and physical elements, events or strategies they regarded as essential for the pertinent and sustainable implementation of their projects.

Third Step

In this phase the students worked individually in the development of the several supports previously defined as necessary. Although they continued to work as teams, the assignment of individual responsibility in the development of each piece of the final puzzle enabled the assessment of their conceptual and technical proficiency and competence on the part of the teaching team, a goal that was previously signalled by the teachers. .It was very rewarding to verify that the diversity of proposals was very

heterogeneous , partly due to the specificities of the strategies defined upstream and partly to the geographic, social and economic context of each project. In a final moment, the students went back to the field to present the scenarios they had developed to the local populations, and did so through interviews to obtain feedback that would confirm (or invalidate) the solutions they designed previously.

3. Results

In an academic context, the results are always more than what is strictly produced, namely in terms of references, methods and techniques applied. Alongside the physical outcomes, these steps become, for students, the very memory of the project. We will discuss here only what has been produced, material and immaterial.

Each group's different approach was of course limited by the characteristics of the area studied. In most cases, the first contacts determined the sort of project developed.

Besides the "mandatory figures", that are mainly learning exercises (visual identity, printed or digital communication media, etc.), the diversity of proposed solutions and the understanding of the different triggers of those solutions is a very important step to know what "Program" means in the context of Design graduation.

3.1. Age!



Figure 8 - AGE Project

The area assigned to group B is the business core of Aveiro. The former building of the Town Hall, Court, Cathedral, Theatre, Highschool, Museum, all these equipments are located here. In these context of businesses, services and cultural offer, intergenerationality is fairly natural. The group therefore opted to circumscribe their intervention to a square where the Theatre, the (former) Town Hall, the Highschool and some small businesses converge.

The first difficulty was the argument: What could be done, in terms of intergenerationality, in an area where most activities are work related or motivated? The group decided to consider the square as a centre of planned interactions, through

the continuous animation of the site. This would imply the creation of synergies between the different entities involved, that could, for instances, offer in a specific day of the week, every week, a different activity. This network of events would certainly attract people to the square and promote interactions.

From a design point of view, besides that possible network of contacts and co-productions, the design of specific outdoors furniture for the square is very interesting. The solutions proposed, namely for resting, were designed regarding the different kinds of posture and age of expected users. Trying to adapt or to induce ways of inhabiting and living a space through its forms is a role that both design and architecture have always played and a very interesting issue raised in this project. The design of the forms to live the square, to sit or to lean, to play or to flirt, to read or simply to see other people. These are the expectations that sustain this argument.

3.2. ... com amor se paga

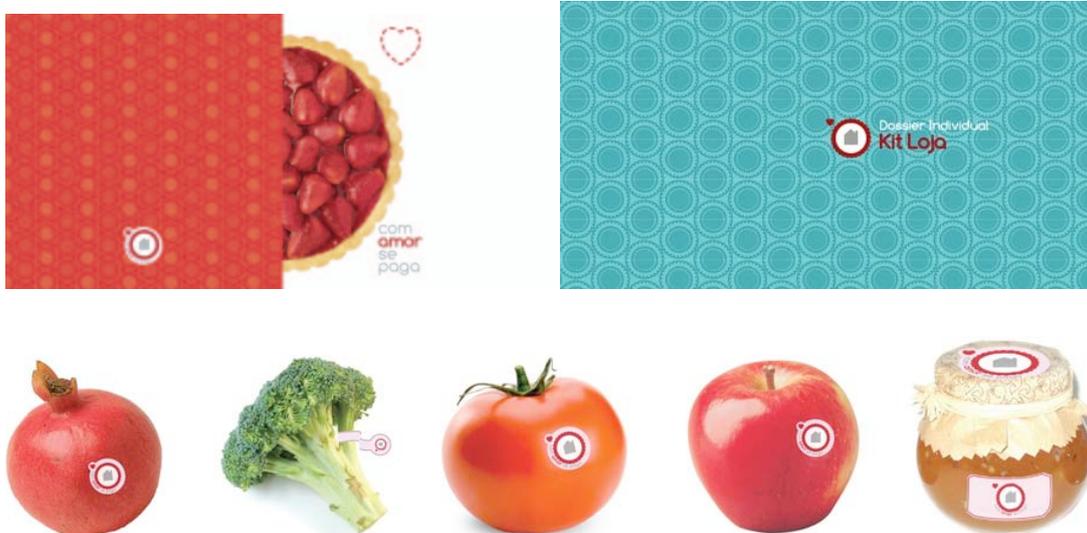


Figure 9 - ...com amor se paga Project

This project established the framework for the creation of a services' and trade network between the residents in that neighbourhood (Barrocas). Following the identification of an already existing but incipient network of friendly exchanges of goods between neighbours – goods produced by themselves, like vegetables, eggs, fruit - this group proposed the creation of a system that would acknowledge and enhance the social significance of these relations as pillars of the community. The upgrading of these incipient and isolated behaviours into constant, acknowledged and dynamic practices, implies that these people would play a major role, as founders of new (old) ways of relating in a urban neighbourhood, regardless of age or profession. As Papanek said: “everybody (...) designs”.

3.3. Megafone



Figure 10 - Megafone Project

To this group was assigned an area characterized by the existence of a council housing estate linked with recurring criminality which taints all its inhabitants with an undeserved notoriety.

This was the guiding principle for the action of this group, to fight the stigma associated to this council housing neighbourhood. Their proposal was based in the idea of creating a sense of belonging to a community that includes different generations, different professions, different backgrounds, but who, by being afraid of reaching out for other people, become isolated, thus increasing the discontinuities in their neighbourhood.

The project's principle is that you can look at what surrounds you in a different way. Through the distribution of disposable photo cameras between the residents it was intended to get an inside look on the neighbourhood's life, to record the daily life of its residents.

The following step would be to show some of those images in a public space. Images of regular spaces, ordinary people, but with a name, a profession, an origin. It is a sort of amplification of something that already exists and, in truth, nearly nothing is designed in this project: the contents are there, ready to be given value through a different look.

3.4. Cor





Figure 11 - COR Project

In the stride of urban regeneration, a project that aimed to promote the reuse of abandoned houses and revitalize the most rundown and aged areas of the city was also presented (Cor Project –Colour Project). For that purpose the students designed a service - a network of contacts - through which the owners of empty houses could get in contact with prospective tenants, mainly young creative professionals trying to kick-start their careers. The central idea was the renting of the available spaces for a low cost, or for its simple regeneration, and its goal was to attract younger residents and, through them, to socially regenerate the area under intervention.

3.5 Alfresco



Figure 12 - Alfresco Project

One of the student’s groups - the Alfresco Project-, proposed, for example, a green zone as a daily use equipment, where the most diverse events could take place, and thus, through a series of coordinated actions and specific urban outdoors’ furniture, promote the interaction between users of different generations in the same space.

3.6 Raízes

Another proposal within the theme of green spaces and outdoors, the Raízes project (Roots Project), pointed at the “conquering” of the territory by the resident population by planting trees (with a previously planned order and layout) and by doing so, experiencing that space as their own. The aim was to promote a closer and long lasting relationship with the city that would lead, in the long run, to a true “city park” in the literal sense of the words, a park built by its citizens.

3.7 Faiisca

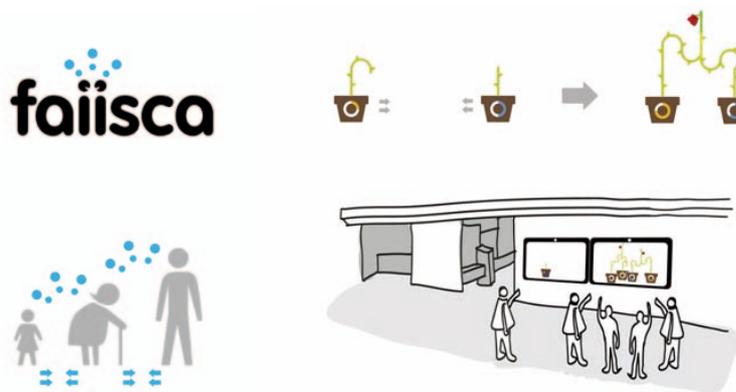


Figure 13 - Faiisca Project

At last, another group of students – Faiisca project (Spark project) focussed its intervention in getting the most out of “forced leisure”. Having as starting point the ‘citizen’s shop’ of Aveiro, a place where one can find a series of public and private services and where the waiting times are often too long, the main argument of this group was to seize the random meetings that the space generates, igniting and transforming them in dynamic social relationships. For that, a series of interactive situations were proposed, from games to interactive walls, with which the different users of the place, old or new, could interact. This collaboration between individuals is of central importance for the activities to be carried out.

4. Conclusions

In 1995, Morello [8] has raised the question of designer’s lack of capability to design services, suggesting that the role of the professional designer should be renewed to embrace the new reality and arguing that renewal would entail a deep revisitation of design’s conceptions.

New strategies able to introduce new ways of thinking in Design are needed, in order to promote sustainable solutions in the formulation of possible scenarios. This is one of the statements underlying the Design debate nowadays, and the role of design must be updated to achieve that goal. The truth is that if design fails to follow the

changes happening in society and continues to build up on product conception serving a declining economy, it will be hopelessly unable to perform its tasks in the arising model of sustainable development.

On the other hand, it is not desirable that design becomes "hostage" of these changes. We can not uncritically accept the agenda of politicians, albeit the fact that the key decision makers about what science 'can' investigate has been European funding. Whatever the problem of a given society, the design discipline, in the context of training, should be a vehicle for reflection on the social and economic culture in which it intervenes. Through this project proposal we have tried an approach that we think is the appropriate one to face a more complex reality, complexity that inevitably also affects design.

One of the conclusions to draw from this project, based solely in product-service systems, was the reinforcement of a design's holistic vision.

Whatever its field or area of intervention, the tools used by designers are still the same: the structure, the networks, the materials, the technology, the authorship, the drawing. Always the drawing.

4.1. Future Developments

More than the set of different elements designed to illustrate the proposed projects, which above all played their role as supports of a practice and contents that remains essential to the work of designers – the visual structure, composition, colour, scale, materials, ergonomics, the sensibility to choose one shape instead of another, the mock-up, the drawing once more – it is important to enhance the flexibility of some of the proposed systems. Initially designed for an exact location, but applicable (when well designed) to any place, city or country where the diagnosis is similar, the modularity in the design of these systems also allows specific implementations, appropriate to the scale, time or uses of various contexts.

Therefore it is necessary, in the immediate future, to "move away" from the place that triggered each argument and analyze what was proposed from a designer's perspective (possibly different from the standpoint of a social worker, a physician, a mayor, a gerontologist...). Envisaging design as a fertile ground of experiences, whose implementation can and must ulteriorly be complemented with other actors. Again, design as a cultural interface with society...

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Project's blog

<http://projectoemdesign4.blogs.ua.sapo.pt/>

Map

<http://maps.google.com/maps/ms?hl=en&ie=UTF8&msa=0&msid=210658577879891953679.00049289006c1e8d90185&t=h&z=14>

Groups of students

Group A, MEGAFONE: Elisa Rosa, António Ferreira, Bruno Martins, Ana Fabiola, Gabriel Melo, Rodrigo Quadros, Luís Cambra

Group B, AGE: André Barros, Elsa Marques, Daniel Soares, Luís Costa, Marco Costa, Rafael Tomé, Rui Batista

Group C, ALFRESCO: Carlos Santos, Cristina Barreto, Rafael Coelho, Elliot Silva, João Henriques, Joel Cabral

Group D, RAÍZES: Diogo Louro, Inês Maia, João Alves, João Carvalho, Joel Enes, Sérgio Carvalho

Group E, COR: Joana Carvalho, Carolina Gaspar, Joana Ramos, Beatriz Lacerda, Joel Araújo, Rui Ramos

Group F, ...COM AMOR SE PAGA: David Santos, Sandra Saraiva, Pedro Santos, Joana Santos, Francisco Bairrão, Margarida Mouta, Diana Hasse

Group G, FAISCA: Fábio Maricato, Fausto Fonseca, Luís Honrado, Ricardo Martins, Rui Durão, Eduardo Miguel Rocha, Marco Egídio, Luís Silva

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Education

MIND
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GAP III



cross continental
cross institutional
cross cultural
and cross disciplinary
online
teaching and learning
collaboration

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Abstract

Mind the Gap is an ongoing learning and teaching collaboration between design students based in Sydney, Australia and business students based in London, UK. The collaboration stemmed from a meeting of two academics, both teaching in the areas of design management and sustainability. One out of an Australian university design school and the other out of a UK based business school. They decided to extend and enrich their students' learning experience through an interactive online forum where students could discuss common topics relating to their respective courses.

In the first iteration (Autumn 2008) the main challenge was to get the students to discuss issues across the cohorts rather than in parallel. The second iteration (Autumn 2009) built on the experiences of the first with the goal of the discussion informing project outcomes. The third iteration (Autumn 2010) has developed a more complex approach generating discussions that culminated in the identification of opportunities for design for social innovation. This interaction comprised of (1) a discussion between the cohorts on general issues of sustainability, pleasure, and urban food supply; (2) identification of possible design projects and the generation of a brief for the UK students by the Australian students; (3) a proposal being formed by the UK students to enact the brief.

This paper discusses the teaching and learning insights and outcomes of the third Mind the Gap collaboration (Autumn 2010) and outlines recommendations for the fourth. The data and accompanying analysis stems from student interaction observations, interviews with students and lecturing staff, project outcomes and comparative reflection based on

the ongoing nature of this endeavor. The paper concludes with a recognition as to how much this ongoing collaboration reflects changing norms in design education to include interactive shared learning, open source knowledge, and social media in order to find the in-between space in which creativity often thrives.

Introduction

Mind the Gap, an ongoing learning and teaching collaboration between design students based in Sydney, Australia and business students based in London, UK, stemmed from the meeting of two academics, both teaching in the areas of design management and sustainability. One from an Australian university design school and the other out of a UK based business school. They decided to extend and enrich their students' learning experience through an interactive online forum called 'Think Tank' (TT), purpose built using Joomla open source Content Management System, where students could discuss common topics relating to their respective courses. In addition, the collaboration is aimed at developing skills around communicating with people from different professions and socio-cultural backgrounds. Both cohorts are studying Design Management one from a design perspective and one from a business perspective.

The common discussion thread each year has been 'sustainability as pleasure' with a different emphasis each delivery. In its first iteration (Autumn 2008)¹ the main challenge was to get the students to discuss issues around sustainability and technology as pleasure across the cohorts rather than in parallel. The second iteration (Autumn 2009)² built on the experiences of the first with the goal of the discussion around transport, sustainability and pleasure in order to informing individual project outcomes. The third iteration (Autumn 2010) has developed a more complex approach with the goal of the discussions being used to identify opportunities for design for social innovation. The theme was food, sustainability, and pleasure. This interaction comprised of; (1) a discussion between the cohorts on general issues of sustainability, pleasure, and urban food supply; (2) identification of possible design projects and the generation of a brief for the UK students by the Australian students; (3) a proposal being formed by the UK students to enact the brief.

The 2010 interaction had a more formalised structure that both students and staff preferred over the original 'organic' flow of the first and second iterations. This structure has evolved over the development of the Mind the Gap collaborations. Initially the format was very open as the coordinators wanted the students to direct the learning and exploration process. The format is still open but some structure was needed, and

¹ Griffith, S., Morgan, T., & Sadowska, N. (2009) Mind the Gap: A collaboration in design teaching and learning between Regent's Business School London and the School of Design Studies, The College of Fine Arts, University of New South Wales, Sydney. Design Connexity - The 8th International Conference of the European Academy of Design, Aberdeen, Scotland, April 2009

² Griffith, S., Latif, A., Morgan, T., & Sadowska, N. (2010) Minding the Gap II. ConnectEd, July 2010 International Conference on Design Education, University of NSW, Australia

developed over time, for the students to feel confident and supported to explore³. Five set project stages were followed with expected outcomes or deliverables: (1) engage and explore; (2) elaborate and extend; (3) exchange; (4) effect; and (5) evaluate.

Stage 1: Engage and Explore.

Students from both cohorts engaged with each other via the online forum to explore the broad topics around sustainability, pleasure, and urban food supply. Discussion, images and other rich media were exchanged in this stage.

It was agreed that the two groups of students would be given three weeks to interact both in class sessions and during their self-directed study. The time allowance was defined based on the previous experience of this sort of collaboration and to fit the differing semester timetables in UK and Australia. The UK-based students met in class only once a week, thus a lot of interaction with the Australian students was taking place outside of this time due to time zone differences. The time allocated in class for engagement with the TT forum provided students an opportunity not only to engage with their colleagues in Australia but also to discuss the raised topics amongst themselves. This particular group preferred the immediacy of response that is afforded through more personal contact. Hence the time delay of a TT forum was from time to time a hindrance. The Australian students had similar preferences but both sets of students could see the benefits of the project and persisted none the less.

On the other hand, the topic of the discussion focusing on sustainability as pleasure within the context of food in an urban setting was a positive choice. Students found the exploration of notions of pleasure and sustainability in a contextualised environment more helpful than in previous years. In particular, the notion of food in an urban context seemed to hit the mark not just because there is a lot of talk in the media about these issues, but also because these are topics students can easily identify with. They can relate to them on a day-to-day basis, even if the notion of pleasure or sustainability has not been raised in this context before.

The particular strength of this UK cohort was the multicultural mix of the students. Thus, the exploration of what food means in different cultures would often come up. In addition, broader discussion on urban context driven by the seminar focus helped in generating different avenues for exploration. The Australian students, who came from 2 different Design Management courses, one undergraduate and one postgraduate also represented a diverse mix of cultures and nationalities. Food was also a more popular topic of discussion with these students than in previous iterations where themes were much more abstract.

The challenges were more obvious in students' ability to identify linkages between all four areas: sustainability, pleasure, food, and urban context; they were asked to explore. Students found it much easier to focus and discuss details of food and sustainability or food and pleasure or food and urban context through TT than integrating a third or fourth consideration. In particular, the nature of the forum itself and the online

³ van Joolingen, W. R., de Jong, T., Lazonder, A. W., Savelsbergh, E. R., & Manlove, S. (2005) Co-Lab: research and development of an online learning environment for collaborative scientific discovery learning. *Computers in Human Behavior* Volume 21, Issue 4, July 2005, pp. 671-688

discussion fostered these much more focused views than the holistic one. This is something that has remained an issue across all the collaborations.

Reflecting on the experience of running TT for the third time, providing a flexible space where participants explore seemingly abstract concepts (sustainability and pleasure) within a specific amount of time is the correct way to approach this collaboration. Encouraging exploration and free-thinking around these concepts on the basis of exchange is also a positive approach. The additional lesson learned this time around is the inclusion of a more concrete topic to spark the conversations (food in an urban context) by providing a framework for discussion. This context became the key to a successful discussion where the challenges of the communication lie in the following:

- The lack of immediacy of communication due to the inherent nature of the TT being an online forum and the participants being in very different time zones;
- The issues with exploring concepts holistically due to the focused nature of online communication.

Thus, a question arises whether in the fourth iteration, there is value in exploring other forms of social media to enrich this exchange and generate more immediate response. Potential use of twitter, MSN, AIM, Picasa, flickr, flip, YouTube etc, in addition to the forum might be a way to elicit a sense of more direct communication⁴. In prior iterations UK students were less comfortable with the technology aspect of the collaboration than the Australian students but they now seem to be on more equal footing. Accordingly, it seems appropriate to add in extra layers of rich media and social media.

Although both sets of students were given support, and their TT interaction was facilitated in the classroom environment, for the most part they were left to their own devices as to how to interact on TT. Potentially more direction or a structure could be given to generate linkages among the different aspects of the explored concepts. This would encourage students to consider the topics against a much larger framework and explore these issues more holistically. To date the authors have avoided this to see if it would develop naturally.

Stage 2: Elaborate and Extend

This stage was undertaken only by the Australian students. They used the discussion threads to identify opportunities and develop briefs for their UK counterparts. Time was allocated during the tutorial after the three-week TT exercise for each class to have a general discussion about themes that had developed in and emerged from the forum. Students then identified which theme(s) interested them and formed a team with other students interested in the same theme(s). They were asked to extend and elaborate upon the theme(s) or topic they had chosen in order to identify opportunities to exploit or problems to solve. Once these were teased out they were used to form functional briefs. Each team then spent 40 minutes developing a brief for the UK students then presented it to the whole class for feedback. They then reworked the briefs using the feedback.

⁴ Baird, D. E., & Fisher, M. (2005) Neomillennial user experience design strategies: Utilising social networking media to support 'always on' learning styles. Baywood Publishing Company Inc. Journal of Educational Technology Systems Volume 34, No. 1 / 2005 – 2006. pp 5-32

Briefs were produced by the undergraduate students and by the postgraduate group. The students enjoyed the 'live' feel of this activity, as they were all in the middle of writing a strategic brief for their course assessment and found the activity very useful as a check that they were structuring their submissions correctly. It was also a good demonstration to them about the importance of structuring the brief and communicating clearly. They could not just assume that the brief would be understood clearly by the recipients. Proof reading, testing and fine-tuning the brief is an important part of the briefing and design communication process⁵. Once finished they were very keen to see the responses from their UK peers. Four briefs were sent in total to the UK coordinator to select from.

Stage 3: Exchange

It was planned initially that there would be one brief for the four groups of UK students to respond to. However the UK coordinator received four briefs from the Australian students as the Australian coordinator thought they were of a high standard and had merit. It was agreed that the UK students would be given the choice to respond to the brief they felt most comfortable with. The choice was made in a classroom environment, within an open group discussion as to the nature of the briefs. It was agreed that any particular questions with regards to the briefs would be directed via TT to the Australian students as the originators of the briefs. Furthermore, as both UK lecturers delivering the UK module were not involved in the brief generation, it was also agreed that it was up to the students to develop an interpretation of the chosen brief and respond to that interpretation.

A lot of discussion was generated around the notion of 'the right response' and what the possible expectations from the Australian students may be. However, as the entire process was always mediated via TT, the UK students had to continue relying on the use of TT communication to seek guidance. The unfortunate aspect was the timing of this development stage, as the Australian students were at the end of their semester hence their engagement and response was somewhat reduced as they were no longer in formal classes but rather preparing for final exams and other assessments.

An interesting aspect was the specific focus of the briefs and rather strict set of guidelines that the briefs issued. There was a great contrast between the project briefs that the UK student receive in their design management modules, which are much more open-ended and leave a lot of room for interpretation with only a few key guidelines. In contrast, the Australian briefs were very direct and tended to indicate a number of specific requirements. This was due to the Australian students having spent the semester learning about strategic brief writing and accordingly setting measurable deliverables in the brief. Thus, the UK students saw it as a challenge as to how far they could creatively interpret what was being asked of them, offer new responses, and establish the scope they had to reinterpret what the brief was already stating.

To resolve this issue, it was agreed that the UK students could interpret the briefs broadly and explore new ways of addressing the given direction. Furthermore, the students could focus on an aspect of a brief to generate their response. In future

⁵ Phillips, P. L. (2004) Creating the perfect design brief: How to manage Design for Strategic Advantage. Allworth Press

iterations of Mind the Gap and if timing permits it would be more beneficial if the Australian students who issued the briefs were more available to the UK students to provide response and further guidance as to their expectation. This would reflect much more closely the 'real-world' scenario where design managers may often return to their clients for further briefings and clarification.

Stage 4: Effect

Each UK group was asked to develop a 5-minute video that would present their response to the Australian brief. The challenge here was not to develop a video as a response, but rather to use the video as a visual narrative illustrating a potential solution to the brief.

There were four groups that generated responses. Students had to learn how to generate a video through use of iMovie. Initially, the use of technology was a hindrance, whilst students had to also come up with an idea that would form the focus of their video narrative. The other challenge was the time limit. In order to fit the Australian term timetable, the UK students had only three weeks to complete their submissions.

The results were rather a mixed response. Where the approach taken was that of a humorous exploration of what the potential solution to the brief could be, the overall submission seemed to carry much greater merit. The weaker submissions were where students didn't push the boundaries and followed a safer path. Moreover, it was not always clear from the video what the focus of the narrative was. Potentially the complexity of the project, i.e. the TT conceptual exploration, the specific briefs, and the requirements of the video outcome were not always communicated as a cohesive unit, thus generating a response that saw each one as separate experience, rather than as a series of stages of one integrated project.

Nonetheless the UK students totally enjoyed the experience. They viewed the Australian issued briefs as a very real-life scenario and treated it as such. They enjoyed immensely the process of video making. The focus on learning by doing⁶ was a key driver in this particular aspect of their leaning experience. This is something that is often associated with design practice and carries a lot of merit within design education. As these students are seen as predominantly business students, it was considered as a special opportunity to learn something useful that is not a typical aspect of business education.

Stage 5: Evaluate

Once the UK students finished their videos they posted them to YouTube and the Australian students were able to view them and respond. By this time semester had completely finished and the students were on their semester break however the response rate was about 80% of the group indicating that the students were very interested in the project and had enjoyed it enough to continue engagement past end of semester and assessment. They responded well to the format of a short video and really liked seeing

⁶ Anzai, Y. & Simon. H. A. (1979) The theory of learning by doing. *Psychological Review* Volume 86, Issue 2, March 1979. pp 124-140

what their UK counterparts looked like. This is interesting as they felt more engaged at this point than any other in the project. Thus, both authors feel that there is merit for the two cohorts to make a short video at the beginning of the next iteration of the project with everyone introducing each other to achieve that engagement earlier in the project.

The Australian students were asked to post their feedback on TT but all opted to send their feedback anonymously via the Australian coordinator as they felt uncomfortable criticising their peers. Peer review and constructive critique are areas the authors will explore in the fourth Mind the Gap project. It is an important part of the critical design process and an essential design communication tool. This could be an excellent forum in which students could acquire these skills. The Australian students unanimously agreed that the video responses that worked best had a clear story line to follow and began with an introduction or explanation of the project and provided some background. They also felt the UK students gave a good insight into food and London in general, had obviously had a lot of fun doing the project and highlighted a lot of the difficulties surrounding consumers being able to make decisions around food based on provenance, production methods or nutritional and health benefits. The theme of sustainability seemed to be completely dropped from the video responses, perhaps this is a function of the UK students not having a clear vision or understanding of sustainability or because it was too difficult for them to juggle multiple themes. Thus, Australian students' evaluation highlighted the importance of seeing each aspect of the project as part of the bigger whole.

Conclusions and Lessons Learned

The format of the TT brief and its incorporation in the curriculum delivery now works well. It does depend on the cohort as to how much interaction does take place. In general, the student commitment has been established now year on year and the platform to do so is now well embedded. The challenges lie in the ever-increasing need for immediacy of communication. Hence the potential to introduce additional tools like twitter drawn from the social media arena. The other challenge is the timing of the overall exercise. Currently the fact that the collaboration takes place in Autumn semester in UK means that it does not really align with the Australian term time. This potentially could be why there is lack of immediacy in responses, since when UK students are starting their studies the Australian students are already mid-semester and focusing much more on completion.

The introduction of a concrete topic underpinning the conceptual discussion around sustainability and pleasure has been a successful change. It has provided the grounding mechanism for the more abstract conceptual exploration. It has also provided a starting point and a shared common ground for all students involved.

Currently, the development of a brief to be issued by one set of students to the other is the most opportune aspect of the whole project, but it is also the area, which requires most attention. This brief exchange offers a purpose to the whole process of collaboration. It is a far more uniting aspect of the project than the facilitation of the TT. The exchange of the brief offers a goal to look forward to, but also is a pivotal point in generating the direction of the whole project. It is also a motivation tool because both groups feel they need to meet the expectation of their peers. Where further development

needs to take place is in creating the actual briefs themselves. It would be beneficial if there was a set of guidelines as to how the briefs will be developed to ensure that there is greater cohesion between the TT experience, the setting of the brief, and the generation of the response. Furthermore, a system needs to be put in place to ensure that those students who respond to the brief can obtain further interpretation of the brief expectations. This ties in with the timing of the entire project, which potentially needs to be reconsidered.

For the first time, the Autumn 2010 experience has offered an opportunity for student peer critique and feedback. The results of the interaction this time have highlighted that this is an area, which still needs to be developed and strengthened. However, there are some real opportunities in facilitating students' development of constructive critique through mediated communication. Thus, the future iterations of this collaboration need to consider frameworks, which can encourage this process and foster its results.

The final lesson learned is centred on the perception of the project as a whole. To date, this collaboration was set up to allow students to benefit from an exchange during the reconnaissance stage of their own projects. Thus, each group took time out to explore a set of ideas, but never continued to collaborate beyond the point of exploration and exchange. This time around the collaboration was taken further by generating a common purpose: setting of a brief, brief response, and evaluation. This introduction of new aspects to the overall collaboration meant new issues and challenges. In future iterations of this exercise, it would be important to consider much more holistically embedding of the setting of the common brief, generating a response to it, and offering feedback. Like the preceding TT, all of these stages have to have a purpose in the process of collaboration and need to become meaningful for all parties involved. In particular, the role that each set of students undertakes as they move through the stages needs to gain meaning and value for them. This was particularly evident in the process of the UK students developing their video responses. The complexity of the task meant that it was not always possible to step back and focus on the holistic view as to how each of the elements can come together. Thus, the benefits of the collaboration could become lost in the process of generating the response, if not carefully facilitated.

Since its inception and implementation in Autumn 2008, this collaborative project has come a long way. Its initial focus on generating deep and rich educational environments⁷ by facilitating collaboration across continents, across institutions, across cultures and across disciplines has metamorphosed into collaborative designing potentially leading into co-creation within the context of social innovation⁸. The analysis illuminated how this type of collaboration can successfully include interactive shared learning, open source knowledge, and social media in order to find the in-between space in which creativity often thrives. Due to these arising opportunities, further development of the TT based learning and Mind the Gap teaching collaboration is planned for 2011 and it is hoped that other groups of students from other institutions could also participate.

⁷ Gibbs, G. (1992) *Improving the Quality of Student Learning*. Technical and Educational Services Ltd, Bristol.

⁸ Rocchi, S. (2005) *Enhancing Sustainable Innovation by Design: An Approach to the Co-creation of Economic, Social and Environmental Value*. Koninklijke Philips Electronics, NV

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Acknowledgments

The authors would like to thank their students for participating in the Think Tank projects.



TEACHING DESIGN ONLINE:

The System, Style and Reason it is Important

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Abstract

This paper looks at the experience of the creation and development of a Motion Graphics course for students participating in distance learning in Art and Design at the University of North Florida. Students today are familiar and well versed in the technology as recreation, but have a difficult time translating that relationship with technology to a professional setting. This course was developed not only to teach the subject of Motion Graphics, but also to help students navigate to the world of telecommuting.

In order to establish a successful an online environment, students needed to have an awareness of two things: who is the instructor in the professional and personal sense, as well as how to represent themselves as a professional in a virtual setting. To accomplish this, one of the first things created for each class was a video of the instructor welcoming all students to the course. This not only allows students to be able to recognize the instructor when on-campus meetings arise, but also gives a connection to another human being, no longer some “virtual guide” on the other end. Next was the creation of video packages where students can access step-by-step instruction needed to learn either software applications, or fine art techniques, thus fulfilling the connection created when giving in-class demonstrations. In order for students to discover themselves as professionals, the creation of discussion boards, journals, and video conferencing were implemented throughout the course, to shape their new identity.

Full Text

As I first entered the University of North Florida as an Assistant Professor in Graphic Design and Digital Media, I noticed that not one class in our department of Art and Design was using the technology we were teaching, as a means of teaching in itself. I knew that students who would be graduates of our university would be entering into the world of

telecommuting that I had just left. Yet they had no concept of how to function, interact, and most important, succeed within this world. It was these factors that caused me to be the pioneer in our department and create our first distance learning and hybrid courses.

Since I had the experience of teaching in a traditional setting, I knew what aspects of the class's interaction I wanted to retain in the online setting. First, as we all know, when working in the studio environment, there is much dialogue happening within the class, aside from instructional teaching. Here we are challenged, critiqued, inspired, and motivated during these precious class hours. Was it possible to keep this energy and dialogue in a virtual environment? Yes, absolutely! We tend to forget that this generation has grown up with digital TV, global communication and travel, portable devices, internet, just to name a few. They have the unique ability NOT to see a wall between the virtual and the real world, as we may. For them video conferencing and Instant Messaging are all commonplace activities that they do on their "down" time, just look at how much time they spend on their Facebook and Twitter accounts. All of this I found perfect for reinforcing our desire for communication in an online class.

So how did I go about developing this new Utopia? Just like the philosophy, it is just an ideal, not necessarily a reality. The virtual classroom has problems just as the traditional classroom: students trying to get other students to do their work for them, those who lurk in the "virtual corners" and chose not to participate in class discussion or critiques, and the list goes on. I will address several of these problems and the solutions I found for them during my experiences, in the latter part of this paper. This paper will look at the experience of the creation and development of a virtual community for students participating in a distance learning Motion Graphics course in Art and Design at the University of North Florida.

First I will discuss how I developed of the course. Building a solid foundation for any course is important, but for an online community it is absolutely essential. A major aspect to take into account when developing the course is that students today, especially design students, are accustomed to and expecting, well designed web sites. It was a challenge to incorporate an aesthetically pleasing designed page within the confines of the software, BlackBoard, which my University has implemented. If you are familiar with the software BlackBoard, you will know that the design of their interface is far from groundbreaking, its look is very basic, corporate and utilitarian. To counteract this problem I created my pages using Dreamweaver and CSS. It was important that I created the look of the courses to feel like the course that I was teaching on campus. This is something that we tend to take for granted in a traditional setting. When you are in a painting studio, students are unconsciously receiving information from the sights and smells around them, internalizing this information and gearing up for the class. To create a similar effect, when I was designing the pages for my course, I wanted them have an energy and urban look and feel to them. Incorporated within the pages is an internal navigation menu to take students to the various pages within the site. Setting up the course this way allowed students to visualize what type of classroom setting they were entering into. This kind of visual introduction allowed students to begin to get an understanding of who I was as an artist, professor, as well as the feel of the class. This now replaced the experience of standing within the studio environment.

Next I created a video at home introducing myself, telling the students what they can expect from my class, and general classroom etiquette. My reasoning for videotaping at home was to reinforce the fact that they too will be participating in this course from, most likely, their home. This again, helps them to relax by seeing me in such an informal setting, and helps them to relate to me as a person and not some “virtual professor”. Many students start the course with much apprehension, since for many of them, this is their first online learning experience. This video is then linked as an attachment to an announcement posted before class begins. I also make it a point to include an introductory assignment within the video, such as a questionnaire to assess students’ ability levels upon entering, thus ensuring that students will watch the video and not just by-pass the information. To be fair, I do state in the announcement that an assignment is given in the video and not posted anywhere else. There are also features, such as course materials that unlock once the video is downloaded, to ensure students view the video. However, I have found many will download and not watch. Incorporating the assignment within the video is a fairly infallible way to guarantee your information will actually be reviewed by students.

Another tool to build within the foundation is to have students take a picture of themselves and post it along with their assessment assignment. This helps students to recognize each other when visiting campus. I noted that students began to recognize one another in the traditional courses, and as a result, began to set up their own lab study groups. Not only does it help students to know one another, but it also allows you to recognize your students who may be in your other traditional courses. I made the mistake of not doing this one semester and was confused which student was which, due to the fact that some of my students had the same first name but were in two different distance-learning courses. Needless to say, I did not repeat this mistake.

The next level created was the creation of my video packages. My challenge was to find a way to translate my tradition in class demonstrations teaching new software used in the courses. I needed a way to inexpensively capture my desktop’s actions, not just a screen shot. My answer was software called SnapzPro from Ambrosia. This software not only allowed me to capture my desktop actions but also allowed for voice input as well. Now I was able to create the same demonstrations I gave in class for my Distance Learning students. I did have to take into account that these video desktop actions, needed to be downloaded by the students. This meant that I would have to break down my lesson into segments. For example within my html page entitled “Lessons”, Lesson One contains nine segments within it. I take students step-by-step through the techniques and processes they will need to complete each assignment.

As these video packages are being created, I make it a point to include my style of teaching and my mistakes, which also includes my sense of humor. When I am giving a demonstration in the classroom, there are times when I forget where a menu is or a function key, etc. This allows my students to feel at ease in my very casual classroom environment. I wanted my online students to have this same sense of comfort, and for them to experience who I am as a professor. So as a result, when my students download these packages, open the lesson, and see and hear my mistakes, they have an encounter much like the one in my traditional classroom. To clarify, a package is the video screen capture of my desktop

going through each tutorial lesson I've created for that particular assignment, usually in six to ten segments. They've sent me comments that they really feel like they are in my class and not online. It helps them to laugh and realize that everyone makes mistakes. It also brings us together in forming that much needed sense of community. They aren't afraid of getting it wrong, or asking any questions.

I also use this software to address specific questions that my students email to me. For example, they said they've followed my lesson and still something is going wrong. I ask for them to send the file they are working on so I can see what and where they are stuck. I then start recording my desktop while I'm fixing their file. With Mac OS 10.6 Snow Leopard screen sharing is another option if the student and I are online simultaneously, which is more often than I care to admit. I make sure to address them by name and crack a few jokes about the problem. This helps makes them feel a part something that cares about their individual success, not just one of many participating in a faceless course.

The final step I take with these video packages is to convert them into Podcasts. Many of my students have iPods and use them as media players as well as storage devices. So having these lessons available on hand without the need for Internet access is important for them. However with the abundance of WIFI hotspots this is less and less a concern. They can subscribe and download a lesson at a time or a whole semester's worth. I have also learned that my students use the Podcasts during open lab hours when they usually get together for their study groups. For those who may be unfamiliar with Podcasting, it is simply a video or audio source that a subscriber can download chapter by chapter or segment by segment. It is also possible to set up an account to download once any new segments have been uploaded. In my case, my students have downloaded my Podcasts of the lessons I created, and shared them with one another via a video iPod when they meet for study groups at the beach, park, or anywhere WIFI is unavailable.

Another piece of software that has added a great dynamic to the class, as well as my online office hours is BlackBoard's virtual classroom. Within BlackBoard newest feature called the virtual classroom, allowed my Motion Graphics class to experience their first "Virtual Fieldtrip". I had invited a motion designer Eden Soto, whom I had met, to come speak to my class. Since we were a distance-learning class it was very difficult to arrange everyone's schedules and find a meeting place, not to mention finding the funding to bring in a guest speaker. So instead we all met online in the virtual classroom. All the students viewed his site together and then began to have an online chat with the artist and ask him question about his techniques, clients, process, the industry, you name it! It was very freeing for them because it seems that shyness is hard to come by when students are online. I have had guest speakers come in my on-campus classes and when it came time for the question and answer period, nary a hand went up.

Another supplemental and indispensable device I use is Skype, a free software that allows for video chat. I have brought in various designers to present and speak to my class, sharing their precious time without the sacrifice of travel. It also allows students to see how thriving and successful artist and designers set up and organize their own studios. With the magic of a wireless router and a laptop we receive the grand tour!

Now that students were familiar and comfortable with me, it was time for them to get the familiar with each other. This is where the use of discussion boards came into play. For every assignment I divided the class into groups. My class size was an ideal fifteen to twenty students, I like to keep discussion groups as small as possible to about three or four. These groups rotate with every assignment so that by the end of the course, students were in a group with every other classmate taking the course. An important aspect to keep in mind is that you, the professor, need to be leading these discussion boards especially early on in the semester. I also make it a requirement that students participate in the boards. They are graded on posting and the quality of the postings. If they miss two or more posts within the semester they receive an F as their final grade. This is a definite necessity when dealing with first time distance-learning students.

When first establishing discussion boards you need to lead by example by providing examples of the quality discussions you want. By creating specific questions and critique points that need to be addressed within the boards students know how to formulate their contributions to the discussion boards. Make it a rule that students are not allowed to respond with three words sentences, or write non-responsive statements, such as, "I liked it". Remind them they are getting a grade for their postings. I put examples of good responses and bad ones in my syllabus so they have a concrete copy and no excuses of what is expected. When it is located in the syllabus rather than posted in an announcement, students seem to pay more attention in those early classes when they actually look at the syllabus. For emphasis, I do repeat information in various pages of the site so that students are: for one bombarded with the information, but also so that are without excuse if they try to say they couldn't find the information or didn't see it.

For the first few assignments, I tend to establish a guideline of what is expected in the class. As they grow more comfortable with the course structure and material, I loosen up the reigns and tend just to review the boards and not lead them as much. At the end of the semester, depending on the types of students, I re-tighten the reigns, as sometimes they tend to slack or lose motivation at the end of the semester. However, I have been lucky with my distance-learning courses. The students have been extremely receptive of the style and I haven't had to do too much handholding. So again, like any classroom environment, this virtual classroom changes with you particular group of students' dynamics and modifications must be made accordingly.

I think one of the most interesting points I have encountered during the semester is when my class starts becoming autonomous. It would begin with a student asking me a question in a board that I designate just for Q and A. I would see a question regarding the assignment or a technical problem and before I have a chance to respond one of the other students jumps in and answers it! From there, students begin creating their own meeting areas. I always create a discussion board posting called "Burning the Midnight Oil" where students can start any kind of thread they wish, whether or not it has to do with my course. They can complain about me, challenge me, or ignore me. It's up to them. Many times within this space, I see students posting work from other classes to get their peers' opinions or mine for that matter. This semester I have also added two new elements: a Facebook group and a Vimeo group.

The Facebook group was created due to the fact that my students were constantly updating their profiles and posting new content multiple times a day. I then discovered that they were posting their work and asking other students to critique them on these outside sources. Current students were also always asking to see examples of last year's student work as examples. So it dawned on me to just make a group where this content could be easily accessed at anytime! Vimeo, a site to upload video rather like YouTube, but with much less visual noise, and more stable streaming, was used to streamline critique and have a portal that could be easily accessed for viewing. One happy accident was that other Professionals have found the group and some job opportunities for my students have been the result!

Because all of this new media can be accessed anywhere, anytime, as long as you have an Internet connection, my students have expressed a whole new sense of freedom and community they feel whenever they log-on. Students have shared that they like their distance-learning courses, because they can get support when they need it, not just when class meets. For them that is a great comfort and advantage. Also when they are up late completing assignments, they have posted a thread asking: "Who's still up?" That way they can set up some chats to keep each other company during the wee hours of the morning. Having each other is an invaluable resource.

One of the things I am most proud of is that with this new community, I saw that race, age, gender, sexual preference, size, shape, and fashion were not an issue as you sometimes witness in the classroom. Those who never spoke up in my traditional classes were now extremely vocal and active in group discussions. To see them taking initiative in critiques as well as assisting other students with technical questions, creating their own discussion boards for outside of class issues, becoming more self confident not only in their abilities, but as a creative person, made me realize that all the work and effort put into developing these courses, was more than worth it. I am looking forward to enhancing these courses as new tools become available.

As for the reasons for it to exist to start with is twofold. One: it is imperative that these students who so casually establish an online identity, need to learn how to navigate in this world professionally. Students are too informal in their online relationships and forget that they need to establish boundaries, especially within the professional setting. I suggest to students that if they are to use social network sites to keep in touch with professional contacts, that they should and need to establish two identities: one for personal and one for professional relationships. As for my reasoning, I explain to them that your boss does not want to know about your late night parting when the meeting with an important client is happening the next morning. It makes you look very unprofessional and may lose your spot with that account. Teaching them basic business etiquette is what they seem to lack most in the online environment.

And two: students are more and more frequently raising families or starting second careers. Due to this fact they are usually carrying full or part time jobs while continuing their education. Having DL or hybrid classes allows them to take more credits and graduate faster without having to sacrifice any quality in their education. Creating course content that has this type of flexibility also allow the professor freedom to travel for conferences, research, and the like without having to request a sabbatical nor take time off from

teaching. From the student's point of view as well as the University's, it's a win-win situation.

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Dissolving the Boundaries of Designer, Evaluator and the Diverse User in Design Education

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Abstract

This paper initially examines the assumptions the designers make about their roles and who they design for, which have the dangers of either being based on self-referencing or a 'normal, standard user'. What follows is the study of a course that aims to challenge such assumptions by acquiring a user-centered approach to design problems considering people of diverse characteristics, needs and abilities. Incorporated into the Interior Design education, the three main objectives of the Human Factors course is to enhance the *understanding and awareness* of the concepts related to human factors and universal design; to *analyze and evaluate* the built environment and its components according this knowledge and finally to *create* spaces with its components on such terms. In order to reach these objectives, techniques that increase empathic understanding are utilized, where students actively participate in assignments. The focus of this paper will be on three assignments, where the students acquire different roles; as the '*diverse user*'; as *designer*; and as '*critic/ evaluator*' as they engage with their own designs, fellow students' designs and the physical environment.

Keywords: user-centered design, empathic design, universal design, human factors, design education.

1. Introduction

The representation of the user by the designer greatly influences how he/she proceeds within the design process of spaces and products (Darses and Wolff, 2006). Although participatory practices and user involvement during the process may exist, often this is not possible due to financial and time constraints. For this reason, the scope and understanding of the 'user' by the designer becomes more critical in the creation of environments that support the majority of people who use them, taking account human diversity. The education of a designer plays a significant role in expanding this view to account for inclusion. However, often, the novice designers' first immediate source to receive information are their own selves, which is the starting point of their initial designs. This results in use of data referring to themselves to apply for the user population (Wijk, 2001; Woodcock, 2007). Two fundamental fallacies of the designer 'the design is satisfactory for me, it will therefore be satisfactory to everyone else' and 'this design is satisfactory for the average person, it will therefore be satisfactory to everyone else' (Pheasant, 1988) often results in a mis-match between the user and the designed environment, with the exclusion of users with different characteristics. In order to challenge these notions, one of the most important changes required is to increase the awareness of the designer starting from his/her education (Wijk, 2001).

Thus, an integral approach is needed that let's go of standardized notions of user categories, but accepts people as undefinable, 'non-standardized' and diverse.

Within this perspective, distinctions between student, designer, user should be dissolved as the student gains an understanding of different capabilities and requirements of others. One of the ways of challenging the stereotyping and standardizing of the users by the designer student is to increase their empathic understanding (Kouprie and Visser, 2009). Empathic understanding refers to stepping out from the role of the designer and stepping into the role of the 'users', the ones that are assumed to experience the designed environment/product. This necessitates being immersed in the lives, experiences, and ways of living of diverse populations. Beyond only having the knowledge of the user, it also encompasses an affection and emotional connection without judgement. Techniques such as direct contact with users, indirect scientific information about users, and simulating user's condition aid the designers to go beyond self-observation when developing and evaluating designs (Kouprie and Visser, 2009).

2. Human Factors and Ergonomics in Design Education

The architecture/interior design education centers around the 'design studio' where students are actively engaged with solving design problems throughout the semester developing their designs with the inclusion of complex set of criteria. Teaching and learning experiences in the studio have extensively been discussed in literature (Akalin and Sezal, 2009; Öztürk and Türkkkan, 2006, Smith et al., 2009) as well as assessments of the students through design juries (Webster, 2006). Yet, in design education, less is the focus on lecture courses that are a basic part of the curriculum, although they are important (Olguntürk and Demirkan, 2009). In general the 'lecture' courses are aimed to support the 'design studio' where the knowledge gained can be applied with variety of levels to the design problems.

Human Factors and Ergonomics (denoted as HFE) course is one such course that supports the design studio. HFE may be defined as "the application of scientific information about human beings to the problems of design" (Pheasant, 1988, p3). HFE focuses on the study of human characteristics by application of scientific methods, principles and data derived from a variety of disciplines such as psychology, cognitive science, physiology, anthropometry etc. The basic aim is to improve the quality of life of humans by adapting the human-made systems and environments to fit the characteristics of the users, including their dimensions, capabilities and limitations (Kroemer et al., 2001). As such, a user-centred approach based on human diversity which includes human anthropometrical, physical and cognitive variability within the design of products and environments lies at the core of HFE (Looze and Pikaar, 2006).

The same principles are at the foundation of Universal Design, which may be defined as "The design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design" (The Center for Universal Design, 1997). Also termed inclusive design or design-for-all (with different focii), universal design is incorporated within the discipline of HFE, both of which should be within the curriculum of architecture and interior design, either as a separate course or integrated into the design studios (Olguntürk and Demirkan, 2009). One of the major goals of a course in HFE should be to enhance the student-designers role and

responsibility to design considering human diversity in order to create environments to the satisfaction of the largest percentage of users.

3. A Course in Human Factors and Ergonomics

In Bilkent University Interior Architecture and Environmental Design Department, Human Factors course is integrated into the curriculum as a single semester course in the second year. The course is aimed to support the design studio with the theoretical and practical applications of HFE knowledge. The three main objectives of the course is to enhance the *understanding and awareness* of the concepts related to human factors and universal design; to *analyze and evaluate* the built environment and its components according this knowledge and finally to *create spaces* and it's components on such terms. These objectives correspond to the three basic desired goals for ergonomics literacy identified by Karwowski (2005). These include acquiring the basic knowledge and skills of ergonomics and human-centered design, ways of thinking and acting considering these principles; and finally acquiring the practical skills of being able to solve design problems with the application of this knowledge.

Studies show that although multiple methods of teaching such as lectures, notes, case studies enhance remembering ergonomic principles, students largely prefer practical exercises where ergonomics are integrated into design projects (Woodcock, 2007). Accordingly, in the course, although the lectures intensely deliver theoretical aspects of the discipline with rich visual and explanatory examples; students are expected to have active engagement to course material through 'concrete experiences' either during course or home assignments. Through 'active experimentation' students take the role of 'actor' rather than the role of the 'receiver' (Svinicki and Dixon, 1987). This teaching method corresponds with the user-centered empathic approach suggested for the designers.

Table 1 represents the single semester course schedule with lecture subjects and their corresponding assignments. The assignments are either carried out during lecture hours (denoted as course work) or given as home works. Some sets of assignments are consecutive where course works and home works complement and enhance one another. Three sets of these assignments highlighted in gray, will be the focus of the next section.

HUMAN FACTORS COURSE LECTURE AND ASSIGNMENT SCHEDULE			
Week	Lecture Subject	Related assignment (learning objectives highlighted)	Course / Home Wk
1	Definition and history of HFE		
2	Human diversity	Analysis of own home for wheelchair accessibility	HW
3,4	Universal design	Experience campus with diverse abilities + poster design and description	CW + HW
		Quiz on universal design	CW
5	Static anthropometry, workspace design	Analysis of a 'workspace': kiosk	HW
6,7	Principles of seating	Product design : seating project + Evaluation of seating project	HW + CW
8	Midterm		CW
9	Office Spaces	Analysis office workspace	HW
10	The Kitchen	Analysis of kitchen	HW
11	Bathrooms and public restrooms	Design of public toilets	HW
12	Living rooms bedrooms	Quiz on accidents in the home	CW
13	Residential spaces, guest lecturer		
14	Public spaces: case study	Student group analysis and evaluation of public spaces and presentation in class	HW + CW
15	Final		CW

Table 1 - Human Factors course lecture subject and assignment schedule

3.1 Assignment 1: Experiencing the environment with diverse abilities

Within the course subject of 'Universal Design', the objective of the first set of assignments has been to increase students' awareness of human diversity, particularly through emphatic understanding.

The procedure has been the adoption of technique of simulating the users condition in one 3-hour session of the course. Simulations to enhance empathic understanding has been discussed in literature (Kouprrie and Visser, 2009; Cardoso and Clarkson, 2010). Due to constraints of time and resources, simple techniques are used in the course where change in physical abilities and loss of sight are simulated. The students explore the university using either wheelchairs, crutches, or blindfolded. Students switch between the helper and the person with a diverse need in the situations, and go to the specific areas that they normally go to as well as inaccessible areas, such as buildings with no elevator access or ramps etc. Afterwards, they are required to briefly describe their experiences and how this differs from their everyday perception. They are also asked to design a poster to increase awareness of the public for universal design, thus regaining the ethical responsibility of the designer within the larger public.

Although limited in time, this assignment is believed to be one of the eye-openers for the students since they perceive their everyday environment in a totally new way, both physically and emotionally. From the course discussion, posters and written evaluations two major domains have been identified in the experience, the physical domain and the affective domain.

In the physical domain, identification of physical features of the everyday built environment from the perspective of the diverse user was evident, particularly pointing on the aspects they did not realize before. While stairs, ramps and access from doors seemed to be the most problematic physical elements for all of the students, their physical interactions with these elements varied. The following comments are on use of stairs:

Especially while walking down stairs, since we cannot see the number of steps we can fall or have a step forward into space.

Besides being the 'blind' person, being in place of the helper is also very difficult. Since the one next to you is as if 'moving in 'space' while moving around and walking on stairs, guiding him and controlling his movements is difficult.

We observed that balance is the major thing for crutch users, especially at stairs. To place the bottom of the crutch, the width of the stairs should not be so large; otherwise it is hard to jump from one stair to another. Also texture is crucial for crutch user. If floor texture is too rough, it cause stability problems, if it is too smooth it makes crutches to slide.

To the surprise of the students and the instructors, many aspects that appeared to be accessible in our campus did not happen to be so when actually experienced. These included ramps (Fig. 1), thresholds accessing elevator (Fig.2), heavy doors preventing easy use. Similarly, fixed units within the classes such as seats and chairs were inaccessible for the wheelchair user (Fig 2).



Figure 1 - Students struggle with obstacles in the physical environment using crutches and try to match their everyday activities to their physical abilities.



Figure 2 - Fixed seating units prevent wheelchair users to access the classroom furniture; students struggle with elevator doors and thresholds

As the student in Fig 2 expressed:

If you are training in Interior Design department, it is already too difficult for you. However on top of this, being on a wheelchair becomes a torture!...Problems start at the entrance. After than you have to confront elevators, drafting tables, classroom and restrooms. If you don't have a supporter, you can only push the elevator button!

The second component of the experience was affective. Thus, a physical incapability even for the shortest period of time had an emotional impact on the students' view of the self in relation to physical and social environment. The perception of how others view the self and its emotional consequences were shared among course discussions. In that respect, the simulation technique proved really beneficial in providing affective link with the user going beyond cognitive understanding. The following description by a student reflects both the physical and emotional components of the experience of being blindfolded:

When you lose your sight, you feel like time passing slower than usual; you feel like floating in space when you cannot sense your surroundings, you find that every sound is indeterminate because source is indeterminate, you are afraid you will trip over every object on the ground, you need to feel for ground under your feet before every step, your hands are constantly wandering around to find something to guide you... you are treated like a victim by others, you can feel how people around you pity you, you constantly feel inadequate.

Figure 3 shows two posters to increase universal design awareness, designed by 'blindfolded' students, reflecting the social/emotional and physical components.



Figure 3 - Posters on Universal Design by students 'blindfolded'

Overall, the direct impact of this assignment was visible in the consequent assignments where students were more attentive to universal design features in their work.

3.2. Assignment 2: Seating design and evaluation

Within the course subject of 'Principles of Seating', the objective of the second set of assignments has been to design a seating unit and evaluate the seats considering HFE criteria.

The procedure has been a two-week take-home project where the students, in groups of 2-3, designed and constructed a chair with materials such as cardboard, styrofoam, wire etc. The major benefit of designing the seating project lied in the student's dealing with multiple criteria including structural stability, the behavior of materials, ergonomic requirements, comfort for people with different anthropometric data, aesthetic concerns in a short period of time. Figure 3 represents sample seating units by the students. Afterwards, these were subject to testing and evaluation by students themselves during course hours as shown in Figure 4.



Figure 3 - Seats designed and built by students



Figure 4 - Students evaluate their own and friends' designs

For evaluations, students filled out a form considering seating criteria based on Grandjean's studies on seat comfort (1979). This provided a useful link between theory and practice; where their actual experiences of comfort were systematically classified through formalized standards and criteria (Table 2).

IAED 221 HUMAN FACTORS SEATING UNIT EVALUATION												
User Sex (M/F)						DATE:						
Weight:						Height:						
Take 3-5 minutes to sit and try each seat and determine the comfort level for each design aspect below from scale 1 to 5	COMFORT SCALE											
	1	very uncomfortable										
	2	somewhat uncomfortable										
	3	neutral										
	4	somewhat comfortable										
5	very comfortable											
seat parameter / seat number	1	2	3	4	5	6	7	8	9	10	11	12
seat height												
seat depth												
seat width												
backrest height												
backrest contour												
backrest slope												
lumbar support												
seat slope												
armrest height												
armrest width												
structural stability												
aesthetic and design principles												
seat choice in terms of comfort level:												

Table 2 - Seating evaluation forms filled out by students

This exercise merged the three roles of designer, user and ‘critic’ where students were able to compare their own as well as others’ seats. In that respect, the direct contact between the designers and users were at once available, where the students could informally discuss with their peers experienced problems, comfort levels, the relationship of anthropometric data and seat parameters as users. This was an opportunity for direct observation of the ‘designer’ of their ‘user’ in context (Koupre and Visser, 2009). The students role and engagement as an ‘active participant’ via design and use took place. The project ended by an informal exhibition where the ‘most comfortable seats’ identified by students were also recognized.

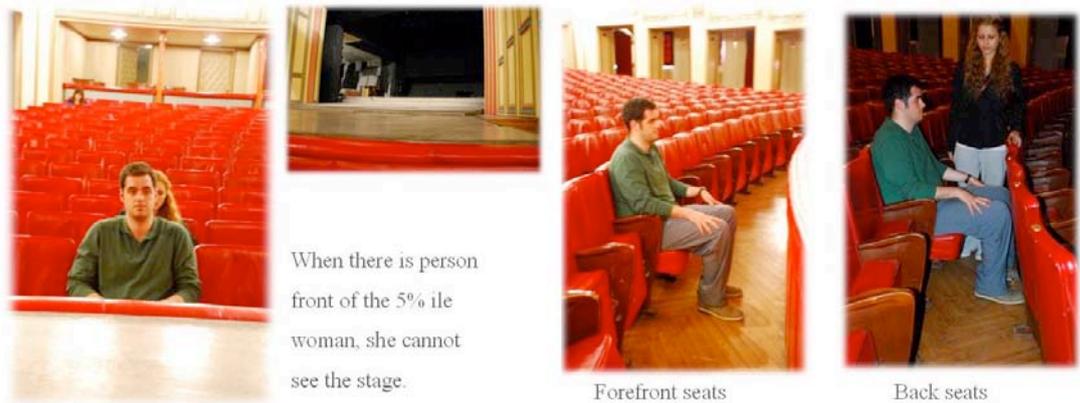
3.3. Assignment 3: Analysis and evaluation of a public space

The objective of this final assignment has been to encourage students implement their HFE knowledge in analysis and evaluation of public space of their choice from the city. The students then presented their work to the class.

This project was a sum-up of the semester where all the knowledge and understanding gained was expected to be presented in the case study evaluations. The students were encouraged to select public spaces of different functions so that each group would learn from the others’ studies through presentations, while a comparison of different/common activities and requirements was possible. Therefore, diverse spaces included nurseries, shops, cinemas, bar and cafeterias, pharmacies, chemistry laboratories in a university, hairdressers, hobby stores (Figs. 5-8). The project was carried out in groups of 3-4. This showed two major benefits. First, it enhanced cooperation among students where they could improve their parts in the group as well as their thinking and understanding through the process (Wilson, 2004). The second was the direct observation of the relationship of the anthropometric differences of the students and their peers with respect to the space analyzed. They were able to observe the impact of their own diverse physiological characteristics in relationship to design. As one student remarked:

Although, I was able to reach the upper shelves, my friend who is in lower percentile in stature was not able to do so.

In their evaluations, the students were able to incorporate diverse set of users including populations such as bulky men, petite women, blind people, wheelchair people, children, elderly etc. They were also able to observe and informally interview the people occupying the spaces, learning about their positive and negative views, adaptations, problems etc. (Fig. 6, 7). While scientific investigation of the space according to HFE standards and criteria took place, students also commented on their own experiences, their peers or other users’ experiences, shared their informal conversations with the actual users, critiqued design mistakes and provided suggestions. Thus, they were changing and adopting roles as students, users, critics, and designers all at the same time or sometimes sequentially. The following figures are sample slides from students’ presentations covering a wide range of public spaces, activities and users.



When there is person front of the 5% ile woman, she cannot see the stage.

Forefront seats

Back seats

Figure 5 - In an opera house, students demonstrate passageway and visibility opportunities according to different user populations.

DINING HALL

- 5 year old and 6 year children eat at the same tables and chairs.
- There are 20 students and 2 teachers at every table.
- Total table length: 417 cm
- Elbow span for 6 year old 95 percentile boy: 67.5cm
- Elbow span for 95 percentile male adult: 92.5 cm
- There are different chairs for the teachers and children



PLAY AREA

- The height of cupboard: 150cm
- The height of first shelf: 95cm
- The height of second shelf: 117cm
- The depth of cupboard: 40cm



Figure 6 - In two different nurseries, students analyze environments and products for children according to their dimensional requirements, also interacting with the users...



The space is very crowded with lots of seeling counters, so people can not move easily



Space is limited, sellers should use space effectively. Therefore some salespeople use the balconies to hang products and use sticks to reach them.

Figure 7 - Students observe a bazaar from the customers point of view as well as the sellers point of view, supplementing their observations with informal interviews



Figure 8 - In a cafe, students evaluate seating units according to ergonomic constraints

4. Conclusion

Human Factors course within the Interior Design curriculum has incorporated a wide range of methods to involve the students' participation into the course. Educational paradigms promoting engagement with the subjects, relating it to real-life experiences through 'cooperation' and 'active learning' (Wilson, 2004) has been combined with techniques to adopt a user-centered approach to design. Thus, rather than only delivering text knowledge, the course relied on the students taking on different roles to expand their views regarding human-environment compatibility, human capacities and capabilities. Their repertoire of the 'user' has thus expanded to reflect the multiplicity and dissimilarity of the population, including people with different abilities, anthropometric characteristics, age groups etc. The students participated to the course beyond mere listening, but through relating the course material with real experiences, designing products and spaces and evaluating them with peers, and being exposed to a diverse range of environments with different activities, user groups, and ergonomic requirements. The initial point of reference of their own selves as basis for design, and the stereotyping of 'standard' user were altered with the changed perception of environment through simulation as well as observation of the user-environment interaction of others in diverse settings. The course is believed to enhance students' internalizing the need to design for diversity gaining new perspectives on the analysis, evaluation and design of the built environment.

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Design project at PUC-Rio: practices and environments in one private brazilian university

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Abstract

The present paper aims at discussing how multiple approaches and hybridization takes place in design project classes in a private university in Rio de Janeiro, Brazil. Our goal is to understand how practices and environments differ and affect the curriculum proposals, establishing conflicts between expectations of professors and students. We also highlight the importance of setting flexible practices and environments to attend it. Although it's a very specific study, we tend to believe that some of the conflicts found are recurring in other institutions, as it encompasses contemporary issues such as dealing with different rationales, approaches and expectations.

Our discussion is based on experiences reported by students and professors and our observations of the classroom environments. First, we introduce some contemporary characteristics as hybridization and multiculturalism, and present the importance of project subject in Brazil and the way is taught at PUC-Rio. Then, we highlight three issues: a) conflicts between two different design approaches; b) lack of integration between different teaching postures and conceptions; and c) incoherence in the use of space and time in pedagogical practices. Finally, we discuss the importance of setting flexible practices and environments as a way to attend the different rationales, approaches and expectations.

We believe that flexibility is a key concept nowadays and it would help dealing with those conflicts by fostering dialog, accepting the coexistence of different expectations and conciliating design rationales that are not mutually exclusive in a learning process of designing for a multicultural setting.

Introduction

The contemporary socio-cultural scenario presents a number of challenges concerning the teaching of Design, putting in check some of the paradigms of modernity, such as identity and cultural notions and the relation space/time. At the same time, we observe the rising of new issues, which are part of our society debates and are also present in the Design field. Among those issues we can highlight the cultural multiplicity and the relation global/local identity as factors, which directly influence the boundaries of the field and, consequently how it is referred to in academic formation.

Contemporary society has lately been building itself according to a notion of pluralism, that is, one that acknowledges diversity. The openness to new postures and the tolerance towards diverging standpoints are remarkable tendencies in post-modernity, according to Roizenbruch (2008). The intercultural minglings, which became more usual as of the 20th century, are the result of hybridization processes pointed out by Canclini (2008) as the basis for modern societies' formation.

Martin-Barbero (2009, pg. 23-24) asserts that *two processes are radically changing the role of culture in our societies: the revitalization of identities and the revolution of technicalities*. The process of globalization, which took place in the last decades of the 20th century, made it necessary that the cultural identity issue – ethnical, racial, local, regional - was reevaluated.

There has been fragmentation of local identities through economic and cultural processes. A global identity has overlapped on those local identities, making a multiple and dynamic hybrid. Santos (2003, p. 26-27) understands that multiculturalism refers to “the plurality of cultures, defining them as complex totalities which merge with societies, making it possible to characterize lifestyles based on material and symbolic conditions.” Hence, multiculturalism has been a recurrent term used to refer to an important feature of contemporary societies.

The globalization process is considered by Moraes (2010), among others, as a phenomenon that causes the change from a static scenario to the current dynamic one. The author states that easy-to-understand messages and predictable decodifications associated with the easiness of commercializing goods to a market whose demand was greater than production were characteristics of the static scenario. Nowadays, however, the scenario is complex and constantly changing and the decodification of intangible attributes concerning the industrial capital assets becomes a challenge to producers and designers (Moraes, 2010)

As these issues are brought to the field, they sometimes overlap, sometimes add up to the traditional teaching practices of Design in Brazil. In parallel to the effort of trying to define itself as a specific field of knowledge with an interdisciplinary characteristic, Design, as a still recent research area in Brazil (Couto, 1997), faces even more challenges when it encompasses contemporary issues of complex nature and difficult comprehension and application (Findeli, 2001).

In general, higher education teaching of Design in Brazil is greatly influenced by the experience of its first higher education institution, ESDI (Industrial Design School of Higher Education), founded in 1963. According to Oliveira (2009), one of the legacies of this school, reproduced in other courses, is in the importance given to the subject of

project, which represents the main curricular guideline for structuring the different subjects.

The teaching of Design in higher education has growth and we find, after four decades, almost 300 colleges spread all over the country. But, besides ESDI has provided the matrix for most of the courses, we should consider that the current educational law in Brazil, set with the New National Curricular Directives (*Novas Diretrizes Curriculares Nacionais* - LDB 9.394/96) gives any course in all areas the autonomy to establish its pedagogic projects and its own curriculum (Oliveira, 2009). As consequences, we find a growing diversity of Design courses, with different emphasis and pedagogical projects that makes them unique and hard to compare to each other.

Due to this complex and changing scenario, and the importance of Design project as recurring subject in many courses, we intend to observe the project subject in a private university in Rio de Janeiro and enunciate questions as means to think possible perspectives about design education in a broader context. Based on our experiences, we reflect upon three issues: conflicting of different approaches, lack of integration and incoherence in the use of spaces.

1. The teaching of Design project at PUC-Rio

The Pontifical Catholic University of Rio de Janeiro (PUC-Rio) is a private university that offers a design course since 1978 (ten years after ESDI). In 2007 the Arts & Design Department has reformulated its curriculum in order to include two new emphasis (Fashion and Electronic Media Design) and revise the other two emphasis (Graphic and Product Design). Among the many modifications, one of the most significant was the emphasis given to project subjects, which now encompasses an even broader part of the course.

Nowadays, there eight project subjects represent about 33% of the course's whole workload, which leads students to take a project subject each semester. While most of the curriculum subjects at PUC-Rio have, individually, an average of 60 hours, each project subject has a total of 150 hours. This difference in the workload hours shows the importance put on project subjects in the curriculum and educational development of Design students in this private university.

The project classes represent the opportunity students have to familiarize with practical aspects of professional life (Ribeiro, 2002 p. 67). Throughout a four-month period, students dedicate to the problematization, planning, development, production and experimentation of services or products, which meet the demands of the subject guided by its emphasis. The approaches vary, since each project subject has its own theme (Table 1) and the tasks can be developed in groups, pairs, or individually and, at the end of the semester, students should present their services/products and report and document the process.

Due to the importance given to the teaching of project at PUC-Rio, both because of its workload hours and because of its pedagogical role, we consider relevant to understand the issue of design teaching in this institution through this group of subjects.

SUBJECT CODES	THEMES
DSG 1001	Basic project – Context and Concept
DSG 1002	Basic project – Planing
DSG 1003	Basic project – Development
DSG 1004	Advanced project – strategy and management
DSG 1005	Advanced project – production and delivery
DSG 1006	Advanced project – socio-environmental use and impacts
DSG 1032; DSG 1042; DSG 1052; DSG 1062;	Specific projects: Graphic Design; Fashion Design; Media Design; Product Design
DSG 1032; DSG 1042; DSG 1052; DSG 1062;	Specific final projects: Graphic Design; Fashion Design; Media Design; Product Design

Table 1 – Design project subjects and themes, according to the 2007 curriculum. [12] [13]

This work is based on our experiences and observations made throughout the teaching of different project subjects at PUC-Rio. These observations occurred sometimes in a systematic way, through the use of two field diaries in participant observation and photos, sometimes in an unsystematic way, through our work as advisor professors and associate professors in different project subjects. Besides that, the document about curriculum organization and subjects' summaries were consulted.

The collected data was informally discussed with three professors and three students of project subjects, taking into account teaching experience and opinions so that we could control interpretations made and confront them with the institution's viewpoint, considering the current course program documents. The findings presented here, are earlier interpretations based on those opinions, analyzed in comparison to the course program documents, and reflects part of our personal understandings since we are influenced by our practical experiences and theoretical choices.

2. Findings

Based on some interpretations, we decided to highlight three aspects to be deepened and discussed in the present study:

2.1. Conflicts between two different design approaches

The teaching of some project subjects at PUC-Rio is characterized by a theoretical-methodological approach named Partnership Design. Novaes (2008) contextualizes that partnership design is related to other ideas:

(...) authors have written about social design, participative design, collaborative design, design focused on the user, in a nutshell, partnership design. We can mention Margolin, Buchanan, Bonsiepe, Papanek, Frascara, Kensing and Blomberg, Damasio, Couto, among others. (Novaes, 2008 p.1)

According to Ribeiro (2002, p.19), Partnership Design deals with the “methodological approach which is characterized by the employment of anthropological techniques, such as participant observation, aiming to lead students to familiarize with the socio-cultural context in which they will work. The initiative of Partnership Design in PUC-Rio emerged as an alternative to a teaching model in which a project situation is simulated in the classroom and where students themselves create a project briefing and the professor assumes the role of both client (the one who approves each project phase) and professor (the one who evaluates the project academically) (Ribeiro, 2002).

Professor Ripper (Couto, 1991), one of the pioneers of this practice at PUC-Rio, states that the highlight of Partnership Design is “to privilege user’s rationale instead of the means of production’s rationale which is embedded in the conventional system of designing objects”.

The emphasis of subjects at PUC-Rio’s curriculum sometimes focus on one approach, sometimes on the other, the problem that arises is related to the integration of these practices.

Basic project students who work according to the Partnership Design approach, should do fieldwork, meet a social group, observe, analyze and work in partnership with the group in order to develop a service or product which meets the identified needs. However, the focus of these subjects does not emphasize the aesthetic and production details of the products, neither enables students to detail and specify them for an industrial production.

On the other hand, advanced project students who work on their products’ details, many times lose the bonds with their target audience, once the validation parameters are the concepts of needs of users who are professors and students. When the focus of the subject privileges the development of the product, the target audience becomes an abstraction.

Advanced project subjects emphasize aspects such as conceptualizing, detailing and producing goods. Classes emphasize knowledge such as materials, colors, shapes, textures, and different techniques which are useful to the detailing for production, including even aspects related to disuse and discard.



Figure 1 – Exception: the only student group in an advanced project class which adopted part of basic project's participatory methodology and style of presentation (posters instead of Powerpoint).

It is important to underscore that the theoretical-methodological approaches adopted in different classes are conditioned to professors and the emphasis of each subject.

We understand that both practices are important in the educational development of designers because while one enables designers to identify, analyze and diagnose concrete situations, and therefore establish parameters for intervention, the other enables these professionals to detail, specify and produce using the available means of production and techniques.

Although the curriculum proposes the articulation among the various project subjects, once they are regarded as different stages of the design process, we observe that, in most of the cases, this does not occur. On the one hand, it is common that students tend to comprehend subjects in an isolated way and the methods and techniques applied as alternative and not complementary one to another. Such behavior takes place because students get to choose the experiences they have identified with the most both ideologically and methodologically. On the other hand, it is also common that professors have theoretical-methodological approaches which are not very flexible, accepting only one or the other approach, this way limiting possibilities for students. Furthermore, there is a lack of systematized work aiming to recover the different methodological approaches for a specific subject, leaving the choice responsibility to professors or students.

The lack of integration between different design practices ends up contributing to a dualistic view, which places users' rationale in a false opposition to production's rationale. Differently from what is proposed in the curriculum, the conflict established between these practices in the daily lives of professors and students ends up hampering a wider and more holistic understanding of the design process. Many times, theoretical-methodological approaches do not favor the integration between diagnosis skills in a cultural context and skills focused on the means of production.

2.2. Lack of integration between different teaching postures and conceptions

The project classes at PUC-Rio can be seen as a rupture in relation to class dynamics previously experienced by students (Ribeiro, 2002). This rupture occurs due to various aspects such as having different professors throughout the tutoring of the same subject, the variation in class dynamics, the virtual absence of exams, the freedom to come to and leave the classroom etc. Such change combines contradictory postures at times, adopted both by professors and students, to the extent that different expectations in relation to teaching beliefs are involved. Sarlo (2006) asserts that there is an identity crisis in classroom relations traditional postures and identifies a difficulty in dealing with still non-consolidated new postures.

Project classes take place twice a week and each group has two head professors and an average of eight associate professors who alternate their classes throughout the semester. During orientations students are instructed in the development of each of their project's stages while during sessions with associate professors specific topics are dealt with through lectures, class dynamics or workshops.

The alternating classes with head professors and associate professors lead to the coexistence of different class dynamics demanding more or less independent behavior from the students. The autonomy experienced by the students in project subjects is variable. Occasionally, students feel encouraged to take decisions and actions without previously consulting their head professors. On other occasions, they wait for instructions they should follow, for instance the case of some classes with associate professors in which they have to develop certain tasks in the classroom. There are also those moments when students relinquish their opinions in order to fulfill their professors expectations aiming to reach success and a good evaluation.

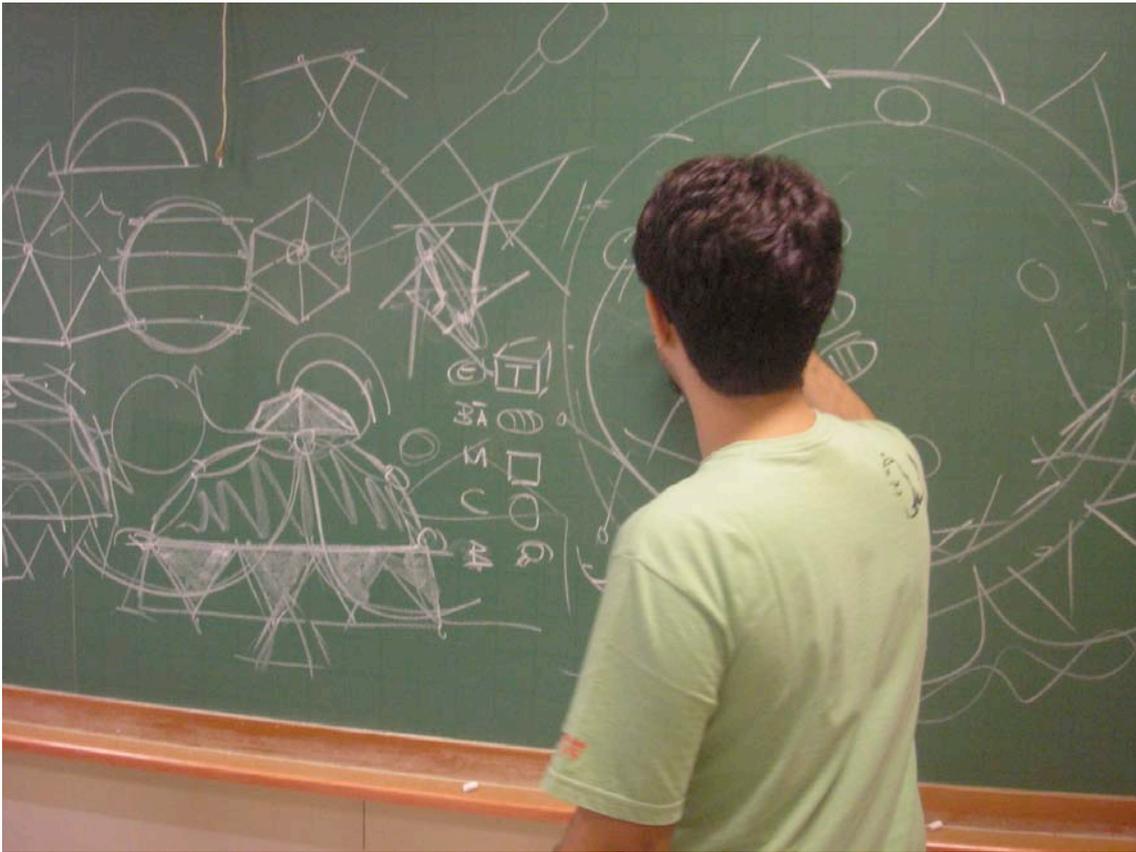


Figure 2 – Autonomy and pro-activity of a student, using the chalkboard to design during the classes

The thematic diversity of classes with associate professors sometimes make the content of lessons fragmented and, when a direct and objective applicability is not perceived by the students for their projects at that moment, these contents tend to be underestimated or even ignored. The same way orientation issues become specific, learning acquired during classes with associate professors is many times thought by students in the short term without the perspective that that knowledge can be useful in the future.

Another issue to be pointed out has to do with the professors responsibility in stimulating students to take part in debates about other students' projects. There is a certain difficulty by the professors in order to promote students participation, which is usually focused on their own projects only. When participation is optional, few students actually participate, on the other hand, when participation is mandatory, it jeopardizes autonomy and the pro-active attitude encouraged by professors in the development of projects.

The classes dynamics as they are structured in project subjects demand a reflection about the teaching conceptions being employed. As projects are developed through a process which includes orientations, lectures, class dynamics, workshops, it is assumed that it is an empirical activity in which knowledge is built through students actual involvement and participation. This way, two attitudes are important: one of them is the stimulus to autonomy, recognizing that knowledge emerges from the student's confrontation with situations which require an answer (Schön, 2000); the other is that professors adopt an available attitude, which, according to Martins (2001) is one of the

ways to encourage the knowledge building process, giving up the role of knowledge deliverer to open up to dialog with students.

2.3. Incoherence in the use of space and time in pedagogical practices.

Although the teaching of the project subject proposes innovative dynamics to students, the organization of time and places where activities are developed are still, in most cases, conventional. The majority of classrooms used in project classes are also used to teach other subjects and they have the traditional learning spaces layout, with desks, chairs and blackboards, which favors a unidirectional professor-student model and the detachment of class spaces from everyday life. The same way, the temporal organization of the course corresponds to a modern model which segments different subjects allotted in specific schedules which students should adapt to. The organization of space and time in higher education environments and, specifically in project classrooms is similar to that in elementary and high school and follow the segmentation and standardization industrial rationale.

The current teaching model was thought, designed, and structured to a different context: to the intellectual Enlightenment culture and to the economic circumstances of the industrial revolution (Robinson, 2010). Robinson asserts that the educational system is based on the industrial revolution interests and structured to conform to it. According to Robinson, teaching carries strong features of an assembly line mindset. In this sense, some examples mentioned by the lecturer are: factory production lines, the use of sirens, the separation of facilities such as restrooms for women and others for men, the division of subjects into separated contents, the division of students according to age groups etc. Due to these circumstances, a great conforming effort is employed by students so that they can fit and stay in this standardizing process.

The observation of project classes has shown that class furniture affects their dynamics. The use of big collective tables with wheels, which make it easier to reorganize the space and stimulate the interaction among students, just like the use of walls as exhibition boards for students' work, are a recurrently used improvisation. The improvised uses and specific practices of project lessons show the specific needs of this type of class. In order to meet those needs, it is relevant that careful investigation be made so that the space can be planned aiming to become a facilitator in the bilateral pedagogical activities.

Concerning the use of time, students should attend a substantial load of class hours, lectures and workshops, but lack time to develop the other tasks related to the project, such as visiting the field, working in the laboratories, buying materials etc. In this sense, compulsory attendance establishes a paradoxical relation once it is demanded that students attend classes, but they should also develop other activities out of class time. Time management becomes crucial in the development of projects and delays in meeting deadlines become usual. Activities which had not been planned for a specific class as well as individual initiatives are relatively permitted. Tolerance concerning extra-class activities is allowed depending on professors' evaluation of each case. The high absence rates may be an indication of an action taken by students to overcome the lack of time to develop projects.

At the same time, activities developed by students and professors on the web can be understood as an extension of the space and time devoted to the skills defined by the

project subject. Collaborative work begins to be stimulated by some professors. The mobility provided by several gadgets such as cell phones and others, begins to be thought as teaching strategies, albeit still incipient.



Figure 3 – Mobile gadgets in debate by students and professor.

Edwards (2003, p.31) argues that the use of space and time at school constitutes a structuring element that escapes the mismanagement of professors and students. However, the author shows that relations established throughout classes are able to define specific ways of time and space use and appropriation. In academic contexts, we understand that activities will be considered acceptable or unacceptable depending both on negotiations between students and professors and the institution's beliefs. Although the university is in charge of organizing the curriculum, schedules, spaces and physical resources, the uses are defined and negotiated by those acting in constantly changing practices. Due to this changing character, there is a constant gap between the institution's teaching practices and those related to ways of autonomous learning, entertainment and work.

The current classroom model does not always reflect the changes occurring in the contemporary society (Canclini, 2008) where time and space barriers become flexible and fluid and public and private mix. Harvey (2008) makes explicit references to the flexibility of capitalism strategies nowadays as opposed to the rigidity of modern models, so that it fits the constant changes which characterize the current time. The same way, we see the importance of making classroom practices more flexible in response to the rigidity of the past, so that the university is able to meet contemporary demands and that the characteristic ways of interaction of the new generations are not

regarded as subversion, but may become legitimate ways of learning and interacting in academic settings.

Considerations

The contemporary scenario implies the changes of certain paradigms in the practice, teaching and research of Design which, according to Findeli (2001), are related to a materialistic, positivist and dualistic heritage, which needs to be questioned. The author supports a pro-active attitude in the field of Design aiming to develop a skill to relate different systems as the key to deal with contemporary problems. Based on these changes, we observed the teaching of project in a private university where we identified three issues essentially.

Having the problems presented, firstly we discussed the establishment of a false opposition between production's rationale and user's rationale, which lead students to adopt one position over the other instead of seeking an integration between these conceptions. Secondly, we identified the pressures derived from the different expectations professors and students have in relation to teaching conceptions, highlighting the importance of negotiations among these actors. Thirdly, we problematized a conception of teaching practices exclusively circumscribed to classes space and time in order to rethink the uses of time and learning spaces within and out of the classroom.

Considering the contemporary scenario, we might understand that there are multiples identities involved on those three issues: different philosophies (user's and production's rationale) generations (older and younger) and roles (professors and students) are combined, forming different opinions and alignments and thus establishing different and concurring identities inside the course. Those identities might differ about which rationale should be privileged, how it should be taught and how to deal with time and space, despite the curriculum says all of them should be integrated.

All in all, we consider the flexibility in planning and operating the undergraduate teaching in Design according to new pedagogical paradigms of paramount importance. We understand that the field of Design, which has an interdisciplinary feature, should adopt a pedagogical approach based on contemporary issues, fostering dialog, the coexistence of different expectations and the compromising of project mindsets, which are not excluding to the educational development of designers who are able to project to a multicultural scenario.

As a preliminary study, we wanted to point out some of the contemporary challenges, such as hybridization and multiculturalism, concerning different actors, such as professors and students, and environments, virtual and non-virtual, in order to reflect upon the importance of flexibility in design education. Nevertheless, the study is very specific on focusing in few experiences and interpretations that belongs to a much broader setting, demanding further and extensive studies. However, we believe that sharing these experiences and pointing out those conflicts would help reflect on educational demands for flexibility and set questions for other researches regarding the use of time and space, the expectations of professors and students and the different approaches and rationales of Design.

That which is developed in the undergraduate Design classroom nowadays should be guided not only by contemporary issues but also by tendencies that emerge in this changing scenario. In this sense, we agree with Findeli (2001) and Schön (2000) when they support an academic development which privileges students' autonomy so that they are able to deal with current and future scenarios.

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Acknowledgments

We would like to thank the contributions from students and professors involved in the different classes and the information provided by professor Dr. Jackeline Lima Farbiarz, design undergraduate coordinator.

An *UnDisciplined* **DISCIPLINE:** Design operating along the **Borders**

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Abstract

Often proliferating in far territories and always placing itself within the track of innovation, between material and immaterial matters, product and service, design has never built a clear and defined field, to be historicized and “hardened” during years, as on the contrary several disciplines did along the time, while acquiring a better recognized and “disciplined” theoretical apparatus.

Design always had the power to build relations with technology, materials, but also innovation, social practices and therefore its cultural evidence: then its specific complexity constantly implied a spread net of theoretical and methodological contaminations flanking design thinking through time. If innovation has to face the unknown, often hybridizing different factors and making connections which seem unlikely, design challenges the disciplines opening structures and blurring the recognized borders of knowledge, often falling beyond the recognized conventions.

Moreover, the historical epistemological shift from the fordist-taylorist paradigm of mass production into the post-industrial development draws a new economic and productive geography: as the industry of the chain assembly leaves space to new forms of labour and production along the so-called knowledge society and the rise of new technologies, design research focuses the new scenarios rising for the creative professions and the chances for the experimentation of new critical keys beside market (Castells, 1996; Gorz, 2003).

Design seems to look outside itself without recognizing any “hard” and “pure” disciplinary border, while always developing a *mestizo* way of thinking and a hybrid looking to reality. This is for its proper character of being permanently “in-between”, while processing knowledge and techniques from other disciplines, taking them into everyday life and translating into scenarios, communication, real and virtual artifacts, rather than elaborating its own principles (Imbesi, 2009a, b, c, 2010a, b).

Then, along with the end of the “grand narratives” (Lyotard, 1979), as we’re living an era of redefinition of the meaning of ‘knowledge’, at the same time we state the collapsing of the categories, the scales, the fields: can we consider the project of a Nike shoe an industrial product, communication or fashion? Moreover, can we consider a website as a big or a small scale?

From a didactic and research experience started at Sapienza University of Rome (Italy), and now developed at Carleton University in Ottawa (Canada), the paper here outlined is a theoretical contribution elaborated also through case studies and an interdisciplinary net of references, such as anthropology, social sciences, cultural studies, semiotic, to witness the accomplishment of design as an academic discipline, while sketching its complex character in contemporary post-industrial societies facing knowledge, as well as scientific concepts and technological processes.

As Design happens to be a device producing knowledge while giving an interpretation to reality and being a strategic engine for innovation, the paper is a contribution to the debate while raising some question: is Design condemned to be a discipline without any given field? If we should consider it within an open structure, what is the kind of geometric organization which draws connecting further fields? What are the new scenarios of design and production along with the occurrence of the post-industrial society of knowledge? What are its epistemological assumptions?

1. Synopsis

As Design happens to be a device producing knowledge while giving an interpretation to reality and being a strategic engine for transformation and innovation, the paper is a contribution to the debate while rising some question: is Design condemned to be a discipline without any given field? If we should consider it as an open structure, what is the kind of geometric organization which draws connecting further fields? What are the new scenarios of design and production along with the occurrence of the post-industrial society of knowledge? What are its epistemological assumptions?

From a didactic and research experience started at Sapienza University of Rome (Italy), and now developed at Carleton University in Ottawa (Canada), the paper is a theoretical contribution developed through an interdisciplinary net of references, such as anthropology, social sciences, cultural studies, semiotic, to witness the accomplishment of design as an academic discipline, while sketching its complex character in contemporary post-industrial societies facing knowledge, as well as scientific concepts and technological processes.

2. Challenging the borders of knowledge

Often proliferating in far territories and always placing itself within the track of innovation, between material and immaterial matters, product and service, design has never built a clear and defined field, to be historicized and “hardened” during years, as on the contrary several disciplines did along the time, while acquiring a better recognized and “disciplined” theoretical apparatus.

Design always had the power to build relations with technology, materials, but also innovation, social practices and therefore its cultural evidence: then its specific complexity constantly implied a spread net of theoretical and methodological contaminations flanking design thinking through time. If innovation has to face the unknown, often hybridizing different factors and making connections which seem unlikely, design challenges the disciplines opening structures and blurring the recognized borders of knowledge, often falling beyond the conventions.

Moreover, the historical epistemological shift from the fordist-taylorist paradigm of mass production into the post-industrial development draws a new economic and productive geography: as the industry of the chain assembly leaves space to new forms of labour and production along the so-called knowledge society and the rise of new technologies, design research focuses the new scenarios rising for the creative professions and the chances for the experimentation of new critical keys beside market (Castells, 1996; Gorz, 2003).

The word "Design" is now indicating a varied and articulated field, in which the twentieth-century notion of industrial design, applied arts and crafts continuously exchange their roles. This is not accidental: it was the design practice, in its most immediate relationship with the structures of production, the consumer behaviors and media techniques, to impose a joint in a position to cope with the dense branching of the creative possibilities, as well as with the needs of a fluid and heterogeneous market, and thus with its disciplinary skills. This articulation has not only increased the number of professional figures, but furthermore has created new design models, based on its dense network of reasons which the Epistemology should be able to identify a common thread, a level of shared understanding and a unitary matrix.

3. Mutant, pervasive and totalizing

The changes of the production system, the globalization of markets, the central role of communication have changed the nature of the project, which is now investing the entire production system and the nerve centres of society (infrastructures, transportation, attractors, communication), and not just the products. Then, nowadays Design has expanded its territories of action and developed its methods to the point to constitute a complex and cross-border field, which introduces a vast collection of objects, disparate disciplinary traditions, inventive projects as well as highly specialized laboratory researches. This can be service design, namely drawing of maps, routes, product strategy, management. It is design connected to communication and fashion design. Furthermore, it is urban design and planning of micro-environments, both real and virtual.

It is the product itself to be changed: in order to have visibility, it must be a product of communication, a product-image, a product-service, a product-event, which plays a central role not only in the evolution of society, but of taste and individual and social habits. The transition from "industrial design" to a "360 degree Design" has led to the multiplication and expansion of its fields of expertise. So, today product design turns to be communication and strategic vision: we may find fashion trends, but also ethics, eco-compatibility, exhibit, what is meant to last and what is ephemeral at the same time.

As per the density of its factors, Design takes the complexity of a totalizing social fact and thus has a central role in the ongoing changes of complex societies, between global and local. It is a Design declined in plural terms, in which the specializations are multiplying and are increasingly more sophisticated and contextual, without starting close and rigid divisions. Conversely, this opens to a plurality of languages and methodologies, which interact and make the Design field even more pervasive and articulated.

4. Epistemological furrows

One way to measure the scientific disciplinarity of a field is the ability to develop research tools that can look at reality, while giving an original interpretation, and also to create innovation within the processes of transformation. The research attitude becomes a factor that helps to define the discipline and its academic autonomy, both in relating to other areas, such as in dealing with society that should be targeted by its results.

If the objective of research is to develop knowledge (of phenomena and processes) and whether the disciplinarity as a scientific field is measured through its kit of knowledge that can be transferred to society and future generations, thus in order to ensure its disciplinary autonomy dimension, becomes central to plot its skills and tools of experimentation in research, creating a background of knowledge.

But, the history of Design as a disciplinary field is also a hybrid process towards the acknowledgement of the scientificity of its research and tools. In fact, for a long time, a deep furrow, which is at the same time cultural and epistemological, separated the creative activities in the art field, which were relegated to the realm of individual sensitivity, from the activities of research in science and technology, which were involving the destiny of the progress of society. While the arts seemed to operate in the sensitive sphere of quality, apart from any possible quantitative calculation, scientific research was a strict discipline which could be measurable, classifiable and circumscribed in universally identifiable terms, that is a product of reason put to work.

Arts and techniques have lived through an historic division that would also be irreducible disciplinary and methodological procedures to observe reality. Equally, scientific research would concentrate on methodological rigor and falsifiability of objective results, giving a different value to intuition and the arbitrariness of artistic expression, which would be the result of a subjective product. The neutrality and objectivity of the scientific position, under the guidance of the "light" of reason, would have produced a form of indifference, if not a suspicion, to the creative work of art that would otherwise require the unilateral placement of the artist and a plural interpretation of the observer. Yet: during times, scientific research and technological innovation seem to respond to the dictates of the usefulness and necessity, which would provide a form of social legitimacy. On the contrary, the arts in the ancient western culture stood out all the more practical aspects of material culture, or else sought a form of spirituality, in order to refer to the deeper symbolic meanings.

It will be Industrial Design to bridge that cultural gap, drawing from the repertoire of the arts to create applied forms to technology that ensure the "beauty" and use in society: with the industrial revolution, design goes into the laboratories of science and

technology for converting scientific discoveries into physical objects for everyday use. Design demonstrates that the invention of the ballpoint pen can have a social value and be a useful innovation, just as the discovery of penicillin, although on a different level, and furthermore that research no longer remains the prerogative only of those who wears a white lab coat.

For a long time, the historic separation between art and science in research also influenced the patterns of training: depending on the interpretation, design education has found a place in the areas of engineering, giving sense to design for industry, or on the opposite in schools of art, while accentuating the side of aesthetic experimentation. It is the experience of the Bauhaus to organize an autonomous training model, while engaging the collaboration of artists, architects, engineers and technicians, while connecting their skills through project.

5. From an Aesthetic to a Poietic Research

Research is still the critical field where to draw Design as a recognized and autonomous discipline in the so-called mature capitalist societies and the way it is able to develop knowledge while connecting different disciplinary lenses and at the same time braiding theory and practice. If Design comes to be a field without any defined epistemological apparatus and box of tools, few questions come forward to understand how we can speak about research in design: what justification and what role can be cut in the processes of development and social innovation? What is the relationship between didactics and research? What are the new fields to be developed? What approaches and methodologies?

Design research by its nature catalyzes in itself crosswise contributions and diverse approaches to obtain new knowledge and designing real solutions. Just as any scientific research: it requires systematic and rigorous methods, deals with complex problems and with the processes of transformation, takes care of the scenarios where new discoveries will be included, analyzes the interactions and consequences of possible solutions, raises innovation and future as horizon, gives an interpretation to facts, events or processes, articulates its own specific language and requires the dissemination of the results of its activities. To confirm the similarities and the proximity of objectives and methods between Design Research and any scientific research is the multiplication of experiences and collaboration between testing laboratories and workshops through design: in this sense we are witnessing the transition from an art oriented to aesthetics to a form of 'poietic' art, or else oriented to research, exploration and creation.

Experience gained from research and teaching in recent years finds the occurrence of design being an autonomous academic discipline and identifies the area within the applied research in specific practical contexts to create real solutions. Equally, it highlights the complex nature of having to interface with knowledge, concepts, scientific and technological processes which are always new and more complex - think of the nano and biotechnologies or the ethical responsibilities and sustainability - where Design may act as a connector. Then, Design would be able to create added value in the world of production and towards the collective interest, because of its ability to develop products, everyday scenarios, interactions, industrial processes, making discoveries and knowledge for practical purposes.

6. Manufacturing knowledge

It follows the profound social and ethical responsibilities that creative professions assume towards society: every action and every change of design choice is not indifferent to political decision-making and, as the lives of men and women made of flesh, but also thoughts, needs and desires. Through Design, scientific research takes position on the urgent problems of the world, contributing significantly to the social, cultural and political development of our present time. Then, science divests the habit of neutrality and indifference on the effects of their work, to place itself in a specific historical period and in a particular social and geopolitical context, in which the culture of the project acts as the Ombudsman, to contextualize the results of research into real life.

Even if without any given disciplinary border, just as any scientific field, Design produces: transversal thinking; mindful (and politically positioned) innovation; driving force (in the processes of transformation and innovation), it goes beyond the (disciplinary and academic) boundaries; it works on the quality of (social and individual) interaction; it creates community and involvement (and furthermore develops new cultural models of reference); it is part of the geopolitical and global framework (creating added value, connective flows, processes and forms of organization). In few words, it produces knowledge.

While manipulating reality through its forms and materials, it is the project itself that turns out to be a device of knowledge and at the same time an agent of transformation and motor for innovation: at this end, the final products of design always combine together material and immaterial features: technology and technique, matter and materials, shapes and images, structure and organization, meanings and signs, rituals and behaviours. Through the project, we expand our knowledge about the shape of the world and its specific qualities, while intersecting the levels of public life as private life, economy, culture and daily life, and then, design can be stated as a relational discipline in building connections between the lives of the people and the environment they inhabit.

7. Fronterizo

Design develops a structurally open field, which is at the same time flexible and has no fixed rules or inner need to be defined too rigidly in its various divisions. While practising cross-fertilization, Design has an extensive capacity, allowing us to perceive the most diverse and unexpected connections. But always in the context of its irreducible anthropocentrism that makes Design being an interface between the outer and inner world of subjects.

In addition, similar to the methodology of science programs, the proper way project design operates is interdisciplinary and is out of the strict logics of the fields, playing out that kind of "thinking differently" from which innovation occurs. This is precisely for its character of being a boundary or border field, which captures and uses knowledge and techniques from other disciplines, carrying them into everyday life and translating

them into worlds, real and virtual artifacts, action programs, communication, as well as developing its own tools.

Border fields do not limit to open or crop new fields while using or contaminating concepts, categories, methodologies, procedures, models, experiments, knowledge drawn from other different disciplines, but furthermore elaborate and develop them from within their own methodologies, presenting them into new models, experiments, devices. The final result is the shift of meaning and a new perspective of the same methodologies that have been decontextualized and re-contextualized differently, with an impact to the same disciplines of origin, while opening to new views of knowledge and techniques. In addition, border fields bring into question the rigidity of the borders themselves, turning the imaginary geography that organizes knowledge. More than just another geography, they constitute another way of thinking about culture, technology, knowledge, the objects themselves, where they skip the traditional boundaries and the steady fields.

It is not so interesting the relationships between design and art as design and fashion, or design and communication. What is interesting is how fashion design changes fashion, as well as how the communication design changes communication.

Nowadays, more than ever, innovation is the transformation of thinking problems, which covers the organization of production, consumption, society, but also at the same time this has the power of creating imaginary narratives. So, beauty and utility are flanked by economic and symbolic. Design has taken from art the role of making the world more beautiful in the process of aestheticization of everyday environments and cities. Moreover, it has taken position characterizing critical thinking: such as improving the organization of society and the quality of life, while extending them to the emotional aspects and to affections.

8. Exploring lateral positions

If we may consider interdisciplinarity the capacity of connecting different disciplines from a specific disciplinary standing point of view where to launch links outside of the borders, the way transdisciplinarity works is eccentrically and unconventionally hybrid while it does not recognize any disciplinary border while breaking any conservative and predictable limit of given scientific field. The way transdisciplinary research works is overpassing and invading the given scientific bodies to elaborate tools, skills and languages which are extraneous each other, in order to develop new tools, skills and languages and therefore to follow innovation and to suit a specific and temporary goal or to explore new ideas. The result is always a different and new body which cannot be compared to the former disciplines: the suffix 'trans-' explains a process of transformation and change which cannot keep any scientific identity in their previous shape and body.

This is the way Design often operates in research: while it doesn't have a 'hard and pure' disciplinary body, it blends and mixes together with other fields it encounters, while developing new forms of knowledge. It doesn't translate languages or idioms, it changes the languages and the idioms in order to always meet a different position and at the end the result will be a new language or idiom.

Furthermore, the position Design takes while facing other fields of knowledge isn't frontal, but asymmetrical and lateral, often seeming even unorthodox and illogical.

According to the theory of the 'lateral thinking', this seems illogical in terms of a 'normal' logic, but actually it rather follows another logic, which often is the one of perception (De Bono, E., 1992). Lateral thinking allows to identify the predefined tracks where the vertical thinking moves, in order to reach new ways helping us to escape from any given track and then being more creative and innovative. As the vertical thinking is logical and selective, while selecting ideas, the lateral thinking is better generative and has the task to generate new ideas and concepts. Again, if the vertical thinking is logic and sequential, the lateral one is more explorative and is able to make jumps, but at the same time the lateral thinking do not replace the vertical, but on the contrary it is able to incorporate it. Rather than refusing, lateral thinking welcomes and accepts, it is inclusive and not exclusive: it relates to the logic of 'and' rather than 'or'.

9. Living in-between

Design seems to look outside itself without recognizing any "hard" and "pure" disciplinary border, while always developing a *mestizo* way of thinking and a hybrid looking to reality. This is for its proper character of being permanently "in-between", while processing knowledge and techniques from other disciplines, taking them into everyday life and translating into scenarios, communication, real and virtual artifacts, rather than elaborating its own principles (Imbesi, 2009, 2010).

Then, along with the end of the "grand Narratives" (Lyotard, 1979), as we're living an era of redefinition of the meaning of 'knowledge', at the same time we state the collapsing of the categories, the scales, the fields: can we consider the project of a Nike shoe an industrial product, communication or fashion? Moreover, can we consider a website as a big or a small scale?

Historically, we can state that the process of building material culture has always been the fruit of continual transformations that frequently take the form of manufactured goods and symbols which are exchanged and transferred among places and territories. In this sense, ideas and images are the cultural heritage manipulated by designers to work out material as immaterial artifacts.

As the continuous displacements, the movements, the uprootings have all contributed in a creative manner to the construction of identities and cultures, through the continuous exchange of images, narratives, forms and languages (Clifford, J. 1988; Canclini, N. G., 2009), as well the way Design works is outside any given path, to always look for contamination and exchange with ever new and different media and tools.

The origins of the concept of hybrid can be traced back to the biological model which distinguishes between two different species and the pseudo species that result from their combination: the 'chimera', the first hybrid molecule, is the result of the composition of molecule fragments from diverse organisms. The evolution of biotechnologies shows how heterogeneous components can be polymorphically interfaced through shared codes of elaboration, in order to build a recombinant DNA after a praxis of sampling and mixing.

10. Hybrid products

Using the notion of hybrid to understand the prevailing characteristics of contemporary artifacts, implies a conceptual extension that sometimes attributes to the phenomena of hybridization specific and new meanings, even if they are related to everyday products. This is even more present in the current condition of development where the physical context is crossed by an ever-changing flux of artificial products that changes daily and whose changeability is increased by the very immaterial condition of many of these products crossing it. This fluidity renders products permeable with respect to each other, breaking down the barriers of their functional and typological references, contaminating them with technological transfers and stylistic superimpositions, while destabilizing them with regard to their frame of reference.

At this standpoint, it is basic for the designer to understand the processes of cultural exchange, and that design is, in some way, a discipline of interconnection between various fields or disciplines. This has great value when relating to different fields, like handcrafting, communication, sociology or anthropology of the everyday, and rituals, etc. Then, design should be considered as a hybrid discipline.

Working with hybridization seems something essential to the field of Design and necessary so that designers understand their own activity: in that respect, Design has a long tradition not being troubled by the notion of purity and then being flexible in the appropriation of heterogeneous materials and at the same time being involved in many cultures. Thus, we need to learn the rules or methods of hybridization as they occur in the contemporary world. They appear as the ways of knowledge and self-knowledge that are needed for a design. But at this time, it is important to conceptualize it more in terms of cultural exchange as it appears to be a more extensive notion.

11. A metaphorical attitude

Design is renewed and strengthened if it looks outside rather than inside itself, while going beyond its own disciplinary boundaries, staying and working on the edge, on the areas of friction and interference of the different disciplines, where things do not end but begin. This is intended not to practice a nomadic erratic discipline, but to look at things beyond the given conventions. Then, it is from the reflection on Design itself that an adequate Theory of Design can be born, although different from the important histories and semiotics of Design, which can be considered the two theoretical approaches that have been earned to date, with their latent or explicit philosophies and theories.

Design does not have a specialized vocabulary and uses words that belong to both common language and to specialized languages of other disciplines. Yet, Design has a language other than common, though its specialism is not just the result of its special vocabulary or lexical expressions, as it is in the case of technical-specialized languages, but implies the presence of its own deep semantic field.

In fact, Design implies a strong core of methodologies, such as tools of analysis or research, that define the perspective of the project not just finalized to itself, but filtered by the dynamics of the project. Such methodological apparatus has not just a function of description and interpretation of reality, but it is also directed to the problematization of reality and to opening up to new horizons.

The implicit code which regulates the systematic translation operated by Design of the meanings taken from the ethnographic, the sociological, the economical, the productive, the consumption and market disciplines within its own disciplinary context and in the perspective the project, makes it a special language, positioned on the opposite side of the technical-scientific languages, which on the contrary are aimed at increasing the rigor and reduce the ambiguity of any ordinary language. By contrast, Design aims to enhance creativity through the systematic expansion of its metaphorical attitudes and its language skills, objects and images.

Computer come to be the universal tool and at the same time the new paradigm for living, working, organizing, producing and of course generating ideas and elaborating creativity. At the same time, the computer is the universal vehicle to spread those cultural images which are the common field for every creative mind at work to produce even more widespread cultural images affecting our contemporary material culture.

Design happens to be the result of the use of networks of IT communication and the increased mobility available, as well as the effect of the shrinking of space and time within our globalized society, more than just the interpretation of the manufacturing materials and techniques available in specific time and contexts, to produce and spread a language in continuity with the material culture of communities and social groups.

12. The intelligence of *Metis*

A reference to an ancient but modern metaphor can help us to define the way of being and the diversity of Design: literally translated from the greek mythology as the "cunning reason", the *Metis* is a form of intelligence and thought, a way of knowing that belongs to the Greek mythology, and that is still current, which is useful to read the present ways of knowing and acting. The *Metis* implies a complex set of attitudes, behaviors that combine intellectual instinct, sagacity, foresight, the ease of mind, the fiction, the ability to get off the hook, the alertness, the sense of opportunity, the ability in various fields, the experience gained after many years. It also applies to fleeting and ambiguous reality, which do offer themselves to strict and precise measurements, neither the exact calculation, nor the rigorous reasoning.

Metis reverses the opposite and do not occupy a proper space: it is going from point to point. It is effective practice, which makes it possible to succeed in the action. It's a dense thought, that roots deeply mind into the project that has developed in advance, thanks to the ability to foresee beyond the immediate present, a more or less thick slice of future.

It is diverse and solidal with both the diverse and the divided world, where it is submerged to exert its action. It includes several devices and connects with the figure of the artist and with *Techné* and appears as a versatile art in having skills in doing

everything. The complicity with the real ensures its effectiveness in an area where there are no rules or ready recipes and every time requires the invention and the discovery of a solution.

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Liquidity

CULTURAL SHOCK?

Universal Themes
in Global Design

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Abstract

This paper addresses the usage of universal themes in global design and the local cultural implications of this venture. In doing so the paper will introduce the idea of 'global design', that will be discussed in connection with universal themes.

The phrase 'universal themes' was first coined by American anthropologist George Murdoch in 1945. Murdoch listed in a compendium the universals of culture, which he defined as the social behaviours and institutions recorded in the Human Relations Area file for every one of the hundreds of societies studied to that time. There were initially sixty-seven universals in the list: common social behaviours and institutions found to exist in all cultures, like 'envy', 'dance', 'crying', 'cooking', 'classification of weather conditions', and 'affection expressed and felt'.

Global design is a recent phenomenon that – I suggest – should be understood as design *targeted* at a global audience, which *aims* to be exhibited to and consumed by different cultures. I believe that in its recently developed form, global design has sufficient and relevant specificities to be construed as a novel variety of design practice. To communicate visually to a global audience is an intricate, yet stimulative task facing specific ethical, cultural and communicative puzzles and challenges.

Although some authors argue that it is just not possible to use universal themes in the lead to the globalisation of design, research shows that universal themes are indeed being progressively more used. In fact, as this paper illustrates, designers are increasingly using universal themes to approach their global audiences. There are also those who believe that global design will not make its way through. Yet, there is sufficient evidence to believe that global design – like globalisation – will just not vanish. Therefore, we are not facing a question of whether or not to produce global design, but of whether or not we should carry out global design in a professional and ethical manner.

Universal themes, as a global design tool, may well constitute an additional challenge in this novel practice. After briefly identifying three different types or categories of global design, the paper will look into the ideal of cultural "shock" by discussing whether the use of universal themes poses a necessarily 'leveling down cultures' approach (more typical of one these categories). Contrary to what tends to be suggested, this study will attempt to show that the usage of universal themes in design can be also approached or

implemented in a culture-specific fashion, hence fostering local cultures and promoting effective communication.

The paper addresses this topic by means of an interpretative analysis of global images employing universal themes, particularly in brand images like ipod from Apple and Benetton campaigns. In the Benetton campaigns it will also analyse the cultural shock of some images, like the portrayal of contrasting universal themes, like newborn baby and death, war and peace, black as well as the death penalty campaign.

Cultural Shock? – Universal Themes in Global Design

This paper starts by spelling out the general traits of global design, its definition, categories and ethical implications, to later introduce the subject of universal themes and how these are being brought into play to target global as well as local audiences.

Within the broad field of universal themes, this investigation will briefly look at specific themes, such as shock, envy and revenge, which are analysed against a visual and cultural backdrop. In building some of the arguments and observations found below I followed a visual ethnographic method.

Are universal themes an effective and acceptable tactic to guarantee a successful global design? The paper suggests that the use of universal themes in design is a complex venture and how it can both lead to and avoid cultural shock.

In this paper the idea of cultural shock is mainly used as an invocation of the offence caused by the levelling down of cultures in disrespect of specific or even idiosyncratic values of different communities. It will be an assessment of whether a global graphic representation using universal themes brings about the damage that many critics see as a necessary consequence of global design. Incidentally I will also refer to shock (in its literal sense) as one of the universal themes used in global design practice to achieve its marketing goals.

Global design

Global design can be understood as design *targeted* at a global audience, which *aims* to be exhibited and consumed by different cultures. Global design is often (and somehow simplistically) seen as a standardisation of design: a simplification of all cultures in one single design solution.

Global design has generated polarised opinions: while some (Alan Fletcher) are eager to point out the importance of cultural differences and that global design goes against that, others seem to assume that global design is the future and that the way to tackle global challenges is to globalise design (Wally Olins); Richard Elliott proposes that global design is 'a simple, emotionless solution, not disliked by anyone' (Elliott, 2003). Having doubts about both these generalisations, I will unpack the concept to suggest that global design might entail different forms of achieving a global approach, and that using universal themes to reach a global audience is just another tactic to get a message culturally-across.

The definition suggested above does not commit one – rather opens the debate – to the

pros and cons of global design. The concept of global design is an intricate one that encompasses different categories, as well as universal themes among other elements that help to understand the global design practice. The three categories proposed were built based on the combination of two criteria: (i) the sort of design campaign used (one/the same or a diversified campaign), and (ii) the values they appeal to in their design.

Three Categories of Global Design

I arrived at three main categories or models for global design after having studied several images and other related graphic material that I took to be reasonably representative of the practice, which are instances of global design, therefore targeted at a global audience. The categories emerged in the analysis, following a visual ethnographic methodology, while observing the images, comparing them with other global images, differentiating them, learning and understanding them.

These categories reflect, encompass and organise around central ideas what I understand to be the existing design practice approaches to global design. I have named them (1) the standard model, (2) the multicultural model, and (3) the localisation model. I will briefly describe these categories (which I have developed elsewhere).



Fig. 1 – Visual representations of the three models of global design.

The *standard* model is design carried out by a same-to-all campaign. The designer creates a single campaign to target the global audience with whom it aims to communicate. Further to the fact that it uses a single campaign, the standard model represents, in marketing language, a ‘one-size-fits-all’ approach.



Fig. 2 – 2006 Stamp design of heart shaped flags designed by Israeli Eliezer Weishoff.

The *multicultural* approach is one that globalises by incorporating mixtures of elements from different cultures, such as people, products or symbols in a same-to- all campaign exhibited to its global audience. Examples of this kind are the early United Colors of Benetton campaigns (Fig. 3) and the Dove Self esteem advertisements (Fig. 4). Its aim is to be global by being inclusive of different races and culture manifestations.



Fig. 3 – 80s poster from *Benetton* displaying a multicultural group of young people.



Fig. 4 – ‘Real women’ campaign launched in 2005 by cosmetics company Dove. The campaign was global and included TV, print and poster ads.

In the *localisation* model the designer carries out his work by means of diversified campaigns. Instead of setting a single campaign to his global audience, the global designer develops several campaigns that, having some common or traceable visual elements, are different from each other. He does this by adapting the campaign’s base to the different communities it will address. Instead of incorporating distinct culture specific elements in a single campaign (as in the multicultural model), it develops different (although related) campaigns.



Fig. 5 – Two snapshots of Coca-cola’s front page website for Japan and the United Kingdom.

While globalisation created new challenges to the graphic design profession, such as communicating effectively to a global audience while abiding by cultural sustainability concerns, it has also revealed a profession lacking ethical guidelines and intellectual output. Globalisation is a constitutive phenomenon in the sense that not only intensified previous problems, but in that it has also given rise to new dilemmas and new doubts, to deal with which new ethical principles will be necessary.

The ethical implications and challenges of global design are intrinsically related with the way of addressing a diversified audience characterised by cultural diversity, which might express not only distinct, but also contrasting or antagonistic values as I will illustrate later with the IKEA example. I suggest two possible fundamental ethical implications of global design: (i) causing offence (by neglecting or misjudging culture-specificities) and (ii) levelling down cultures (which is the cultural sustainability concern).

The global design practices represented by each of these categories can be quite distinct, and address rather differently the ethical and cultural challenges posed by global design. For instance, the aforementioned criticism that global design is a simplification of all cultures in one single design solution fits better the standardised category than the multicultural and localisation ones. Understanding the global design practice is a step required before launching a defence or attack on the practice as a whole. I will now turn to the universal themes, which have been an effective and creative tool of global design, one that cuts through its three categories.

Universal Themes

The phrase ‘Universal themes’ was first coined by American anthropologist George Murdock in 1945. Murdock listed in a compendium the universals of culture, which he defined as the social behaviours and institutions recorded in the Human Relations Area file for every one of the hundreds of societies studied to that time. There were sixty-seven universals in the list: common social behaviours and institutions found to exist in all cultures.



Fig. 6 – Newborn baby (www.benetton.com), 1991.

Fig. 7 – Benetton advertisement ‘Cemetery’ (www.benetton.com), 1991.

Steven Pinker expanded the list (‘The Blank Slate’, 2002). Some of the universal themes listed are: ‘special speech for special occasions’, ‘rites of passage’, ‘making comparisons’, ‘judging others’, ‘imagery’, ‘hope’, ‘facial expression of disgust’ (also mentioned in Giddens, 2002), ‘envy’, ‘dance’, ‘crying’, ‘cooking’, ‘classification of weather conditions’, ‘classification’, ‘affection expressed and felt’, among others.

The use of universal themes is most notably present, although not exclusively, in the standard model of global design. In the Benetton example we have seen the portrayal of universal themes (Fig. 6 and 7): love, death, war, global disasters. In the Apple case globally recognised geniuses were used to invoke admiration and respect. Following a trend set by standard design, the other models of global design might also make use of universal themes, not only due to its appealing nature, but also because, as advanced below, the universal themes can be approached or implemented in a culture-specific fashion. Of course, the use of universal themes is also present in local (non-global) campaigns as seen in Fig.9.



Fig. 8 - Three billboards from the 'Think Different' campaign.



Fig. 9 – Advertisement 'Seven Sins' for British department store Harvey Nichols, 2005.

Below are two quotes of early realisations from the anthropology and advertising fields of the growing importance of using universal themes in globalised world.

The time has come for transnational advertisers to capitalise on universally recognised cultural references and symbols. (Saatchi & Saatchi Annual Report, 2005) In the same way that there appear to be universal semantic relationships, there appear to be some universal cultural themes. (Spradley, 1979: 199)

Universal themes are not mutually exclusive: one image can use more than one universal theme. For instance, the newborn advertisement from Benetton integrates at least two universal themes: 'shock', due to the reality of its photograph, and love for life or that of a baby being born.

Although universal themes are by definition universal, I argue that they might be approached or implemented in a culture-specific fashion. The classification of weather conditions does not deserve the same attention in Portugal as it deserves in Britain. In Britain weather forecasts are previewed hourly by BBC online and the weather is a recurrent topic of conversation. In Fox's words, 'any English conversation must begin with the weather' (2004).

In design, universal themes are typically conveyed by icons. Universal icons are representational symbols that are universally recognised. Examples of these are the software symbols that stand for commands, like 'envelope' represents 'mail'. The universality of icons should be understood as a matter of degree like some other culturally specific images. While the Internet icons are becoming more and more globalised and understood by the vast majority of people, some other symbols do not share the same global recognition.

Universal images are images said to have generally a universal understanding, like Leonardo Da Vinci's Mona Lisa. Well before the 'Da Vinci Code' book and movie, Mona Lisa was a well-known image that was used across the world for different purposes and businesses (see fig. 10 and 11). It is difficult to pinpoint why the Mona Lisa became a popular image of graphic applications in different times and space. Its wide ranging graphic interest is certainly related with the fact that its enigmatic smile can be used to illustrate different sorts of states of affairs. Also, as pointed by Berger (1972), a work of art, in a commercial context, suggests a cultural authority, a form of dignity, even of wisdom, which is superior to any vulgar material interest. This author argues that when a painting is reproduced its uniqueness is destroyed and as a result its meaning changes: this meaning is what Benjamin (1999) calls aura. The multiplication of, say, a painting opens up the possibilities to new and multiple meanings, and Mona Lisa has been used as a vehicle of several meanings in different graphic applications.

Berger and Haas (1995) have noted that there is a direct continuity between a work of art and graphic/commercial design. Berger goes further to say that 'commercial art' uses the language of oil painting and that 'sometimes a whole image is a frank pastiche of a well-known painting' (1972). Famous paintings are universal images in themselves and are often used as illustrations in graphical applications, a fact that was amplified by the globalisation of images on the internet.

In an age in which symbols and images have significantly replaced literary form, universal images and icons are a sought after material – but how effective and affective are these universal images? In the Internet age images and icons do not require translation, and they are the swiftest way to get a company or organisation's message across.



Fig. 10 – Japanese Trade Union Poster 1974. Consumer inflation was high in Japan in 1974 and there was a strike, the biggest in Japanese history. The slogan emphasises the difficult situation.



Fig. 11 – Magazine advertisement for car manufacturer Toyota Avensis including Mona Lisa painting by Saatchi & Saatchi.

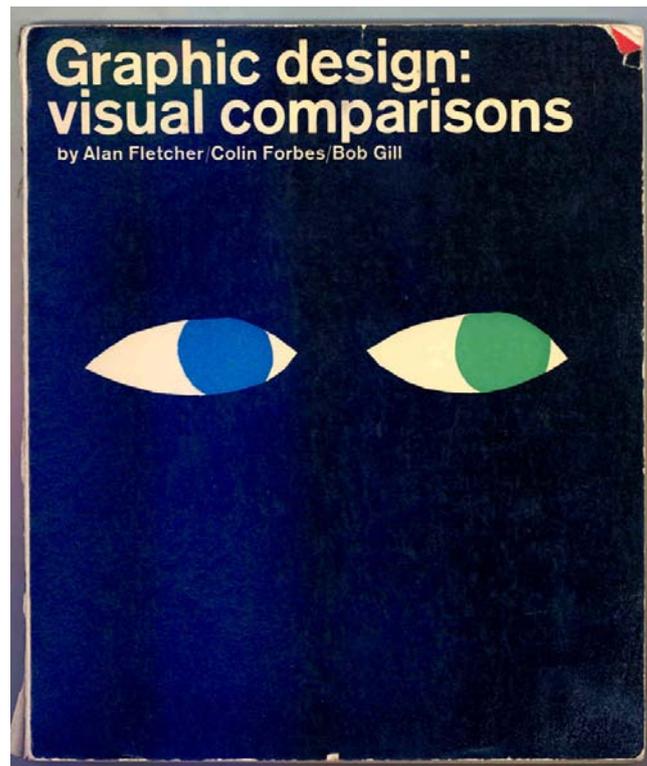


Fig. 12 – Book cover by Alan Fletcher, 1963.



Fig. 13 – The above three figures represent three universal icons for Apple: universal accessibility, universal binary and the third is an icon for family.

Let us now look at some approaches to universal themes covered in graphic design applications.

a) Shock

Shock is defined as a sudden emotional or mental disturbance. The universal theme of shock is a recurrent theme in Benetton campaigns (newborn baby, patient dying of Aids), and in the Levi's advertisement picturing the Pope and a German shepherd.



Fig. 14 and 15 – Two posters for global *Levi's* campaign (1997).

The use of shock in design is connected with the idea that there is no such thing as bad publicity: any publicity, even bad publicity, is positive. Shock generates controversy and debate and this leads to free publicity that multiplies itself in a chain reaction sort of phenomenon. Actually, this kind of publicity, which generates word of mouth or viral marketing is considered by many to be the best kind of publicity and the most difficult to achieve.

The universal character of a universal theme does not strip it from its cultural specificities. Although universally recognised, it may trigger different, sometimes opposing reactions. While some cultures find a certain image shocking, such as the Benetton campaign of men on death row, others find it interesting or even inspirational. Among the different Benetton approaches, this example was the one that triggered most debate because of its polarising effects. It was also a turning point for Benetton that dramatically changed its approach in the US after a huge loss in sales.

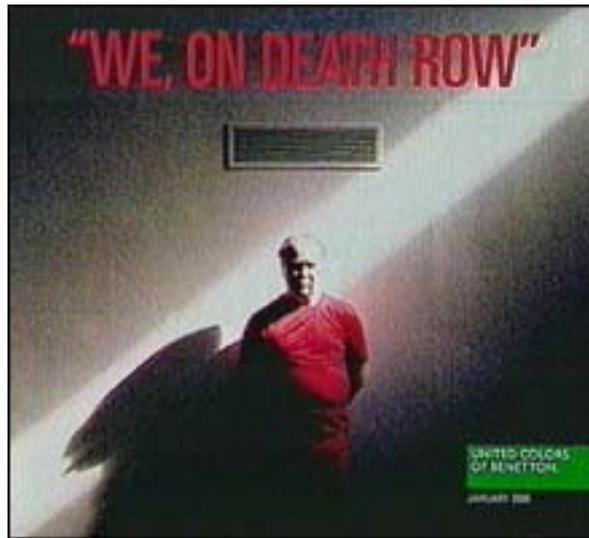


Fig. 16 – the image shows one poster from Benetton's 'Death Row' advertising campaign, 2000. The campaign depicts convicted US murders.

An example of the different cultural lens towards an image is the Ikea standard's design attempt to conciliate in their instructions the uniqueness of the standard model's message with some culture specific concerns regarding Muslim countries. To avoid offending their customers in Muslim countries, Ikea used only pictures of men (in their manual instructions for assembling furniture) in the standard design used for the whole world. However, Norway's Prime Minister charged Ikea with sexism for not including women in their instructions (The Evening standard, 2005). This is a good example, not only of the *practical difficulty* of dealing with cultural diversity by means of a single and uniform design solution, but also of the *ethical implications* of that venture.



Fig. 17 – Three cover designs for UN presentation folders.

b) Ambiguity

An image or other communication is called ambiguous if it can be interpreted in more than one way, cf. the man of *indeterminate* race (as the company put it) in Darlie's packaging. Other examples are reports from the United Nations that deliberately use

abstract images of the world, and to some extent the iPod advertising campaign that uses shadowy silhouettes of people of undefined race, age or gender.

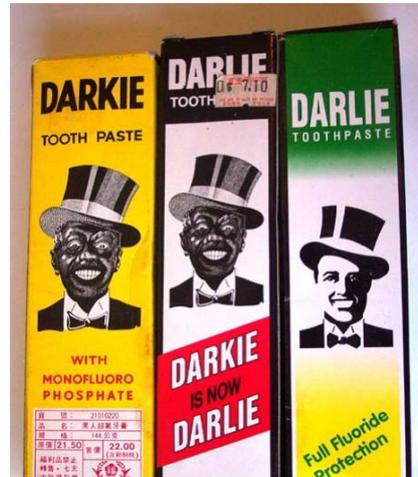


Fig. 18 – Three examples of toothpaste packaging of the Hong Kong brand *Darkie*, which became *Darlie* after being acquired by the Global brand *Colgate/Palmolive*.

c) Symbolism

Symbolism is the applied use of any iconic representation, which carries conventional meanings. Symbolism is a universal theme – as all societies use symbols to represent distinct meanings – that is often used in company logos and institutions, for example, the UN logo displaying an olive branch and the world. The designer of the United Nations' stamp used symbolic images such as the heart, flags and embracing hands for his design work. The IBM design in Fig. 21 used symbolic images of an eye and a bee.



Fig. 19 – The *United Nations* logo.



Fig. 20 – iPod advertisements from different sources.

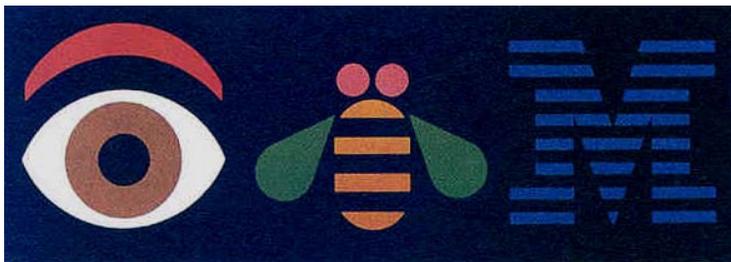


Fig. 21 – ‘Eye, Bee, M’ Poster for IBM, Paul Rand 1981.

d) Wit

Wit has long been used in design to draw the attention, to win time, to attract involvement, to give the satisfaction of decoding (transference of meaning in semiotic analysis), to trigger a smile, to go deeper in its message, to be memorable and ultimately to create a positive brand experience. According to Edward de Bono, linking humour (a sub-branch of wit) with matters of high moment has been common practice for centuries. The ‘red nose day’ (Fig. 22) symbol of the campaign of children starving in Africa is one example.

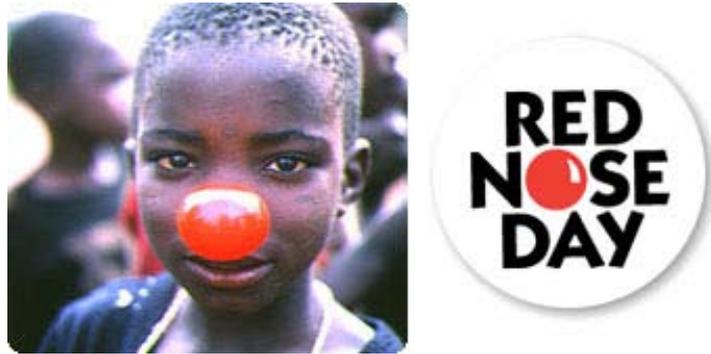


Fig. 22 – Picture of a child with red nose and badge.

At the heart of good design is pleasure – the pleasure the designer takes in his work and the pleasure he creates for his audience. Of special importance to me is the "sudden, unexpected intellectual pleasure" of wit. The intellectual component here is essential, for I relish complex problems, which can be expressed in a visual solution of surprising simplicity'. (Mervyn Kurlasny, 2002)



Fig. 23 – Logo for United Nations luncheon by Bob Gill, USA, 1974.

The HSBC multiply sign (Fig. 38), the 'Eye, Bee, M' (Fig. 125) and the UN lunch invitation (Fig. 127) are some examples of witty design. When my old Macintosh used to crash, a bomb would show on the screen – this is witty design, it communicates its message (or gets its message across) and triggers a smile (or not).

e) Envy and Revenge

The universal themes of envy and revenge are approached in the following print advertisements (Fig. 128 and Fig. 129).

Envy, as defined by Zueni Ventura (1998), 'is not having something and not wanting others to have it either'. Leading perfumes are marketed in a global fashion, an example being 'Envy' by Gucci. The colour of the perfume is also green enhancing the concept: 'green with envy'. The second example is a poster which is part of a Nissan campaign to advertise the Nissan Micra. This poster, like others in the campaign, approaches the universal theme of 'revenge'. Revenge consists primarily of retaliation against a person or group in response to perceived wrongdoing. The wrongdoing in this case is related to person X using a Nissan Micra belonging to person Y without asking for permission. Revenge is suggested by person Y (the owner of the car) tearing out the last pages of a book that person X was reading.

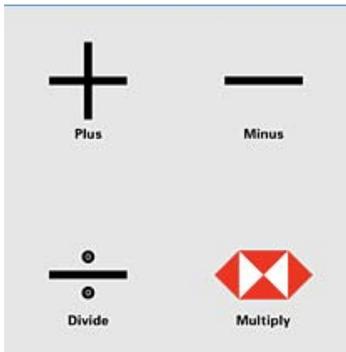


Fig. 24 – Symbols created by Lowe’s agency to HSBC.

The HSBC multiply sign (Fig. 24), the ‘Eye, Bee, M’ (Fig. 21) and the UN lunch invitation (Fig. 23) are some examples of witty design. When my old Macintosh used to crash, a bomb would show on the screen – this is witty design, it communicates its message (or gets its message across) and triggers a smile (or not).**e) Envy and Revenge**
 The universal themes of envy and revenge are approached in the following print advertisements (Fig. 25 and Fig. 26).

Envy, as defined by Zueni Ventura (1998), ‘is not having something and not wanting others to have it either’. Leading perfumes are marketed in a global fashion, an example being ‘Envy’ by Gucci. The colour of the perfume is also green enhancing the concept: ‘green with envy’. The second example is a poster which is part of a Nissan campaign to advertise the Nissan Micra (Fig. 26). This poster, like others in the campaign, approaches the universal theme of ‘revenge’. Revenge consists primarily of retaliation against a person or group in response to perceived wrongdoing. The wrongdoing in this case is related to person X using a Nissan Micra belonging to person Y without asking for permission. Revenge is suggested by person Y (the owner of the car) tearing out the last pages of a book that person X was reading.

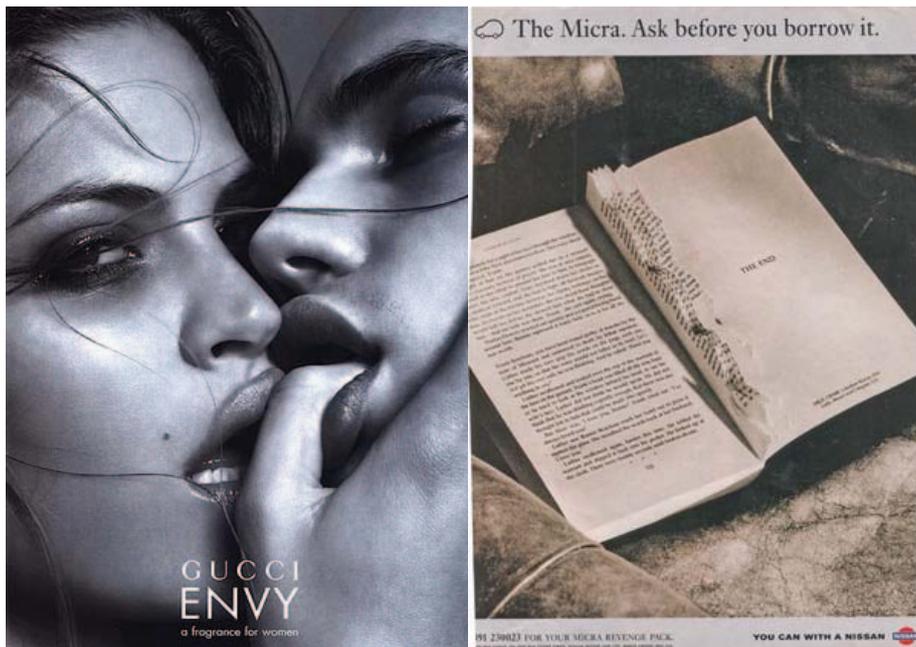


Fig. 25 – Promotional advertisement for Envy a perfume by Gucci.

Fig. 26 – Promotional advertisement for Nissan Micra. The campaign included broadcast and printed advertisements.

Sapient Design was the design company chosen by Nissan to promote the new model Nissan Micra. For this purpose Sapient developed a global style guide for design usability with guidelines to promote Nissan all over the world in a 'consistent manner'. The guideline includes notes with information of interest to graphic designers under the headline of 'cultural differences'. The guide suggests that all visual messages must be 'culturally acceptable and culturally readable' in different parts of the globe. The Nissan project was developed and tested in North America, but to ensure that the designs would be culturally readable Nissan conducted usability research in other global markets.

Universal Themes: Plasticity versus Cultural Shock

When I refer to global design I am focusing on cross-country global design and not also to what I have addressed elsewhere as mini-global design, that is, design addressed to a strongly multicultural, but geographically confined, community. A second caveat is that this paper does not discuss whether 'universal' should be taken as absolute, or rather as a workable concept that admits exceptions.

Is it the case that using universal themes in design practice brings about necessarily the standardisation of design and the simplification of all cultures in one single design solution (to use a commonly conveyed criticism)? This question is addressed in the context of a *global design* practice. The use of universal themes in a design targeting a specific community (particularly where it has a relevant degree of 'cultural harmony' or 'uniformity') does not by itself tend to raise these specific concerns. This is so because then the universal theme would tend to be used as any other theme is: with a relatively informed understanding of its meaning and impact on the community. This is normally design done *from within* the community and possible mistakes incurred in would not be attributable to the intricacies of a design addressed to a global audience (and therefore necessarily dealing with diversified values and traditions). What concerns me in this paper is whether the use of universal themes in design addressed *from the outside* to a universal or quasi-universal audience impoverishes and standardises the design practice, levelling down cultures and therefore provoking a cultural shock on its audience or part of its audience.

This is a serious concern and, although I will argue against this criticism, it should be taken seriously. It is only by taking this concern seriously that one can fruitfully accommodate the use of universal themes in global design. I will advance four

arguments in support of the ethical and cultural feasibility of using universal themes in global design practice.

First, universal themes have in themselves a promising cultural strength: by being universal they will tend to be strongly rooted in its audience's culture. Death, love, friendship, shock, ambiguity, wit, pain, hope and many others are well established concepts that are constitutive of the emotional everyday life of communities. People recognise them – either liking or disliking them – as being part of the way they interact with the world, as part of *their* world. This is a universal themes' inner feature acting against their reading as an alien and imposing interference in one's community values.

Second, universal themes are not stripped from their cultural specificities. Although universally recognised, they may trigger different, sometimes opposing reactions, acquiring distinct meanings by being *interpreted* through different cultural lens. This is a great challenge to the designer, as it poses the levelling down and offensive danger, and, at the same time, opens the opportunity of being implemented in a culture-specific fashion. In other words, the fact that universal themes have both a universal and a local dimension allows a creative interplay between the universal and the local, with the possibility of multi-layered messages being conveyed graphically, acquiring different 'communicative shapes' by moulding itself on a diversity of cultures.

Third, the fact that their universality is a matter of degree, being perceived with different intensities by different communities, endows it with the necessary plasticity to avoid the standardisation peril. It is, again, another factor fostering creativity in search for a damage-free global solution.

Finally, there is a common misconception in taking the part for the whole and reading global design as being the standard category of global design. It is true that the use of universal themes is most notably present in the *standard* model; however, universal icons and concepts can be used in campaigns carried out by means of *multicultural* or *localisation* models global design. Global design, as well as universal images, icons and concepts go beyond the standardisation model. The three arguments stated above apply to instances of the three categories, and may prove particularly useful in providing the elasticity often needed by the standard model. I will

now advance the argument that universal-themes-global-design campaigns find in the multicultural and localisation models of global design a great chance to expand at a low risk. The graphic and communicative possibilities open by the in-built diversities of these models – particularly, of course, of the localisation one – should provide both graphic design critics and practitioners with the required confidence to put creativity at the service of global solutions that are sufficiently malleable to fit the distinct cultural silhouettes of different communities.

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A Praxis for a Situated Design

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Abstract

Reading is becoming a more diverse activity. While the act of reading engages a reader through intense interiorization and reflection, reading is also placed within more exteriorized social contexts through ubiquitous computing, networking, and densely designed public spaces. The proliferation of these contexts elaborate and compete with the primacy of a traditional reader's experience with a codex. These forms of reading are more contingent on a reader/participants settings and activities. This in turn makes a different kind of cognitive and social demand on the individual.

Using semantic/episodic/procedural ideas of cognition as a framework, this paper develops "situational design" as a conceptual basis for looking at a reader/participants experiences as a user. Three design case studies (building audience discourse regarding changes in local neighborhoods situated at the Berlin Wall, building community discourse in urban areas in the United States experiencing an influx of bilingual immigrants, and an example of supplementary interactive course material for education) are examined that develop practical concepts for understanding users. The case studies are used to outline processes and methods applied from semantic and episodic experiences, the use of "point of view" and audience discourse, and lastly integration of Lakoff and Johnson's [1] concept of image schemata applied to motion/interaction to aid in the comprehension of more abstracted written information.

The focus on design processes and user activities includes arbitrating situations, activities, social discourse, and more specific content that the user is familiar with in their local milieu. Finally, user-oriented experiences and "design processes" are shown as being integral to each other and must overlap the reader/participants/users environment, since these new contexts privilege production and dissemination by the users themselves.

A Praxis for a Situated Design

The nature of reading is changing and becoming more varied. Ubiquitous computing, networked media, and dynamic visualization place writing in contexts and spaces with different goals, social interactions, and juxtapositions of information. The design of interfaces reinforces goal-oriented behavior in the reader. The act of reading is motivated from tasks sped up by interconnectivity, and often being in a particular mobile context. Reading therefore becomes more linked to other sources, chunked and patterned for quick comprehension and use applied to problem-solving, entertainment, social networks and instantaneous texting. Contrasted with the immersive quality of a codex and a single author's voice, technology integrated into contemporary culture places messages in our environment at a rate that requires quick comprehension and surface scan, with a simultaneous understanding of how it is immediately relevant to us in a larger experiential whole. The upshot of this is that many forms of reading, writing and comprehension are increasingly "situated," borrowing a term from John Dewey. [2] "Situatedness" connotes more than merely "context." To cite Robert Innis-

"Integral experience, in Dewey's sense of the term, obtains form through dynamic organization in as much as the perceiver is caught up in and solicited by the emerging experiential whole. Even while experiencing the perceptual whole as an outcome over which it has no explicit control, the perceiver is creating its own experience through continuous participation...The philosophical pivot of Dewey's pragmatist aesthetic is likewise, as in his epistemology as a whole, the picture of the organism as a force rather than a transparency." [3]

Arguably, reading a novel is informed from this position of "having an experience," however the scope of immediate participation by a reader is mostly reflective. Situatedness in a more directly physical sense places us within environments with agency and in ways that are "embodied." Further, Johnson and Lakoff (1999) argue that our mental life is shaped by our physical existence. Johnson contends that our belief in the duality between mind and body is incorrect- that knowledge does not exist as a kind of independent rationality. Our understanding is based on analogy and metaphor through our interaction with our environment (Johnson 1987). We understand through physicality, motion, point of view, and other embodied traits which are the basis for meaning and also language. "...What we call mind and what we call body are not two different things, but rather aspects of one organic process, so that all our meaning, thought and language emerge from the aesthetic dimensions of this embodied activity." [4]

Both situatedness and embodiment are placed easily within a contemporary model of cognition. This model begins with divisions between procedural, semantic and episodic memory. First, procedural memory is connected to somatic relationships, and skills-based knowledge. Episodic memory "... is involved in the recording and subsequent retrieval of memories of personal happenings and doings," while semantic memory is "the knowledge of the world that is independent of a person's identity and past." [5] In other words, semantic memory privileges symbolic and abstracted categories of memory and knowledge, which is based more within writing and literacy, while episodic tends to privilege the experience and memory of a situation.

Table 1. Cross listing of episodic and semantic traits (based on Tulving 1983).

Episodic memory and experiential context are given new emphasis in contemporary culture, in addition to semantic knowledge and high literacy. A series of contingent, situated design strategies may be part of a solution in engaging audiences. Pragmatically, this helps facilitate designing for education and instruction, exhibition design and architecture, dynamic visualization and interaction, and in general, social spaces where language/writing/text is discursive, performative, and often goal-oriented within an environment.

Within these social spaces reading becomes

1. -an amalgam of episodic memory with semantic memory and procedural memory in terms of immediate interpretation;
2. -occurs in socially moderated and discursive contexts: the immediacy of information is shared and negotiated;
3. -is context-specific to particular spaces: the history of experiences represented in a particular environment, or the highly designed and dense public architecture of commercial spaces (which often integrates into media-disseminated ideas and concepts, for example the role that advertising plays in a developed nation's culture); and
4. -is therefore related to manipulating or directly interpreting particular environments (wayfinding, information in general through ubiquitous computing, texting, advertising through various media channels, etc.).

Case study one: scaffolding semantic and episodic participant experiences

“Scaffolding” is a term that distances the creation of situations and conditions from the creation of consumer products only. The following example elucidates one simple way of conceptualizing and strategizing large and generalized episodic and semantic interactions.

In 2008 I developed an interactive project shown in the Mitte region of Berlin, comparing the historical Berlin Wall with the current Strategic Border Initiative in the United States, and to also encourage active negotiation of issues of social identity within both of these geographical areas¹. One part of the project visualizes the local space and the Berlin wall based on various research and documentation sources. This section presents graphics that visualize more or less traditional “semantic” information. However, a larger program of site-specific events placed the local audiences in particular locations through itineraries: a walk to a particular site generated a series of running conversations. These conversations recounted a participant's store of episodic memory: for example, participants observed and discussed the change in accent overheard on a street, a GDR era apartment block now being transformed into upper-income apartments, the fountain at Karl Marx Allee now wrapped with the multi-colored graphics of a cell phone company, etc.



Figure 1- Alexander Platz, East Berlin.



Figure 2- East Berlin. (Photograph: John Pickel.)



Figure 3- Advertisement for BMW, East Berlin. (Photo: John Pickel)

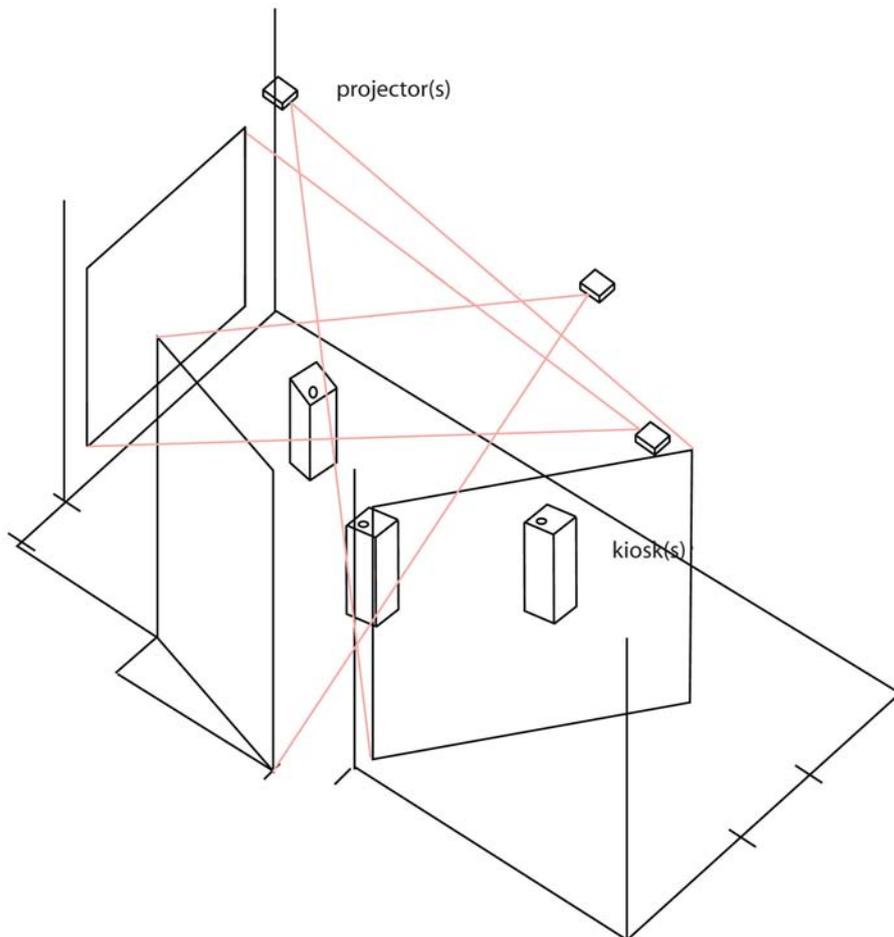


Figure 4- Typical installation of interactive projects.

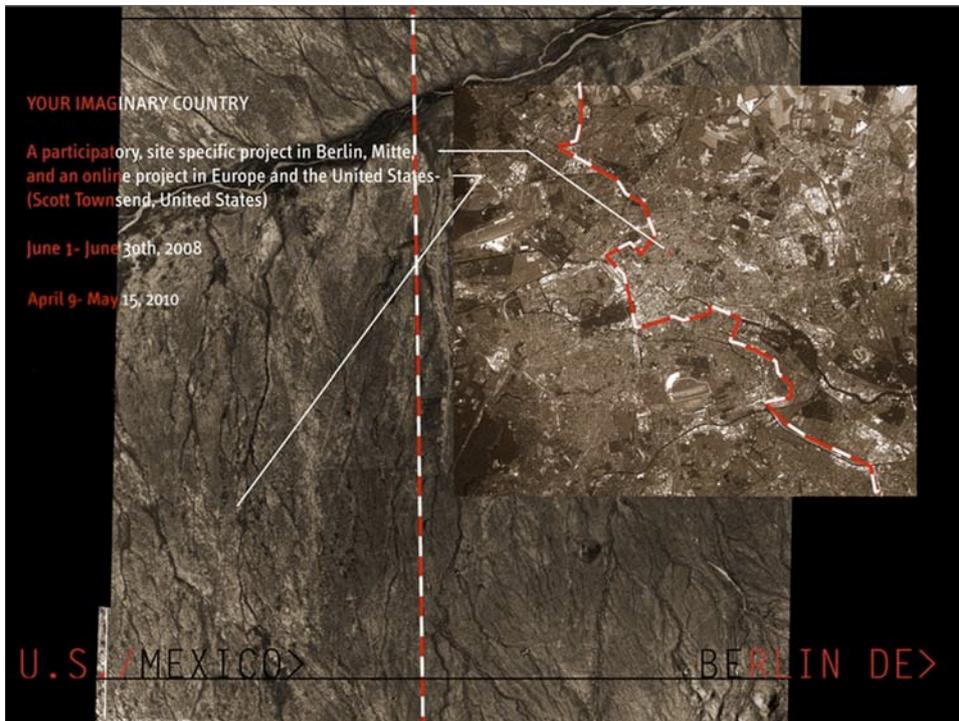


Figure 5- Index page for comparative exhibitions in the southwest United States, and Berlin (2008/2010: United States based project included additional interactive work).

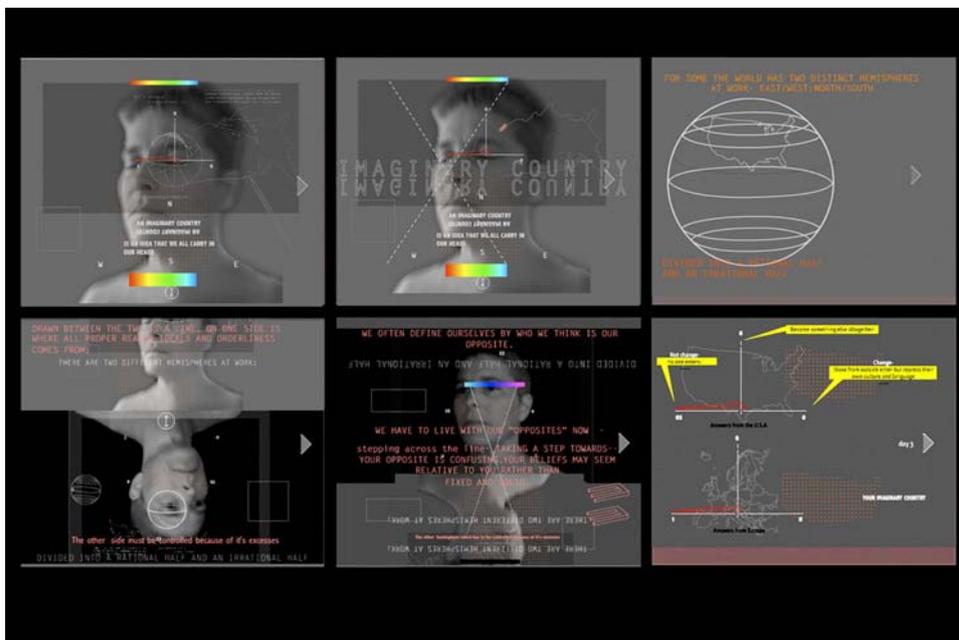


Figure 6- Storyboard keyframes of online and projected interactive component, *Your Imaginary Country: the Berlin Wall and the Southwest Border Initiative*, interactive project, 2008 and 2010, Berlin Mitte region and Texas border region.

The second section of the interactive project utilizes metaphoric and first person address and scenarios based on the theme of “split hemispheres” (the split hemispheres of the globe, the split hemispheres of personal identity) to engage audience participation. Audience members can participate in real time by answering questions relative to their own social identity. This part of the project uses some similar strategies often found in advertising: photographic portraiture, short aphoristic texts that have direct address to the viewer, though the usual closure of an advertising message is deferred through the daily addition of answers displayed graphically. The information presented in the gallery space on returning from these itineraries took on new import. Individuals recounted episodic memories where they and their parents and grandparents were born and how the neighborhood has changed since Unification. A shift occurred in the social interaction- by using visualization tied to personal recall, dialogue shifted away from historical abstraction to personal experience, which not only aided social interaction and dialogue, but also made the audience invested in how they contributed to the information as it evolved.

“Situated” reflects a larger and more dynamic system to arbitrate, where individuals have agency, and are stakeholders in the activities: situated suggests modification, changes, discourse and evolution in a user’s practices. In the case study example, designed activities are more improvisational. The value in general in this circumstance is that audience members became invested in the discussion in a way that is not characteristic of merely providing information as “semantic knowledge.” Experience, the self, affect are activated in the audience (which are characteristics of episodic knowledge). By cross-listing experiences based on traits of semantic and episodic (as well as procedural) memory and knowledge, interpretation can be more elaborated within particular settings and conditions.

Information	Episodic	Semantic
source	sensation	comprehension
unit	events; episodes	ideas; concepts
organization	in time	concept relationships
reference	the self	abstracted knowledge
<i>True?</i>	<i>personal belief/ “eyewitness”</i>	<i>consensus</i>
Operations		
registration	your experiences	symbolic
temporal coding	through the present, directly	indirect
affect	more important	less important
<i>Can you infer things from this?</i>	<i>limited</i>	<i>rich</i>
How do you access content?	time and place	categorization
<i>What happens when you do?</i>	<i>change system</i>	<i>system does not change</i>
How do you get an understanding?	gestalt or synergy	linear: “unfolding”
How do you retrieve content?	You remember.	You know.

Table 1- Cross-listing particular traits to strategize various audience experiences.

In assessing design strategies for case study one, veridicality (is something true?) was a significant category to work with, in this case to use visualization as historical documentation and to be able to re-open negotiations of identity through a sense of place. “What happens (when you access content)?” suggests a division between personal experiences of the neighborhood and the political expedients of Unification and EU membership rationales and unifying national symbols. On the other hand “can you infer things from this” is associated with the semantic. The visuals used in section one compared the Southwest Border Initiative to the Berlin Wall based on conceptual themes of defense, mortality, etc. thus promoting comparisons on an abstract level of how power relationships develop between populations and their governing bodies.

Case study two: scaffolding “point of view”

Issues of identity have a firm basis in an individual’s personal memory and history. A new social phenomena is the emergence of cosmopolitan urban areas that are comprised of smaller overlapping communities. These communities include scores of different ethnicities, languages and dialects, reflecting very different experiences in individuals. In this example, embodiment is a key element in the design of the potential interactions that can occur in the environment.

People have an embodied way of communicating through their particular dialect or way of speaking. They also make choices about how they speak to modify how they are perceived within different social groups (for example, someone chooses to refrain from using a dialect in “inappropriate” social situations). In the project *The Borderline Series*, a public interactive work created originally as a component of a larger project placed in an urban neighborhood in transition², a scenario is presented in Spanish and English in which one is in a crowd where one does not speak the same language and is consequently an outsider to the group. The scenario relates a decision by an individual in a larger group to choose to translate and be inclusive of the outsider. The scenario text is projected at a theatrical size in the gallery space where it creates a kind of palimpsest mirroring the actual interactions between people in the space, and the divided community. The audience in this site-specific location is a mixture of Spanish and English speakers who are also neighbors in the surrounding community. Depending on who is interacting with the piece, either a completely Spanish or completely English version of the piece is displayed. The interaction of moving between the two sections became a declaration of the person’s identity and a choice to develop a public dialogue about two different cultures that are in daily proximity to each other, but have little sense of a shared community.



Figure 7- *Border Series* project, Milwaukee Wisconsin. Neighborhoods in transition: Esperanza Unida Building.



Figure 8- *Border Series* project, Milwaukee Wisconsin. Neighborhoods in transition: rehabbed condominiums.

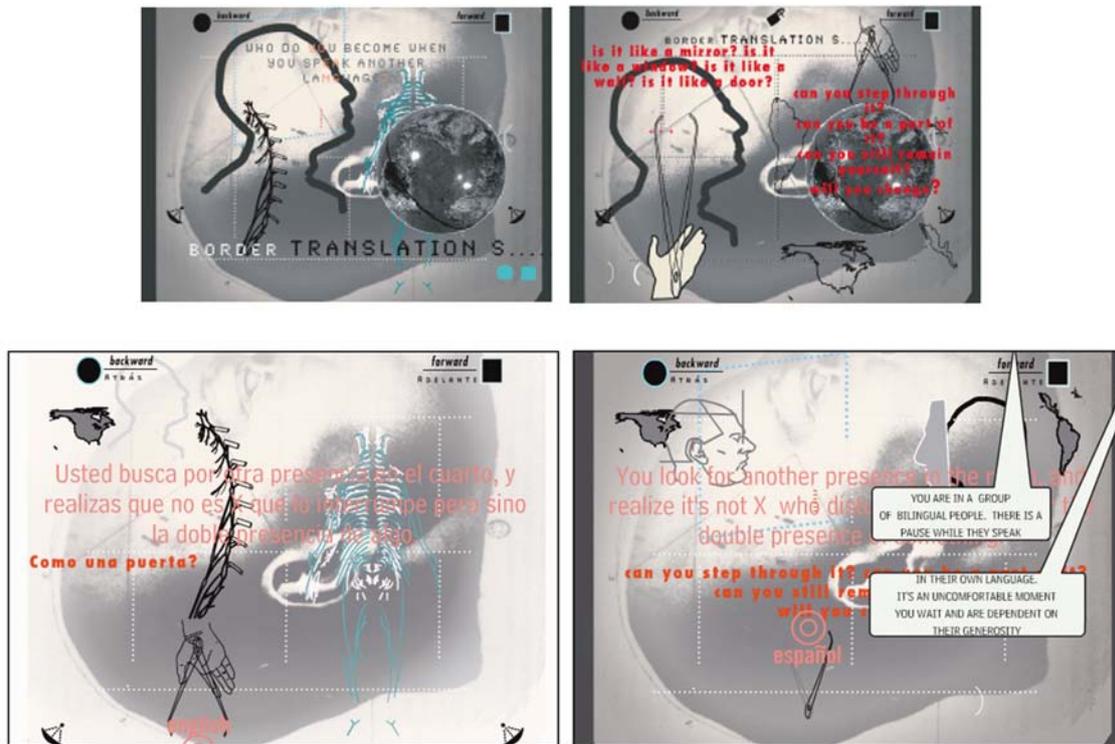


Figure 9- Keyframes, *The Borderline Series: Border Translations*, one of four interactive pieces in project.

The design of artifacts in addition to “scaffolds”

The following example is based on applying “image schemata” concepts to the design of dynamic visualization and interaction. Dynamic visualization is the use of user interaction to change the presentation of information. It acts “as an extension of cognitive processes, augmenting working memory by providing visual markers for concepts and by revealing structural relationships between problem components” (Ware 2000).

George Lakoff and Mark Johnson have collaborated over the past twenty years to develop a different set of ideas about how we make meaning. They contend that our ways of organizing and framing our knowledge is based on a fundamental relationship between our embodied interactions and the physical world. In particular, the notion of image schemata is a primary part of their argument. In “image schemata,” concepts are recurring and are based on our developmental experiences within the physical world-

“Image schemata exist at a level of generality and abstraction that allows them to serve repeatedly as identifying large number of experiences, perceptions, and image formations for objects or events that are similarly structured in relevant ways. Their most important feature is that they have a few basic elements or components that are related by definite structures and yet have certain flexibility. As a result of this simple structure, they are a chief means for achieving order in our experience so that we can comprehend and reason about it...in sum, image schemata operate at a level of mental organization that falls between abstract

propositional structures, on the one side, and particular concrete images, on the other.” [6]

Superposition	Process	Restraint removal
Enablement	Attraction	Mass-count
Path	Link	Center-periphery
Cycle	Near-far	Scale
Part-whole	Merging	Splitting
Full-empty	Matching	Container
Iteration	Contact	Blockage
Surface	Object	Balance
Counterforce	Compulsion	

Table 2- A partial list of image schemata.

Johnson argues for the extension of image schemata as the basis for metaphor construction. Through metaphor construction, we understand based on analogizing our particular experiences out to other phenomena.

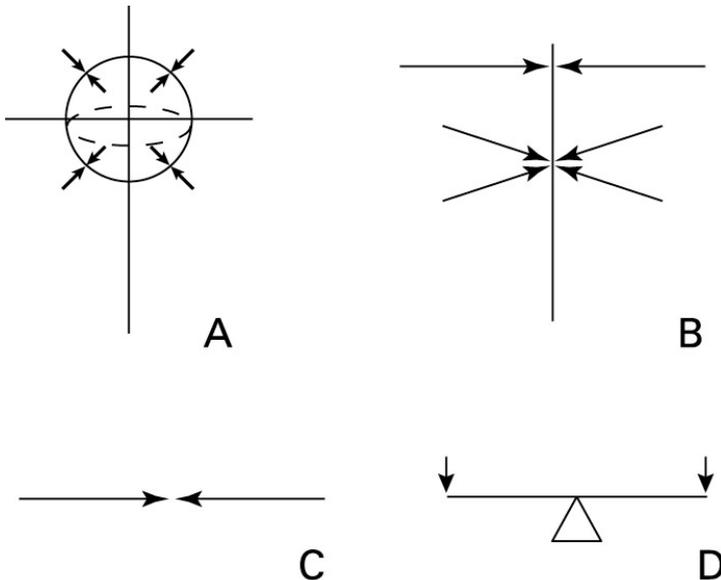


Figure 10- Balance represented as a simple diagram: *A*, equilibrium. *B*, axis balance. *C*, point balance. *D*, twin-pan balance (after Johnson 1987, pp. 86-87).

For example, the image schema of “balance” is reflected in a sentence construction of “his life hung in the balance.” Ultimately the image schemata of balance influences even larger concepts, for example, how we frame concepts of economic trade (“balance of trade”). Johnson states that embodiment and meaning is derived from the whole of the experience, of environment, participant and situation, rather than hierarchical and reducible to a series of discrete functions.

I would assert that written language references image schemata. An actual oral recitation of language can also include expressive and performative acts that use gesture

to express and underline certain image schemas directly connected to embodiment. Dynamic visualization and motion design falls between reading and “performative acts.”

Case study three: motion and interaction

The dynamic quality of time and motion as a representational system is different than how we conceive of written language. Motion is an action and flow rather than a discrete sign within a synchronic system of a sentence: it can be simultaneous, repeatable; can overlap other kinds of motion to create different inferences. It can use realistic representations (for “balance,” an actual figure balancing in space), or non-referential imagery (a line or shape).

In this design prototype, which would help a middle-school student understand aspects of the Periodic Table, a series of animated symbols show three basic stages of matter: solid liquid and gas. The ranges of temperatures are outside of direct human experience ranging from absolute zero to thousands of degrees. Visual metaphor is employed to reference a physical, everyday environment such as the transition between a solid, such as ice, to liquid/water, to gas/steam. Modifying the display is limited to the variable of temperature. Symbols react through visuals and motion to the movement of a slider that raises or lowers temperature. There is a “pattern language”³ that is developed through the motion and the experience of a participant interacting dynamically with the visuals as per Johnsons’ earlier definition of gestalt as primarily temporal. The reader/user has an awareness of the boundary between a solid and a liquid, while the elements that do not progress through the usual stages of solid-liquid-gas become directly apparent. The interface analogizes a physical environment and the agency of a participant to change the situation very much like a direct experience from the concept of episodic memory.

The potential learning experience creates conditions that foster different interpretations by students based on

1. Modification.
2. Encouraging conjecture.
3. Encourages immediate discourse.
4. Places semantic content into a simulation of a physical context.
5. Identity/point of view: invites comparisons to other personal experiences that the audience members may have.
6. Transitive and conditional: ranges of meaning and closure regarding subject matter.
7. Interaction is simple, yet interacting with the rate and juxtaposition of dynamic visualization shows the information in various states, and is correlated to the direct manipulation of the information by the user.

Larger implications

In developing additional criteria for motion and interaction design as affective and expressive, a parallel can be drawn between performance techniques used in theater and the qualities that particular motion design can have. Originally developed by Mary Overlie, *Six Viewpoints* is a way to build content through embodiment as a counterpoint to the complete reliance on a script and director (Bogart & Landau 2005). Conceived as

six major categories of space, shape, time, emotion, movement and story, *Six Viewpoints* is contingent on the director/leader to create the conditions where an ensemble can develop individual and interactive (in the sense of interacting with each other and the environment) content. The concepts behind *Six Viewpoints* are remarkably like the concepts underlying designing for social interaction. The director creates conditions where participants (the ensemble) can have a range of particular kinds of experiences that they create and mediate for performance. Inspired in part from the *Viewpoints* [7] method of actor and ensemble development of gesture and movement, a criteria can be developed for the exploration of certain kinds of dynamic visualization and interaction.

Motion as sign and affect

1. Gesture as sign. An identifiable visual sign (like a handshake) plus gesture, or non-referential: the motion qualities of a particular sign are applied to other visual forms. Tempo: rate changes influence the gesture/movement's connotations (for example a quick handshake could carry connotations of a perfunctory relationship).
2. Duration: long or short, for example, influence the attention span and overall perception of the participant: changing the duration changes the overall "gestalt" of a dynamic visualization: certain details emerge in a longer duration, overall pattern between different states becomes more apparent in the shorter duration.

The context of the story and the participant: "situatedness" is a continuum of design interpretation to narrative storyline to user-oriented experiences

3. The qualities of the movement: smooth vs. jerky, etc. Again, this can be the physical interaction of a participant (such as the contrast between interaction in a video game or a word processing program), or it can be the quality of the artifact, or both based on kinesthetic response and feedback, moderated by cues within the overall environment. Kinesthetic response is the physical response to external stimuli: immersive environments are the most notable examples in interaction (for example, a dynamic presentation of visual information influences how the participant modifies the display or rate of display). Sound design that reinforces feedback is also an additional "channel" for prompting kinesthetic response.
4. Story: all the above elements influence each other and can modify a different element- these emerging qualities have an effect on the interpretation of the story in the same way that film direction, camera framing, sound and editing is an interpretation of a script.
5. The concept of "topography: the movement of the participant over landscape" from the original *Six Viewpoints* is based on an actor's or dancer's relationship to the physical environment that they move within and respond to. It can be adapted for design usage as user interaction prompted through an environment (recalling the experiences of the Berlin case study). It could also specifically be

the goal oriented behavior of a user of a portable device to find an address, translate a text in situ, sample ambient music; and additionally

6. Environment: “reading a space” as a prompt for a story or parts of the story. More than mnemonic recall, it includes bodily orientation, activity, time of day, the awareness of kinds of behavior that occur in the space, the goals of the participant, etc.

The attempts at creating subtle inflections to motion design and interaction can build out to the larger “storyline” and context of how it is understood: a continuum from design processes to user-oriented activities. Design processes used to arrive at a solution begin to merge into an overlap with user-oriented activities through the telling of the narrative. User experience becomes part of the information interpretation, contingent on activities and conditions in settings.

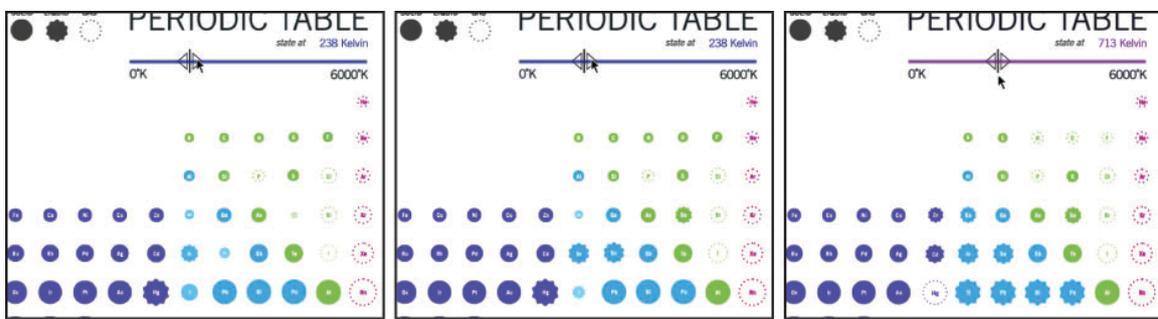


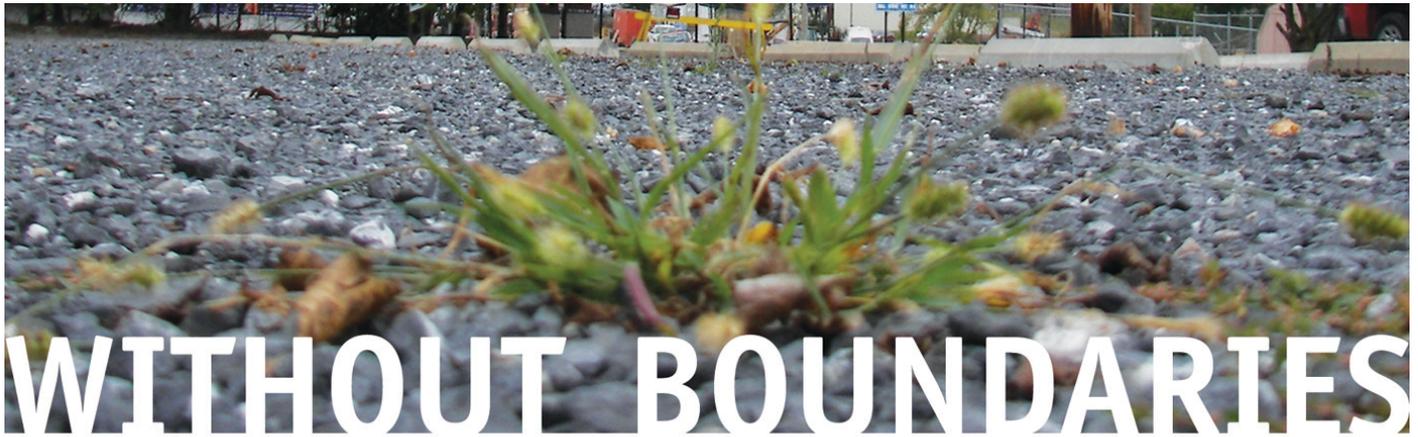
Figure 11- Keyframes of periodic table prototype⁴ (prototype from Graphic Design course 510, Imaging. Marty Maxwell Lane, Samyul Kim and Kelly Murdoch-Kitt, first year graduate students, 2008).

In summation, reading and comprehension are increasingly placed in more exteriorized social contexts through ubiquitous computing, networking, and densely designed public spaces. These additional contexts are more contingent on reader/participant settings and activities. This in turn makes a different kind of cognitive and social demand on the reader/participant. It is therefore essential to look at ways of adapting ideas of cognition to design processes, and in understanding user-oriented experiences. “Situatedness” suggests a strong connection and overlap between production and reception: interpretation becomes a form of production. User-oriented experiences and design processes are integral to each other. Design processes must overlap the reader/participant/user environment since these new contexts privilege production and dissemination by the users themselves.

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DESIGN & ENVIRONMENTAL STEWARDSHIP

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ABSTRACT

*To whom does design address itself?
To the greatest number, to the specialist of an enlightened matter,
to a privileged social class?
Design addresses itself to the need.*
—Charles Eames

In a moment of increasing global attention to fragile ecosystems, sustainable techniques, and ethical practices, the time has come for the design professions to rethink. For problems that respect no disciplinary or professional boundaries, the time has come for designers to collaborate. For unprecedented new challenges, the time has come for versatile designer-tacticians. For complex problems, the time has come for designers capable of operating in the most complex technical, cultural, and political arenas. In short, the time has come for designers to address themselves ‘to the need.’

We—two design faculty in a school of art—are committed as educators to fostering new cross-disciplinary models of design collaboration. Dropping our titles, “interior” and “graphic”, we work to create a classroom of innovative designers committed by talent, temperament, passion, and necessity to engaging the vital problems of our day.

Although these problems are large and numerous, we are not discouraged. By fostering collaborations with those around us—experts, technicians, publics, and activists—and by listening, talking, and learning, the challenges of the world become recast as spaces of operation and engagement.

In 2009, the project that we tackled was sustainable local landscapes. Three forgotten and problematic corners of our campus were in need of re-conceptualization. There was an interest in creating student-designed demonstration-projects to offer new models for what the campus might become. The stage of collaboration was large, everyone from groundskeepers to environmental scientists, student activists, and the University president. Internationally renowned public artist Michael Singer offered insight and critique. The culmination would be a University wide exhibition offering new visions for sustainable campus landscapes.

The pragmatic structures were just as complex: 22 graphic and interior design students, 12 communication students, 4 environmental science students, 5 faculty representing four disciplines, 2 University-wide institutes, 5 course numbers, and 15 short weeks.

Our working method was introspective and opportunistic. To deepen our environmental thinking, we read essays by William Cronon (geographer), Thomas Berry (historian), Glenn Murcutt (architect), and Peter Reed (curator). When an unexpected opportunity arose, we pivoted to design environmental signage for campus storm-water infrastructure (self-identified by environmental planners as the most important sustainability initiative on campus).

Upon the conclusion of the studio, student teams exhibited seven completed design solutions. Their work spanned the professional disciplines, and included site-design, sustainable systems, outdoor pavilions and furniture, educational signage, plant materials, and lighting. One project was selected for further development and implementation on our campus.

This paper will provide insight into a design practice and education that allowed students to break the boundaries that labels imply. We hope that the example of our studio might serve as a challenge, and perhaps a model, for a pedagogy of social engagement and cross-disciplinary design thinking.

WITHOUT BOUNDARIES: DESIGN & ENVIRONMENTAL STEWARDSHIP

In a 1969 interview conducted as part of the exhibition “What is Design” at the Museum of Decorative Arts in Paris, American furniture designer, filmmaker, architect, toy designer, exhibition designer and educator Charles Eames was asked:

*To whom does design address itself?
To the greatest number, to the specialist of an enlightened matter,
to a privileged social class?*

He answered:
Design addresses itself to the need.

Today, two generations later, Eames’ answer seems more relevant than ever. In this moment of increasing global attention to fragile ecosystems, and within a profession hungry for both more sustainable techniques and new models of ethical practice, the

“needs” seem overwhelmingly urgent and complex. The challenges of our moment do not respect our professional boundaries. They do not present themselves to us one at a time, and, more often than not, they are messy & political. For certain they are as technically complex as anything we have faced.

To “address” oneself to these “needs,” the designer must become a nimble tactician. We play on a terrain imposed and organized by external forces.ⁱ Appropriating the words of the mid-20th century philosopher Isaiah Berlin, the designer-tactician must become “the fox who knows many things.”ⁱⁱ

The designer-tactician forms new kinds of alliances. Externally, collaborations must be cultivated with technical experts, activists, and public bodies. Within our studios cross-disciplinary work, a modernist imperative at least as old as the Bauhaus, remains a pressing necessity. At every point—for the designer driven by the need—design techniques are understood not as goals in and of themselves, but rather as means to an end. As Eames reminds us, “Design is a mode of action.”

A Pedagogy of Social Engagement

As design faculty in a school of art, we are committed as educators to fostering this interconnected model of design action. We aspire to train tomorrow’s future design-tacticians.

Regrettably, we have observed that, too often, our students experience design education as little more than the isolated study of technique. They move from class to class, working off of tightly scripted briefs to master predetermined skills (e.g.- form-making, design process, professional practice, presentation, etc.) Most of the time the projects on which they work are handed directly to them, some with the grading rubric stamped right on top. The rules are tight and the permissible outcomes pre-delineated. The students work diligently (or not) and present design solutions to their classmates in the classroom. The discourse is hermetic.

While of course recognizing the importance of professional techniques, far too often this conventional form of pedagogy perpetuates confusion between means and ends. Techniques are but the *means* of design. They are necessary but not sufficient.

To put it another way, if we imagine design practice as a cross-country road trip, design techniques are the pistons and gears and axles. Of course they must work competently and smartly; the uncomfortable chairs in the mechanic’s waiting room are rarely the site of great adventure. But it is the journey itself—in all of its wonder, discovery, optimism, and transformation—that makes the automobile worth owning. The journey addresses itself “to the need.”

In the fall of 2009, we tried to do better. We developed a design studio class structured not by the mastery of skills, but motivated instead by external needs. In our case, it was a rising community and campus-wide concern for environmental design and sustainable stewardship. By building collaborations with those outside of the conventional design ‘comfort zone’ we hoped to recast the challenges of these concerns as spaces of

operation. We believed that by dropping our titles and responding directly to the questions at hand, we might inspire innovative young student designers to be committed by talent, temperament, passion, and necessity to engaging the concrete problems of our moment.

Our goals were broad and (naively?) ambitious:

- To develop, and then enact, a design pedagogy of social engagement.
- To learn more about the difficult questions of sustainable design
- To allow ourselves the flexibility to think and act like designers outside of our professional titles
- To challenge our students to tackle the most complex problems they could conceive of
- To develop visionary and transformative ideas for new campus landscapes.

In order to realize these goals, we committed ourselves to creating a studio project that was loose in its structure and driven by ‘needs’. We arranged to work collaboratively with two institutes at our University, the Institute for Visual Studies and the Institute for Stewardship of the Natural World, on a demonstration project for a sustainable landscape for our campus. Our course also coincided with another team-taught course, “Environmental Rhetoric,” that was developing a marketing campaign for sustainable practices for the university. Our environmental design course would study models and “best-practices” for sustainably designed landscapes within the built environment, with the goal of then designing our own local examples.

GRPH 392/INDE 300/INDE 400 Environmental Design

Before the class began, we worked to define the project’s areas of ‘need’ by opening dialogues with campus engineers, grounds-keepers, and environmental science faculty. We wanted to learn to see our campus afresh through their eyes and with their constraints. Working collaboratively with this group, we identified three overlooked sites on the campus. Each had significant environmental ‘issues’ and none had been addressed by the existing campus master plans. There were clear needs.

The first day of class was interesting (to say the least). The students were evenly split between interior design and graphic design majors. They looked at us as if we were mad scientists, proposing to use them as guinea pigs in an experiment. Of course, in a way, we were.

We explained that this was not going to be an ordinary design studio. If they were looking for a safe and predictable graphic or interior design course, this wouldn’t be it. We explained that they would be called upon to extend their existing skills and knowledge with new concepts while working on complex problems in a team environment. The phrase “like a graduate-level class” was used. Although several students dropped the class, the ones who remained were enthusiastic and ambitious.

In total, we had 23 students and less than 15-weeks in which to work.

To encourage the students to focus broadly on the challenges before them, we solicited as many outside voices and perspectives as we could. The class talked with storm-water experts, gardeners, engineering faculty, neighborhood community groups, other students, and campus facilities staff. The environmental artist Michael Singer visited the classroom twice to direct and critique student work

We organized the course into three components:

1. Warm-up exercise
2. Main design project: Sustainable Landscapes at JMU
3. Exhibition and presentation to the community (including the University President)

To enrich the ideas and conversations of the studio, and to deepen our visual precedents, we devoted much of the first few weeks to seminar readings and project presentations. We read, among others, Thomas Berry, *Art in the Ecozoic Era*ⁱⁱⁱ; Cynthia Davidson's interview with Glenn Murcutt, *Raised to Observe*^{iv}; and William Cronon, *The Trouble with Wilderness; or Getting Back to the Wrong Nature*.^v We looked at case studies collected in three texts: *Signage and Wayfinding Design* (2007), *Groundswell: Constructing the Contemporary Landscape* (2005), and *Tactile: High Touch Visuals* (2007).

1. The Warm-ups

Recognizing that our students were unfamiliar with each other, and with the cross-disciplinary working model we hoped to use, we began the course with a three-week warm-up exercise. We approached campus environmental scientists and asked them, "What is the largest sustainability accomplishment on campus?" They replied, "Storm-water mitigation." That was certainly interesting news to us, as we had never heard that, nor presumably had the rest of the community.

There was an obvious disconnect between the University's most consequential sustainability initiative and public awareness. So for this small project, the 'need' was glaringly obvious—to help publicize and celebrate the storm-water accomplishments. We identified three modes that our students might use: moveable signage, architectural surfaces, and site-specific constructions. We also randomly assigned the students into groups.

Each group was asked to investigate one of the ways that the University was working to mitigate storm-water runoff, including: rain gardens, sand filters, drop inlets, green roofs, retention ponds, and bog gardens. They were then asked to share and celebrate those accomplishments with the University community. The results of that work can be viewed at www.jmu.edu/ivs/envppt.html.

2. Sustainable Landscapes at JMU

Following completion of the warm-up storm-water projects, the studio turned its attentions to the main work of the semester—the design of sustainable campus landscapes. The three sites we had identified were: a vacant lot owned in a nearby

neighborhood, a side-entrance/courtyard to a generic academic building, and a drainage channel/walkway between a parking lot and tennis courts. Working in teams of three, students met with environmental scientists and University grounds staff, researched site issues, researched sustainable materials, studied design alternatives, and proposed design solutions.

Students were asked to address the challenges of each site by developing compelling aesthetic alternatives to the manicured “golf-course look” that dominates most of the outdoor areas on campus. We hoped to show that thoughtful, highly designed, sustainable landscapes could be as beautiful, perhaps more beautiful, than any other.

Research was one key technique to encourage students to venture outside of their familiar design areas. The environmental issues were complex for all of us; we were all in over our heads. The topics included: natural systems (rainwater, wildlife, and vegetation), human activities (seating, gardening, nighttime safety), water conservation, sustainable hardscape and plant materials, energy use (including lighting), signage/graphics, and overlapping social constituencies (neighborhood residents, student users, groundskeepers).

To succeed in the research, the students needed intelligence, imagination, teamwork and the ability to synthesize. Certainly no one design discipline has a monopoly on any of those.

While the students were working on research tasks, we simultaneously brought them through a model-making and form-discovery process. The process moved (approximately) from abstract 2-dimensional; 2.5 dimension; 3-dimensional; scaled models; and finally full-scaled elements, components, and materials.

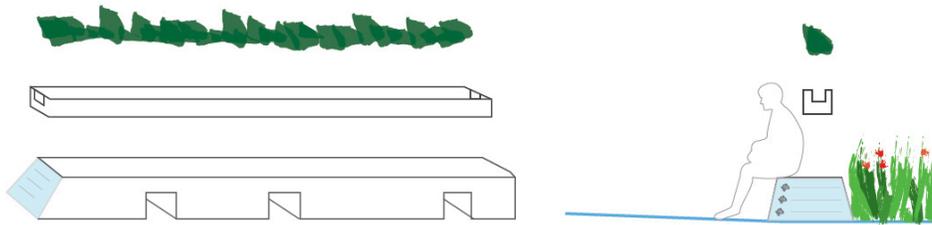
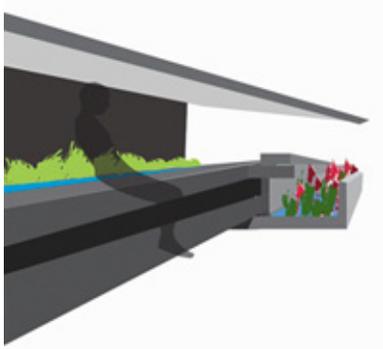
As the form-making advanced, the groups began to fold-in their outside research. Each team developed a project statement, graphic language, material palate, and site-specific strategies and elements. The designs were refined through technical drawings, renderings, and combine visuals with the use of Photoshop.

Throughout the process, the studio remained focused on the need to communicate our ideas to larger, non-design publics. No one lost sight of the fact that our studio would conclude with a University-wide public exhibition, visited by hundreds of students & dozens of faculty, but also facilities staff, engineers, student life coordinators, and even the University President.

Although the work of each of the 7 teams was distinct (and some of their projects truly extraordinary), with hindsight we observed that the projects addressed themselves to five consistent themes and questions:

- First, a solution to user sensitivity to environment/nature. *Figure 1*
- Second, the ongoing ‘need’ to foster and deepen interactions between humans and site-specific natural systems. *Figure 2*
- Third, an interest in energy conservation. *Figure 3*

- Fourth, a commitment to see the designed landscape as a pedagogical and phenomenological tool of environmental education. *Figure 4*
- Fifth, solutions for flood-water mitigation. *Figure 5*
- Sixth, the cultivation of native and low-maintenance plants. *Figure 6*



BENCH + BOG GARDEN DETAIL
PERSPECTIVE + ELEVATION

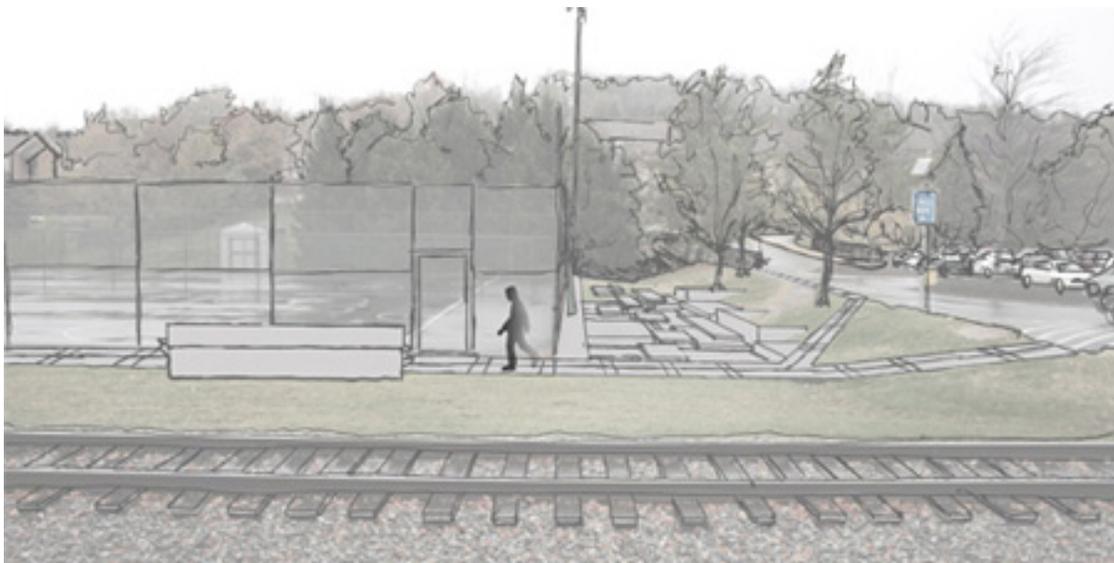


Figure 1 – Design need: User sensitivity to environment/nature



Figure 2 – Design need: Encourage human-nature interaction



Figure 3 – Design need: Energy conservation

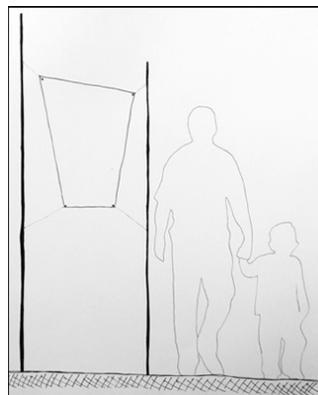


Figure 4 – Design need: Environmental education

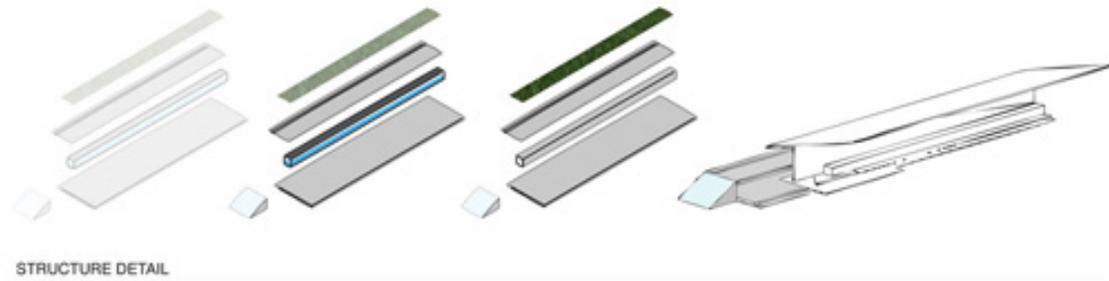


Figure 5 – Design need: Flood water mitigation



Figure 6 – Design need: Native low maintenance plants

Total time for the sustainable landscape projects was 12 weeks.

The outcome from this project has had an enormous positive effect. By presenting the University with concrete and accessible alternative visions of landscapes that were—simultaneously—beautiful, environmentally sensitive, site-specific, thought provoking, and imminently feasible; the studio demonstrated realistic alternatives to the existing manicured institutional status quo.

One of the final projects, ‘The Alluvial Garden’, was selected by the University President for further development and implementation. A short video featuring the project and interviews with the participants can be viewed on YouTube (<http://www.youtube.com/watch?v=MtBW6NDyT94>)

Disappointingly, current budget realities have stalled the Alluvial Garden project before construction could begin. But interest and support for the larger concepts remain. This spring, a new collaboration has begun—including visiting artist Michael Singer again, campus facilities staff, University administration, and art and design students—that is revisiting the issue of visionary sustainable landscapes.

Conclusions

We began this project by thinking about the word “design” as a verb—a mode of action. We imagined a design project, and a design education, driven by social needs and directed toward social ends. Design techniques were valued not for themselves, but for where they could help us to go. We were hungry to collaborate broadly and work outside of our disciplinary boundaries.

It was an experiment in design action.

And so we ask, what did we learn?

In the end we observed that the students—by addressing themselves to the broad challenges of a project, and by not focusing on merely achieving predetermined final outcomes—were *absolutely* capable of a sophisticated engagement with complicated social and technical problems well outside their traditional disciplinary boundaries. They learned to put a high value on intelligence, research and process. Working in teams, they learned to learn from each other.

The studio was a 15-week experiment in designing without boundaries. Working across disciplines, and collaborating with folks from across the community and University, we demonstrated the enormous possibilities when designers engage with complex social problems. By shedding our disciplinary labels, and by simply bringing professional skills (which we cherish) and design intelligence to the table, designers are freed to become nimble tacticians. In the face of daunting and complex social problems, design can become again “a mode of action.”

Endnotes

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Design and Beauty:

material culture, decoration, concealment
and disclosure.

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Abstract

In the present paper we intend to ponder upon links between beauty and design within the practical application in a specific framework: (1) beauty as aesthetization strategy at the service of decoration and concealment; (2) beauty as individual disclosure in nowadays society; (3) design as calibrating both mentioned perspectives. The primary issue emerging regards the definition of beauty. What is beauty? And what is the relation between beauty and design? The emotionally compelling, colorful, round and redundant products? Or does it regard the element of strict necessity, the product qualifying its function and efficacy?

In point (1) we will elaborate on how the history of design relates to form as surface, to ornament, decoration and concealment. Taking as a point of departure August Endell (1871-1925), who advocated the power of form upon the mind and feelings, emphasizing the importance of a new style in applied arts (and in architecture) to reveal the beginning of a new era (Art Nouveau) that constrains the individual through a stylish, decorative environment. After focusing on the criticism of Modernism, which equated beauty with functionality and sobriety rather than with style, and discussing Adorno's criticism of this too simple equation, we will continue to review the criticisms that associate the production of beautiful thing with the logic of a consumerist society. We will then debate the Memphis group as its production disregarding the plain 'functional', 'rational', 'pure', 'abstract' justification standards for 'useful' objects. These

objects incorporate unconventional, irreverent lines and vibrant, intense colors. Decoration is not auxiliary but instead essential to define the object's specificity. Memphis affords decoration a structuring role and the beauty of an object is deemed to be a result of its visual and sensory impact rather than from functionality.

In point (2) we will reassume the discussion of point 1, displaying how the 'old' debate between the 'technical perfection' – beauty as a result of functionality – and 'form perfection' – beauty as a result of appearance – still makes sense nowadays but transformed by the concept of 'individual disclosure'. The designed objects are intended to allow the communication of a personal 'self' through the use of things. Still functionality is present – a thing needs to function –, still form is present – a thing should be pleasant, even beautiful – but within a more complex context: the qualification of the self. Among other examples, we will focus on the detailed, sophisticated, intelligent, elegant, light, user-friendly iphone! Two very different theories arise from this contemporaneous debate: the one that we can identify with Carmagnola's analysis which supports the thesis that beauty is submitted to the principles of an economy of fiction, simulation and simulacrum. The designer designs 'promises' of freedom that are nothing else but alienation, answering to the objectives of consumerism and profit. The other one, more optimistic, relies on the belief of the pleasure-based approach (Jourdan) in design.

'Since the beginning of time humans have sought pleasure. We have gained pleasure from the natural environment (...). Another source of pleasure has been the artefacts with which we have surrounded ourselves.' [1]

In point (3) we are interested in situate the 'today's design' among the inheritances of the past. Therefore we will discuss how material culture – functional and beauty – can open to the possibility of freedom instead of retreating to alienation (Norman, Csikszentmihalyi, Miller) The idea of disclosing the personal being (existence) through the choice and combination of things with meaning for 'myself' (things brought from trips abroad, with family inheritances, with Ikea objects, with the cyber world facilities...) allow us to propose a design that can lead to a balance between an artefact and an artefact with personal meaning.

Beauty as aesthetization strategy: designing a form

What is beauty?

'Beauty can be consoling, disturbing, sacred, profane; it can be exhilarating, appealing, inspiring, chilling. It can affect us in an unlimited variety of ways. Yet it is never viewed with indifference: beauty demands to be noticed (...)' [2],

states Roger Scruton in the introduction to his book *Beauty*. There are however different kinds of beauty. H.P. Berlage for instance differentiated between a 'feminine' beauty, that would rather be about prettiness and comfort, and a 'masculine' one, that is about power and cutting edge. [3] For Theodor Adorno there is a historical development to the perception of beauty. In the mid 20th century, he stated, beauty could no longer be equated with the simple and innocent pleasantness of nature:

"Beauty today can have no other measure except the depth to which a work

resolves contradictions.” [4]

For both Berlage and Adorno, modern art and architecture should face up to the challenges of the age and confront rather than conceal anxieties brought about by modernity.

It is interesting to frame the history of design within these tensions. The history of design inevitably relates to form as surface, to ornament, decoration and concealment. If we take as a point of departure August Endell (1871-1925), who wasn't a designer, we face a kind of thinking that is present in all discussions about design: the power of form. Endell advocates the strong influence of the form upon the mind and feelings. The visual experiences lead to a diversity of aesthetical appreciation that delivers different meanings to a designed thing. So, emphasizing the importance of a new style in applied arts (and in architecture), Endell reveals the beginning of a new era (Art Nouveau) that involves the individual in a stylish, decorative environment which influences a way of living.

However, for people like Adolf Loos, ornament and decoration are to be banned from design in the first decades of the 20th century. The metaphor of the machine speaks also about a new beginning but this time centered in the mechanical prodigious and the beauty of the things mechanically produced. Indeed, Modernism is related with the equation of beauty with functionality and sobriety rather than with style as the application of a certain set of ornamental principles. The principles of Bauhaus and of Hochschule für Gestaltung of Ulm are widely known to be repeated once again. We allow ourselves to recall the arguments of Max Bill when defending that a product must be beautiful and that that beauty must occur from the technical perfection. The individuals have a desire for beauty and design should allow such beauty, applying the conditions of producing a beautiful, efficient, economic, simple product as Max Bill would stress. For Adorno form stemming from functionality was essential for though not equivalent to beauty, since he required works of art to point also towards future potentials of emancipation, which are not yet part of recognized 'functions'. For him therefore design products that would lack this 'critical' aspect, would be no more than commercially justified things, which relied upon a falsified sense of beauty.

Continuing to review the criticisms that associate the production of beautiful things with the logic of a consumerist society, we face the post-modernist practice that arises in Italy with groups like Memphis or Alchimia which intend to overcome the functionalist and industrial corset through a more experimental, symbolic and poetic language. Picking Memphis group as an example, we are confronted with a production disregarding the plain 'functional', 'rational', 'pure', 'abstract' justification standards for 'useful' objects. These objects incorporate unconventional, irreverent lines and vibrant, intense colors. Decoration is not auxiliary but instead essential to define the object's specificity. Memphis affords decoration a structuring role and the beauty of an object is deemed to be a result of its visual and sensory impact rather than from functionality.

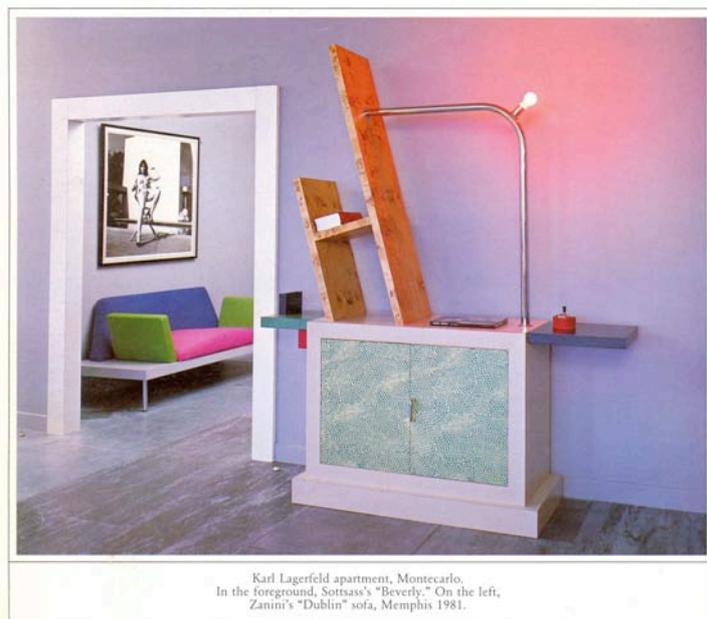


Figure 1 – Karl Lagerfeld apartment Montecarlo. [Copyright: Mode&Wohnen]

But, an object of design needs to function. An object of design is not made for pure contemplation like a work of art. About the question of the importance of beauty in design may be it can be put in these terms: is there aesthetical perfection because there is technical perfection or is there aesthetical perfection because form as form is taken as purpose?

Looking at the history of design, the first hypothesis is the most defended: beauty results from a global internal coherence of all functions, including the aesthetical function. Beauty is the result of such coherence. Indeed from the perspective of the practical world of design, from the *modus operandi* that transforms purposes, problems and ideas in a material realization, i.e. in a solution, beauty is not anymore a philosophical issue like for Scruton or Adorno, but an issue in relation with the design's project. That's what underlines André Ricard (industrial designer, professor, interested writer in design themes) when proposing a synthesis between operational perfection and aesthetical perfection:

- a) that each useful object tends, by its own evolutive logic, to a total perfection, to its climax;
- b) that this climax is achieved when the saturation of its efficacy is accomplished through a maximal economy of means;
- c) that that goal is only possible when there is an optimal internal and external coherence of the object;
- d) that that coherence just can be facilitated when an adequate concordance among all the considered elements exists;
- e) that when all of that is achieved, also beauty will be reached. [5]

Hereby, one project of André Ricard in which both operational perfection and aesthetical perfection are represented.



Figure 2 – André Ricard,, the 1992 Barcelona Summer Olympic Games Torch. The torch is in the IOC, Olympic Museum in Lausanne, Switzerland. Caption: XXV Olimpiada Barcelona 1992 on the handle with the Games emblem. [Copyright: Getty Images]

Beauty from the point of view of the design project is stated by Ricard (as an example of a designer who thinks about the designing practice) as an outcome of the projectual act, solving the traditional opposition form/content, external/internal, appearance/essence, contemplation/use, beautiful/useful. The aesthetical formalism has no more sense as well as the technical rationalism or the efficient functionalism. The aesthetical function is integrated in the designing act and should not be neglected nor extremely valued.

Beauty as individual disclosure: designing for you

In effect, we will discuss how the ‘old’ debate between the ‘technical perfection’, i.e. beauty as a result of functionality, and ‘form perfection’, i.e. beauty as a result of appearance, is transformed by the concept of ‘individual disclosure’. The designed objects are intended to allow the communication of a personal ‘self’ through the use of things. Still functionality is present – a thing needs to function –, still form is present – a thing should be pleasant, even beautiful – but within a more complex context: the qualification of the self.

Authors such as Deyan Sudjic, Patrick Jourdan, Donald Norman stress how design, being a way of seeing and constructing the world, is all around us and by that seduces, pleases, interests, influences, inspires and participates as much as in the image that the individual develops about him/herself as well as the image the individual wishes to transmit to the world.

Sudjic in *Cult Objects* [6], stating that each object tells a story, distinguishes the cult objects, i.e. the objects that seduce particularly and awake the desire of possession and ‘exhibition’. In general publicity manages to replace objects at a very quick pace. Even the so-called cult objects. In effect, a cult object doesn’t mean to be connected to a long-

life object. Its life can be short! During a certain time, the cult object is an element of communication of a certain message till it gets old and is replaced by a new cult object.

‘If you can persuade people to buy a tape recorder that doesn’t record, and that is only intelligible through headphones, then you can clearly persuade them to buy anything. Having performed the trick once, Sony have been able to go on capitalizing on the success of the Walkman, most notably with the ‘sports’ model, finished in deep-sea-diver yellow, and set off with squishy rubber-covered controls.’ [7]

In effect, the cult objects have some characteristics of design that evoke a certain emotional answer in some type of individuals. Another example among a long list, the Mini (car) had also some particular features which seem to have been pondered in order to provoke a certain emotional attitude. And the Anglepoise lamp, a William Morris textile, an antique piece of porcelain Vista Alegre, Calvin Klein...and finally all kind of ‘exquisite’ trends announced by publicity as signs that tell something about who uses them.

And if we focus on the detailed, sophisticated, intelligent, elegant, light, user-friendly iPhone? Marketing makes of it one of the most desirable cult objects to accompany you in the daily life. A cult object that through its successive upgrading makes the old versions obsolete. A cult object that seduces the user by offering not only more (eventually) friendly, intuitive, easy... functions but also the prestigious sensation of belonging to the ‘happy-users-club’ of the last model. Of course, such absolutely fantastic object (almost a subject in itself) will be – hélas! – replaced by a new version as soon as possible.



Figure 3 – iPhone. [Copyright: unknown]

However, there’s no cult object without user’s praise of it. The iPhone receives an impressive list of compliments either for its operational perfection or for its aesthetical perfection. Moreover, this *object-subject* allows easy, smooth, quick emotional contact with the user’s loved ones or with any issue of the internet.

Two very different theories arise from the contemporaneous debate about the impact of marketing in creating and exploiting consumer’s desire: the one, more optimistic, relies on the belief that things being designed upon the concept of pleasure are allowing a kind of fulfillment of human desire. Individuals recognize themselves through objects and communicate also through the use, the exhibition of their things. In effect,

‘human factors have come to increased prominence in recent years. This is manifest in a number of ways: one is the ever expanding literature relating to human-factors issues, including books and journals, and even magazine and newspaper articles; another is the number of international conferences and seminars dedicated to human-factors issues. (...) However, perhaps the most important reflection on how seriously human-factors issues are now being taken is the sharp increase in human-factors professionals employed in industry.’ [8]

Among all the human factors that a designer must take in consideration the affordance *pleasure* is becoming the one that makes the difference in the choice between two products. Of course, if a product doesn't perform the task for which it was intended it provokes dissatisfaction. Jourdan call functionality to the first level of consumer needs. The second level is usability: people expect that a product not only functions but that it's easy to use. More and more people have the experience of products that function well and then, they expect friendly usability. The third level is pleasure. Having satisfaction with products that function and are easy to use, people want products that have something extra; products that can be related to them, that can tell partly of their story, products that bring emotional compensations. And according to Jourdan this is the present new challenge for human factors issues when considering design. The usability-based approaches to design should be completed with the pleasure-based approaches. People wish that products may bring pleasure to them and that they can benefit from it.

‘Since the beginning of time humans have sought pleasure. We have gained pleasure from the natural environment: from the beauty of flowers or the feeling of the sun on our skin; from bathing in soothing waters or the refreshment of a cool breeze. We have actively sought pleasure, creating activities and pastimes to stretch our mental and physical capabilities or to express our creative capabilities (...). Another source of pleasure has been the artefacts with which we have surrounded ourselves.’ [9]

In the book *The Pursuit of Pleasure* [10] Lionel Tiger, a Canadian anthropologist, outlines four type of pleasures: physical, social, psychological and ideological. Tiger's study is the base of Jourdan's explanation of each pleasure's component in the framework of product design.

In the context of our text, Jourdan's theory stresses our statement that indeed the ‘old’ debate between the ‘technical perfection’ and ‘form perfection’ is transformed by the importance of people's experiencing pleasure when experiencing the use of a product. *Individual disclosure* is the name we give to that ‘concern’ in product creation process. If Jourdan's ‘positive’ conceptualisation of beauty and pleasure is close to that of Scruton, there is another theoretical perspective that continues the ‘critical’ lineage of Adorno. Fulvio Carmagnola would definitely belong to this lineage. His analysis supports the thesis that beauty is submitted to the principles of an economy of fiction, simulation and simulacrum. The designer designs ‘promises’ of freedom that are nothing else but alienation, answering to the objectives of consumerism and profit. In *Design, la fabbrica del desiderio* [11], Carmagnola interprets design through the concept of desire, showing how design is related with the human being welfare. Gillo Dorfles in that book's introduction uses the expression *in-der-Welt-sein* to stress that design is present in all daily life acts, because it is ‘glued’ to the existential, economic

and anthropological situation of the individual. However, Carmagnola warns that the designed object is captive of the market rules and of the economic interests. Based upon these principles, desire is propagated as a continuously not satisfied desire, that obliges to jump from an object to another, obeying to the objectives of a society ruled by a king of imaginary that has nothing of liberator. On the opposite, such imaginary is built up by the protagonists that profit from a non critical consumerism. The imaginary empties itself of any symbolic meaning and fills itself of the eternal desire of possessing constantly the 'new'. The object of design loses also any ethic and poetic value, becoming a merchandise that obeys to the commercial efficiency laws, becoming the protagonist of a desire constructed by the superficial and apparent universe of the *media*. Then, beauty in design is not a value with symbolic and cultural meaning, but it is just a stimulus to push further the economy that Carmagnola calls the *economia finzionale* (economy of fiction, economy of dissimulation).

That form is the confluence of a synergic ensemble of structuring elements, namely technological, economic, ecologic, ergonomic, cultural, aesthetical... seems to be consensual. That design has strong responsibilities in shaping the world seems also not to be polemic. Design designs homes, public spaces, work environments, hobby environments, external spaces, interior spaces, transport systems, communicational systems, simple artefacts, sophisticated ones... objects and contexts which are expression of more fantasy or of more high technology. These objects, contexts, environments, systems... are expression of either a way of living or of possibilities of ways of living. Our question is the following: is such diversity dominated in absolute by the laws of the market and by the targets of a blind consumerism? If the answer is affirmative, then, the individual has no opportunity for interpretations, choices or meaning giving. Beauty as expression of an aesthetical appeal would be an artifice to manipulate the preferences of the user/consumer/individual. Even the research on pleasure-based design would be based on the goal of finding consumers' typologies in order to manipulate their wishes, desires, values and lifestyles. Finally human-factors issues studies would have as first priority to serve sales and profits. Aesthetic affordances would also be nothing else than a pretext for manipulating that 'weakness' that some people have of buying/possessing what has a sensitive appeal mixed with a symbolic status impact. In that case, individuals are absolutely predictable and the challenge of human-factors specialists and designers is to gather information about human behaviour.

Material culture and freedom: you choosing design

Recalling the conference topic within we intend to contribute with our text – vertigo: envisioning what's ahead, calibrating past inheritances –, we will now focus on the argument how material culture can open to the possibility of freedom instead of retreating to manipulation and alienation. Donald Norman founder of The Cognitive Science Society considers in *Emotional design. Why we love (or hate) everyday things* [12] the role of emotion in the choice and purchase of certain products. Based on the 'theory of the 3 levels' (affection, behaviour and cognition) he intends to present a comprehension of the design process, as well as reflect about the emotional dimension of the products over the individuals. Therefore, the decision to buy this or that product depends on a cognitive act in interaction with affections and emotions that could be the strongest argument to buy or reject the thing. Research on the field of cognition and

emotion show that more attractive objects exercise a more powerful seduction, as well as objects that evoke an answer more sentimental, individual, namely nostalgia, memories, auto-image, pleasure. In this work, Norman focuses on what he defines as the 'history of interaction' between the individual and the objects, stressing the driving force of the emotions as reflex of individual experiences. Emotion and beauty, then, are not necessarily associated, because it is possible to choose 'ugly' objects, even kitsch, in preference to 'beautiful' objects. The sentimental reasons and the aesthetical reasons perform diverse functions in the impact that an object has in an individual.

The idea of disclosing the personal being (existence) through the choice and combination of things with meaning for 'myself' (things brought from trips abroad, with family inheritances, with Ikea objects, with the cyber world facilities...) allow us to propose a design that can lead to a balance between an artefact and an artefact with personal meaning. We should recognize as a fact that the individual looks for aesthetical solutions for daily life. The individual is not invested in the objects that occupy his or her surroundings or that are discarded from it. In 'old time' objects were rare and eternal. Today they are rather ephemeral and passing. A nostalgic feeling in such statement? Csikszentmihalyi and Rochberg-Halton in the work *The Meaning of Things: Domestic Symbols and the Self* [13] develops an empirical study on the meaning of things to people, based on interviews to 315 people belonging to 82 families with different backgrounds living in Chicago and Evenston (Illinois). People were asked what objects were special to each of them and why. After analysing the answers about the meanings of household objects, the authors conclude the following:

'we found that each home contained a symbolic ecology, a network of objects that referred to meanings that gave sense to the lives of those who dwelt there.(...) To be effective in conveying meanings, the owner had to be personally involved with the artefact. It was not enough that the object had been created by someone else, to be significant, the owner had to enter into an active symbolic relationship with it.' [14]

According to this study, people find and attribute meaning to objects which have a particular resonance in their own lives, usually a resonance inseparable of emotions and feelings.



Figure 4 – A Room with personal belongings. [Copyright: unknown]

In the article ‘Homes from Home: Memories and Projections [15], the author stresses how homemaking is a phenomenon that crosses the lifetime cycle of the individuals in the different moments they go through. The parents’ home (the childhood home), the starting living by his/her own, the home made through marriage (or living together), the home broken by divorce, the remake of a new home... are a concentration of materials (objects and objects related practices) and projections of emotions.

‘Reinventing home is an ongoing process of linking the present to the past and the future. It entails not only remembering past homes but also projecting future homes. Away from home, whether travelling, migrating or living in lodgings, one becomes more aware of the meaning of the home one has left behind, temporarily or for good.’ [16]

The following image illustrates a home decorated with objects brought by the two members who decided to share a place and make of it a home. Style is not the reason of such decoration, but the need of being surrounded by objects that evoke memories of loved ones or of life experiences.

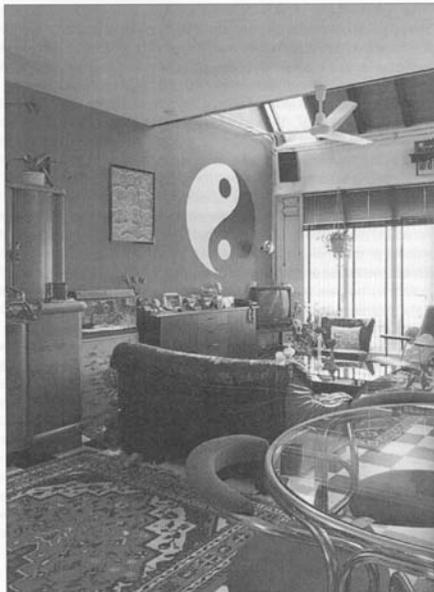


Figure 5 – The reinvention of a shared home, Gouda, 1996. [Copyright: Martin Droog]

This understanding is consistent with recent sociological studies which describe practices of inhabitation as a form of “appropriation.” Daniel Miller, for instance, has developed a theory of consumption in which he states that consumption practices (for example, those related to the decoration of the home) basically have to do with the struggle to appropriate good and services made in abstract, alienable circumstances, in order to transform them into something that is contributing to the construction of the self [17]. This theory has been the basis for a series of ethnographic studies that focus on the material culture of daily life. In those studies, the home is shown to have multiple significances. It can be read as a symbolic container expressing the identities of its inhabitants as well as conveying more general cultural assumptions and beliefs about the world. At the same time, however, there are many conflicts between the agency

expressed by individuals, by the family, the household, and by the material structure of the house itself. Individuals occupy houses, as Miller states, but houses also occupy individuals. He thus acknowledges that

“the home itself is both a site of agency and a site of mobility, rather than simply a kind of symbolic system that acts as the backdrop or blueprint for practice and agency.” [18]

Design objects are thus part of multiple logics, those that pre-occupy the designer (Ricard) and the manufacturer (Carmagnola) as well as those that inhabit the private lives and spaces of individuals who buy them, receive them, share them, inherit them or discard them (Cieraad). Their beauty is situated within these multiple logics, answering to different regimes and bridging past, present and future while doing so. ‘Today’s design’ in its awareness of disclosing the personal being within the complexity we discussed in our text, leads to a constant (desirable) balance between an artefact as such and an artefact that opens to freedom and not to alienation. Beauty, which cannot be subsumed under a one-linear definition that serves design (or better, designers), is, however, an intrinsic reference of the projecting act and then, an intrinsic reference for material culture.

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Conceptions of design thinking in the management discourse

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Abstract

The concept of design thinking has received increasing attention during recent years – especially in management discourse. However, despite of the current hype, there is no agreed view on what is meant by design thinking. Looking into the literature related to design thinking reveals two differing discourses on design thinking: one in design, and another in management. The former discourse has its roots in the 1960's, while the latter is considerably younger. Focusing on the management discourse, this paper discusses the concept of design thinking as a set of certain practices, cognitive approaches, and mindset. These three groups consist of characteristics used to describe design thinking in management discourse. We call these characteristics the elements of design thinking, and present a framework for design thinking that draws on existing literature in management discourse.

Keywords: design thinking, design process, management

Introduction

The popular phrase of design thinking has captured an audience in managers around the world. Management magazines have covered stories about the power of design thinking, and during the last years, there have been several books published on the concept [3, 24, 28]. It seems fair to say that there is a considerable amount of hype surrounding the concept – which has not gone unnoticed in the academia. Johansson and Woodilla [19] specifically discuss the problematic hype, and describe how it simplifies the situation and eventually leads to a backlash. The management literature offers design thinking as a cure to nearly every challenge in business, and today, as Kimbell [22] points out, “in management practice, it seems, everyone should be a design thinker.”

On one hand, design thinking is seen as a remarkable phenomenon in its own right, described for example as a “powerful, effective, and broadly accessible” approach to innovation, “that can be integrated into all aspects of business and society, and that

individuals and teams can use to generate breakthrough ideas that are implemented and therefore have an impact” [3, p.3], or as “the next competitive advantage” [28]. On the other hand, there exists significant doubt about the validity and novelty of the concept. Some disregard it entirely as nonexistent, while others view it as nothing new, such as Donald Norman, who writes “Design thinking is a public relations term for good, old-fashioned creative thinking” [30].

However, despite the hype and ample attention, there is no consensus on what is meant by design thinking. The notion of design thinking is broad [8], and the term is considered as confusing; there are debates over what exactly is meant by it, and how it differs from e.g. creativity, innovation or systems thinking [22]. What seems rather obvious though, is the expansion of design into new arenas and target areas, such as strategy, services or organization design, that go beyond the realm of traditional design that is linked tightly with physical objects [e.g. 8, 22].

This confusion and disagreement surrounding the concept calls for investigations that provide clarity and common understanding, paving ground for a more fruitful discussion on the issue. This paper seeks to provide such common ground by presenting a three dimensional framework that has emerged from the current management discourse concerning design thinking. The aim of this paper is to summarize how design thinking is depicted in the current management discourse. Emphasis is given to identifying common terminology and characteristics used to describe the concept of design thinking. The paper starts by explicating the research methods utilized in the research, and then continues by discussing the two discourses in design thinking, i.e. the ones in design and management. Based on a study of relevant literature we then present the framework summarizing the management view on design thinking. We end the paper with a discussion including suggestions for future research directions.

Research Methods

This paper is based on a review of a selected literature and on a set of interviews with experts on design thinking. The paper does not aim to present an all-inclusive literature review, but rather focuses on some of the key texts, relevant to the aim of the research; reviewing the current management discourse on design thinking.

There were three groups of literature chosen for the review. First, there is the literature in the management discourse that is often cited or considered central pieces of the management discourse drawn from e.g. Johansson & Woodilla [18], and Kimbell [22]. Second, Design Management Institute’s Review and Journal were considered relevant due to their focus on design management and the recent issue on design thinking. Third, The Journal of Business Strategy has published two special issues: Design and Business in 2007, and Practice of Innovation: Design in Process in 2009. These two special issues were considered relevant due to their specific combination of business and design. From the Design Management Institute’s Review and Journal, as well as from the Journal of Business Strategy, the papers included in this review addressed design thinking directly, i.e. the phrase appeared in the title or the abstract. Altogether over 50 articles or books were reviewed, of which 31 were useful in addressing the characteristic elements of design thinking, and were used for building the framework. The reviewed literature contained articles describing the point of view of representatives from various

prominent organizations (e.g. HP, IBM, 3M, IDEO), and also included several articles, where the concept of design thinking was explored by interviewing practitioners and experts [e.g. 11, 6]. The articles found relevant were screened for characteristics or qualities describing the concept of design thinking. These characteristics were collected as concise explications and grouped according to similarity. The resulting elements were then arranged under three unifying dimensions according to thematic similarities.

For this research interviews with ten experts were conducted. The aim of these interviews was to find out where the interviewees consider the origins and roots of design thinking to be and to discuss the three dimensional framework for design thinking developed during this research. The comments of the experts were used to verify the framework in terms of wordings and the grouping of elements. The specialists interviewed for this research included four academics from the field of design methodology and six experienced practitioners with a design education (industrial design or architecture). All interviewees were familiar with the concept of design thinking prior to the interview and had their own understanding of what the concept entails. The interviews were semi-structured, explorative in nature and included discussions between the interviewer and interviewee. All interviews were conducted during 2010 and involved experts from The Netherlands, Finland, and the United States.

Two Discourses on Design Thinking

Searching existing literature for a definition for design thinking merely adds to the initial confusion; it appears that there are two differing streams on the concept. Johansson and Woodilla [18] clearly point out these two separate discourses and name them as the ‘design discourse’ and the ‘management discourse’. The former discusses “the way designers think as they work”, and is an academic discourse with a history of roughly 50 years. The latter discourse regards design thinking as a “method for innovation and creating value”. This management discourse is a more recent one, appearing around the change of the millennium, and focuses on the need to improve managers’ design thinking skills for better business success. [ibid.]

In the interviews conducted for the research presented in this paper, the experts were asked where they consider the roots of design thinking to be, where it has originated, and around what time. The academics considered the roots of design thinking to go back to the 1960’s, whereas the practitioners considered the concept a rather recent one, spurring during the 2000’s. Interestingly, the practitioners were mostly unaware of the 50 years of ongoing design discourse on design thinking. Figure 1 summarizes a few responses from the interviews, including views from interviewees representing the design discourse and the management discourse, and presents the key literature the respondents referred to.

Roots of design thinking: views from the two discourses

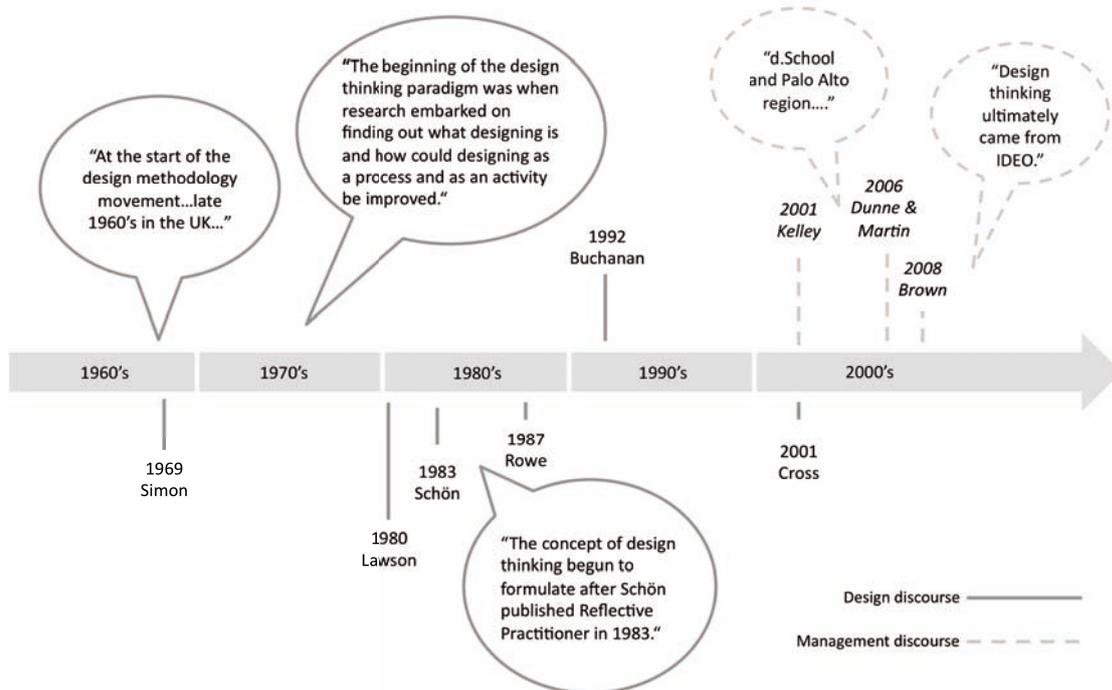


Figure 1 – Roots of design thinking: views from the two discourses. References to the key literature mentioned by the respondents.

As depicted in Figure 1, the management discourse places the roots of design thinking at the work of the design company IDEO and Stanford's d.School, with statements such as "Design thinking ultimately came from IDEO". Also the interviewees representing the design discourse acknowledge the role IDEO plays in the management discourse. However, they considered the design thinking paradigm to have begun when "research embarked on finding out what designing is and how can designing as a process and as an activity be improved". The representatives of the design discourse regularly mention Simon [37] and Schön [36] and go back to 1960's in their descriptions of the roots of design thinking: "The concept of design thinking begun to formulate after Schön published Reflective Practitioner in 1983." The interviews highlight the significant effect the management discourse has among practitioners, underlining the importance of understanding what precisely is understood by the concept.

Regardless of all the current discussion, even the most established writers on design thinking within the management discourse (the same holding true for design discourse) have not presented a comprehensive definition or conceptualization for the concept of design thinking. For example, Tim Brown, CEO of the design agency IDEO and one of the most prominent authors within the management discourse, describes it in quite abstract terms such as "a discipline that uses the designer's sensibility and methods to match people's needs with what is technologically feasible and what a viable business strategy can convert into customer value and market opportunity" [4]. Therefore, in the following chapter we, based on existing literature, synthesize the central elements of the

ongoing discussion in the management discourse, to formulate an initial conceptualization of design thinking as it is presented in the management discourse.

Elements and Characteristics of Design Thinking

Analysis of the selected literature discussing the concept and application of design thinking in different contexts resulted in three main groups of elements, or components. These were named as practices, cognitive approaches, and mindset. Figure 2 summarizes the elements of design thinking, and suggests a three-dimensional framework explicating the management view of design thinking. Each dimension contains a set of elements that were presented as key ingredients of design thinking across the reviewed literature.

PRACTICES	COGNITIVE APPROACHES	MINDSET
<ul style="list-style-type: none"> • HUMAN-CENTERED APPROACH E.g. People-based, user-centered, empathizing , ethnography, observation (e.g. Holloway 2009; Ward et al. 2009; Brown 2008) • THINKING BY DOING E.g. Early and fast prototyping, fast learning, rapid iterative development cycles (e.g. Lockwood 2010; Rylander 2009; Boland & Collopy 2004) • VISUALIZING E.g. Visual approach, visualizing intangibles, visual thinking (e.g. Carr et al. 2010; Drews 2009; Ward et al. 2009) • COMBINATION OF DIVERGENT AND CONVERGENT APPROACHES E.g. Ideation, pattern finding, creating multiple alternatives, (e.g. Sato et al. 2010; Drews 2009; Boland & Collopy 2004) • COLLABORATIVE WORK STYLE E.g. Multidisciplinary collaboration, involving many stakeholders, interdisciplinary teams (e.g. Sato et al. 2010; Gloppen 2009; Dunne & Martin 2006) 	<ul style="list-style-type: none"> • ABDUCTIVE REASONING E.g. The logic of “what could be”, finding new opportunities, urge to create something new, challenge the norm (e.g. Lockwood 2009; Fraser 2009; Martin 2009) • REFLECTIVE REFRAMING E.g. Rephrasing the problem, going beyond what is obvious to see what lies behind the problem, challenge the given problem (e.g. Zaccai in Lockwood 2010; Drews 2009; Boland & Collopy 2004) • HOLISTIC VIEW E.g. Systems thinking, 360 degree view on the issue (e.g. Fraser 2009; Sato 2009; Dunne & Martin 2006) • INTEGRATIVE THINKING E.g. Harmonious balance, creative resolution of tension, finding balance between validity and reliability (e.g. Martin 2010; Fraser 2009; Brown 2008) 	<ul style="list-style-type: none"> • EXPERIMENTAL & EXPLORATIVE E.g. The license to explore possibilities, risking failure, failing fast (e.g. Holloway 2009; Brown 2008; Fraser 2007) • AMBIGUITY TOLERANT E.g. Allowing for ambiguity , tolerance for ambiguity, comfortable with ambiguity, liquid and open process (e.g. Cooper et al. 2009; Dew 2007; Boland & Collopy 2004) • OPTIMISTIC E.g. Viewing constraints as positive, optimism attitude, enjoying problem solving (e.g. Gloppen 2009; Brown 2008; Fraser 2007) • FUTURE-ORIENTED E.g. Orientation towards the future, vision vs. status quo, intuition as a driving force (e.g. Drews 2009; Martin 2009; Junginger 2007)

Figure 2 – Three-dimensional frameworks explicating the common elements of design thinking, as depicted in the management discourse.

The framework presented above is more suggestive than conclusive and forms a basis for the future research of the authors. In the following sections, the three dimensions and the elements forming them are discussed in a compact manner with the aim of providing a clear overall picture of the division.

Practices

The “practices” –category comprises of elements that are closely related to concrete activities, describing tangible approaches, ways of working, activities and the use of specific tools. The elements included in the category include: human-centered approach, thinking by doing, visualizing, combination of divergent and convergent approaches, and collaborative work style.

One of the most prominently emphasized issues in design thinking is its inherently and thoroughly **human-centered approach** - “putting people first” [4, 31, 38]. Authors were extremely consistent in emphasizing developing empathy towards and understanding of the customer/users [4, 7, 12, 17, 20, 24, 26] and even “being in love” [31] with them. Some authors even go as far as labeling design thinking as synonymous with “customer, user or human-centered design” [35]. The use of observational and ethnographic methods [1, 4, 6, 12, 25] is seen as a key means to achieve a deep and empathic understanding of the customer. Beyond empathizing and understanding, collaborative design with the customers [2, 4] is suggested as a viable approach.

Thinking by doing refers to the iterative and highly tangible approach favored by designers. Knowledge creation in design thinking is practical, as the process proceeds through reflection-in-action [33]. The development cycles of the iterative approach are described as systematic [35] and rapid [6, 17, 27]. Early - “from day one” [4] - and continuous prototyping [11, 13, 14, 17] is seen as necessary and beneficial throughout the entire process. Prototypes are seen to facilitate thinking and knowledge creation by means of idea formulation and demonstration [24], to make concepts concrete [35], and to help the exploration of numerous possible solutions [13,14]. In essence, prototypes can be seen as a tool for stimulating thinking and exploring ideas, not as representations of the products [2].

Closely related to prototyping, **visualizing**, i.e. expressing oneself in media other than words and symbols [3] is seen as the dominant sensemaking mode of design thinking [33]. Visualization of intangible concepts, models and ideas is seen as essential [6, 11, 25], functioning as a tool aiding common understanding [38], allowing ideas to be shared and discussed [20] and revealing relationships that are not accessible in verbal presentations [35].

Combination of divergent and convergent approaches refers to widening the scope and then moving towards a preferred solution by selection and synthesis. The process of design thinking is described as having divergent beginnings, i.e. creating multiple alternatives using various methods [11] without assuming that the existing alternatives, or the first ones that were thought of, include the best ones [2]. The wide range of ideas does not need to be limited to the very early stages, as openness to exploring multiple paths toward a solution [11] is seen as important. Recognizing patterns [3, 6, 35] and relationships in the broad number of diverse variables, including conflicting, ambiguous, or paradoxical data is central to design thinking.

Contrasting the age-old and commonly abandoned notion of a lone genius, a **collaborative work style** is emphasized as integral to design thinking by virtually all authors. The importance of involving a wide range of stakeholders [e.g. 11] is seen as a key approach. This most typically takes the form of using interdisciplinary teams [4, 3, 7, 12, 17, 27, 35]. A collaborative work style is seen as important in tackling complex

and “wicked” problems through gaining knowledge from many fields and disciplines [15], promoting diverse perspectives [12], and merging them in a meaningful and novel way [12]. Some authors also emphasize that thinking is not something done exclusively inside one’s head, but is often accomplished in interaction with other people [2], using expressions such as collaborative integrative thinking [12].

Cognitive approaches

Elements categorized into the “cognitive approaches” –dimension relate to issues such as mentality, cognitive processes and thinking styles. These elements are: abductive reasoning, reflective reframing, holistic view and integrative thinking.

Abductive reasoning, or “the logic of what might be” [24], in addition to deductive and inductive reasoning is emblematic to design thinking. Whereas inductive thinking has to do with proving through observation that something works, and deductive thinking has to do with proving through reasoning from principles that something must be [24], a designer uses abductive reasoning to move from what is known to the exploration of what could be [14] - to say, “What is something completely new that would be lovely if it existed but doesn’t now?” [12]. Designers use abduction to generate ideas, challenge accepted explanations, and infer possible new worlds [28, p.65]. It’s a skill that plays a critical role in design thinking, and is a pre-condition for intelligent designing [10].

While developing solutions to design problems is a well-recognized skill of designers, the ability to think up new ways of looking at the problem in the first place is key as well [10]. This ability is referred to here as **reflective reframing** of the problem or situation. Design thinking is seen to inherently include questioning the way the problem is represented [2], looking beyond the immediate boundaries of the problem to ensure the right question is being addressed [11] and going beyond what is obviously stated to see what lies behind the problem [26]. Identifying, framing, and reframing the problem to be solved are seen as equally important as solving the problem or finding an appropriate solution [1]. The process of challenging the original problem is not limited to the beginning of the process, but is ongoing, incorporating the findings already gained to re-phrase the problem [11].

The ability to adopt a **holistic view** - a 360° understanding [17] of the problem including issues such as the customer’s needs, the end-user’s environment and social factors is inherently linked to design thinking. This understanding includes not only the customers’ functional needs, but also the customers’ emotional, social and cultural needs [34]. Some authors use the term systems thinking [e.g. 14] to describe visualizing a problem as a system of structures, patterns and events, rather than just the events alone—and understanding the impact of changes in one component on the others, and on the system as a whole [12] and the ability of connecting external form with internal functionality or holistic vision with specific attention to detail [38].

One of the foundations of design thinking is said to be bringing competing constraints into a harmonious balance [3]. Most authors see this as being achieved through **integrative thinking**, which is about identifying salient aspects [4, 12] of problems and being able to face two (or more) opposing ideas or models and instead of choosing one versus the other, to generate a creative resolution of the tension in the form of a better

model, which contains elements of each model but is superior to each [4, 14, 12]. Design thinking is seen to include achieving a natural balance between the technical, business, and human dimensions [4, 7, 17], balancing human-centeredness with company-centricity throughout the cycle [35], reliability with validity [28, 34], exploitation with exploration [28], and analytical thinking with intuitive thinking [28, 31, 35].

Mindset

The mindset-category refers to the mindset of both the individuals immersed in the work and the mindset portrayed by the organizational culture. Here “mindset” describes the orientation towards the work at hand, and the mentality on which the problems are approached. The identified elements describe design thinking mindset as being experimental and explorative, ambiguity tolerant, optimistic, and future-oriented.

An **experimental and explorative** mindset is seen as a key feature of design thinking [4]. This includes a license to explore possibilities [13] and a willingness to risk failure by pushing the limits of both personal and a team’s capacity, as well as the capabilities of technology and the boundaries of the organization [17]. Design thinkers are said to pose questions and explore constraints in creative ways that proceed in entirely new directions [4]. Mistakes that naturally follow from exploration and experimentation are seen as a natural part of the process, with “failing fast” i.e. early tryouts, models and prototypes seen as a preferred strategy enabling exploration with reasonable levels of risk [3, 26]. In addition to an acceptance of failures on an organizational level, exploration also requires personal courage [14].

The mindset of design thinking requires a high **tolerance for ambiguity**. In the field of design, ambiguity is accepted as a natural part of the process [33] as the inquiry is rather emerging than deterministic [8]. Therefore a key feature of the design thinkers’ mindset is being comfortable with the ambiguous [11], and maintaining the ability to work in the face of ambiguity. The design mindset is noted to “foster an acceptance of and a comfort with a problem-solving process that remains liquid and open, celebrating new alternatives as it strives to develop a best design solution.” [2].

Design thinkers are also seen to possess an **optimistic** mindset. They assume that no matter how challenging the constraints of a given problem are, at least one potential solution is better than the existing alternatives [4] and present an absolute unwillingness to give in to constraints and obstacles [13]. Design thinking is associated with enjoying problem-solving and finding opportunities in places where other people have given up [15], as well as with an appreciation for constraints, as they serve to focus scope of the work and increase its challenge [27]. Competing constraints are accepted willingly and even enthusiastically [3] and they are seen even to increase the challenge and excitement [12].

Finally, design thinking can be described to be **future-oriented**; a common characteristic related with design thinking is the ability to anticipate and visualize new scenarios [27, p. 86]. Design is seen to be about improving an existing situation into a preferred one, and designers are therefore always dealing with change [20]. Due to this desire to create change for the better, design thinking is described as having an urge to

create something new through challenging the norm [11]. As the driving logic in design thinking is that of ‘what could be’, the starting point for work is more often a strong vision than the status quo [ibid]. This future orientation is long-term, and the forces guiding the vision-driven process include intuition [28, 31] and hypotheses about the future [28].

Discussion and Conclusions

The research presented in this paper set out to pave way for a more commonly shared understanding on the concept of design thinking rather than attempting to produce a decisive definition. This paper proposes a framework depicting the dimensions and related elements underlying the concept of design thinking within the management discourse. The framework builds on existing literature on design thinking, and it describes the concept as consisting of three dimensions: practices, cognitive approaches, and mindset. Each dimension consists of ‘elements of design thinking’ – methods, values, and concepts that continuously surfaced from existing literature.

There are several recurring themes crossing the boundaries of the three groups. For instance, ‘thinking by doing’, which entails e.g. early prototyping, is represented in the practices, but it also manifests in the mindset dimension as the explorative nature of design thinking. Similarly, the future-oriented mindset of design thinking is manifested also in the cognitive approaches as abductive reasoning – the continuous strive to think of “what could be”. The elements described above are not separate units, but rather form an entity that may be called design thinking.

During the interviews with experts, the proposed framework was presented, and the dimensions and elements were discussed. All experts agreed that the elements presented were relevant to the way they perceived design thinking. The modifications proposed by the experts dealt with the wording. However, two elements were considered to be understated: the central role of intuition as opposed to mainly analytic approaches, and the role of design in synthesizing information. Considering that the experts interviewed for this research represent both discourses, the design and the management streams, it is interesting to notice that their view on what design thinking “is made of” did not differ. This leads us to ask, how do the characterizations of design thinking in the two discourses differ? A comparison of definitions would not be sensible, since, as Johansson & Woodilla [18] point out, no unified theory of design thinking exists, but a comparison of characterizations in the two discourses may be viable.

Many of the writers within the management discourse emphasize qualities and aspects of design thinking that contrast the approaches supposedly innate to businesspeople and other persons outside the discipline of design. Therefore, a balanced whole picture of design thinking or a designerly way of working might not be presented. Additionally, authors very seldom presented any possible drawbacks or weaknesses of adopting a designerly approach to unconventional fields. Hence, what limitations and risks may design thinking carry, and under which conditions can or should it be implemented?

The framework presented in this paper lays the foundation for the future research of the authors. The authors will continue to pursue a more thorough understanding of the

concept of design thinking, its roots and current discourse, possible application areas, benefits, and limitations to its use.

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design &

SELF-EXPRESSION

a relationship between person and object design

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Abstract

This paper aim's to offer a reflection on the emotional relationship of users with designed objects. Functioning as open works, products that invite interaction, allow individuals to differentiate themselves, promoting social welfare through the enhancement of self-expression. From the survey and analysis of products already on the market, we have initiated a methodology projetual that is still under development. We present here some results of our project.

Context

Comparing the Modern Society to the Antiquity or the Middle Ages, we note a different way of living. This difference, according to Simmel 1987 and Bauman, can be seen by the emergence of the metropolis and its complex system.

Living in a big city provides more mobility and access to information, what makes distances shorter and brings people closer. Modernity brought the understanding of differences between individuals. That provided greater freedom of action and self-expression too. In the past, we had closed ties just inside the community. Nowadays, these barriers were knocked down, increasing the number and diversity of the social bonds

“In the measure that the group grows (...) its immediate inner unity and the definiteness of original demarcation against others are weakened and rendered mild by reciprocal interactions and interconnections. And at the same time the individual gains a freedom of movement far beyond the first jealous delimitation, and gains also a peculiarity and individuality to which the division of labor in groups, which have become larger, gives both occasion and necessity. (...) Small town life in antiquity as well as in the Middle Ages imposed such limits upon the movements of the individual in his relationships with the outside world and on his inner independence and differentiation that the modern person could not even breathe under such conditions. Even today the city dweller that is placed in a small town feels a type of narrowness, which is very similar. “ (SIMMEL, 1987, p.19)

The quest for individuality is extremely important because it is necessary to show the world what differentiates us from the others. The search for distinction is characteristic of human beings. And one of the ways, we distinguish ourselves from the others is through the consumption of products and lifestyles. An artifact is beyond their practical functions when it says something about the person who is consuming it, his relationships, values, etc., when it represents a person identity (Douglas, Isherwood, 2004).

According to Klaus Krippendorff (2000), the paradigm shift from product design to property, information and identities resulted in a change of focus, moving from object to humans. The human-centered design values the relationship between the artifacts and us. The user participation is extremely important in the process of signification.

Self-expression and memory

The human-centered design, adapted to the user experience, and especially the emotional relationship between people and the object designed are the focus of our research conducted at the *Laboratório Memória, Design – Labmemo* (Laboratory Memory, Design and Emotion – Labmemo).

The founding idea of this new approach, presenting the perspective of Emotional Design, is that the products involved in our daily actions, mediate social relations, promoting experience, evoke feelings and affect and shape our attitudes and behavior (Damasio, 1996 and 2004, Csikszentmihalyi, 1995). They do more than perform mechanical functions. So, it is necessary to understand the act of design, not only as a creation and development products act, but also, more importantly, as a promoter of social change in line with common good. Considering that physical objects mediate all human relationships, the laboratory group sought theoretical and methodological references also in the field of Social Sciences.

As an example, we have the opinion of the psychologist Donald Norman (2004): "objects are more than mere material possessions. We take pride in them, not necessarily because we are showing off our wealth or status, but because of the meanings they bring to our lives. "These objects - which are stored in our emotional memory – are the products of our research. The psychologist Mihaly Csikszentmihalyi (1995) goes even further and states that the "meaning of our private lives is built with these household objects " By this he meant that the artifacts that are around us say a lot about ourselves, our personality, about what we love, what we want and how we live.

To better understand the relationship between people and what Professor Vera Damazio calls "artifacts of memory", an extensive investigation has been done. She, as the supervisor of Labmemo, used anthropological research methods, including participant observation and interviews with different types of people. This work culminated in her thesis.

Vera Damazio believes that all of us have, physically or in memory, memorable objects, that bring back good memories. According to her, they are "tangible remnants of our most valuable experiences. They shape our future decisions and choices" (2005).

In this context, Damazio divided the objects she collected during her research into categories of memories. In one of those types she identified the objects that became memorable because the user had personalized them. These products express the user's identity and can distinguish a person from another.

With the development of research, these objects formed the category of Emotional Design called Design & Self-expression. "From the standpoint of self-expression, the design should express 'exactly what we want' and this includes products that can be individualized and processed according to the occasion and will of the user" (Santos, 2010).

Product personalization

According Blom (2000), the personalization of a product is a process that changes the functionality, interface, information content, or distinctiveness of a system to increase its personal relevance to an individual. When you personalize a product, you give to the artifact individual characteristics of your personality and that makes it unique.

We identified a close relationship between self-expression and emotional attachment, studying Mugge (2007). According to the author, for personalizing a product's appearance the consumer must invest directly time, effort, and attention to the product. In other words, the consumer invests energy on it. And because of that, this artifact is going to have more value to the user if compared to another object that has not gone through all this process.

Analyzing the relationship between personalizing and emotional attachment, Mugge (2007) reflects on the most common way of personalization, customization. The author defends that customized products do not have a truly individualistic touch, because the

consumer cannot make any *creative* alterations during the personalization process. According to her, customization merely increases consumers' choice in alternatives.

The personalized product becomes a form of expression, because it is laden with symbolic value, showing a person to itself and to the others, building and maintaining a personal identity. In this case, the artifact that allows the user interference is in line with the ideas of anthropology of consumption that sees the consumption ratio as a way of developing an identity.

Anthropology of Consumption

Man is essentially a cultural being. Culture is "second nature" of an individual, is a condition that he has little chance of escaping. Just like he can not escape from his biological nature. (Cuche, 2002). Everardo Rocha presents this "second nature" through the use of totemism, but attributing it only to modern society. The "totemism" is a classification system to assign a culture to nature. "When a social group - a 'clan' - was identified with an animal or a plant, close connections were established with this animal or planet. This would also distinguish it from another group" (Rocha, 1985: 104).

Totemism is understood as a conceptual system (Rocha, 1985). So we can not attribute nature characteristics to a clan. The same is done with the men, through objects consumed. These objects give identity and cultural characteristics to societies and individuals (Rocha, 1985). The totemical mechanism articulates the differences between natural and cultural (Rocha, 1985). The "totemism" allows that the opposites look like complementary and the equals, different (Rocha, 1985).

We adopt in this article Levi-Strauss's theory of culture. The culture is understood as a symbolic language: "Every culture is a set of symbolic systems as: language, rules of marriage, economic relations, art, science, religion. All these systems seek to express certain aspects of physical reality and social reality, and the relationships that both kinds of reality establish with each other and with others symbolic systems." (APUC Cuche, 2002: 95)

A language can influence a culture, and also be influenced by it. An interdependent communication always happens unconsciously inside the community. And this language called culture has two phases in a man's socialization. The primary one occurs in the childhood; and the second one, during all the adult life. The human being has two "natures", the biological and the cultural, because in both of them he is unconsciously influenced, and can not escape of them. Thus, social phenomena are cultural as well, and can be regarded as a symbolic phenomenon. Culture is a living organism that is always changing. According to Margaret Mead, that occurs because the culture creators transmit and transform it constantly (Cush 2002). These different cultures can be understood as a cosmos, in which multiple universes live harmoniously in a system of continuous exchange. Men make the transformations in the cultural universes, but they only are aware of their identities. "Man knows only what is necessary to understand the different status of his culture (sex, age, social condition, etc.) and with that, understand his role in society". (Cuche, 2002: 84). Culture complements identity. While the first is

an unconscious process, the second is conscious. Culture is inclusion and exclusion at the same time and that establish social and symbolic boundaries between 'them' and 'us' (Cuche, 2002). Because while the identity is used to find people with the same point of view it also serves to exclude them from other groups. "In this perspective, cultural identity is a method to categorize the distinction we / they, based on cultural difference"(Cuche, 2002: 177).

The identity is hybrid, multicultural and is influenced by many cultures. Is the result of interactions of many groups (Cuche, 2002). "The identity works like Russian Matryoshka dolls, conceived of as concentric circles one inside the next" (Simon, 1979, p.31). But despite being multidimensional, the identity does not lose its unit (Cuche, 2002: 195). "Identity is what is at stake in social struggles" (Cuche, 2002:185). It is a mechanism that makes a group consciously to claim a brand, and her differences to the other groups. "The culture depends largely on unconscious processes. The identity refers to a binding norm, necessarily conscious, based on symbolic oppositions. "(Cuche, 2002: 176)

"The social identity of an individual is characterized by the set of his relations in a social system such as gender, age, social class, nation. The identity helps the individual to be located in a social system and also be socially located." (Cuche, 2002: 177)

So now that we know a little bit more about the concepts: culture and identity, we can talk about consumption. Both culture and identity are related to the act of consuming. "Therefore, we can say that products and services talk to each other, talk to us and talk about us" (Rocha, 2006: 31). The act of consumption is a cultural act (Barbosa, 2008) that helps in the construction of identities. We consume having in mind elements of material culture and that generates identity affirmation, differentiation, inclusion and social exclusion.

"The consumption is a system that classifies goods and identities, things and people, differences and similarities in contemporary social life" (Rocha, 2006: 31). Consumption leads to the construction of lifestyles, a way of self-expression, a personal style and a self-awareness (Barbosa, 2008). "The objects and the goods are used as cultural signs to produce significant effects in a given context"(Barbosa, 2008: 23). The construction of identity is related to what Livia Barbosa, calls "empire of self ethics":

Now my choice is the criteria for the purchase of anything. It is the empire of self ethics, in which each of us becomes the arbiter of our own choices and have sufficient legitimacy to create our own fashion according to our aesthetic sense and comfort." (Barbosa, 2008: 22)

Thinking about this, design is related to consumption and identity creation. Self-expression is a behavior of a Western culture, is the answer to our quest for differentiation. When we design by our own hand, we give uniqueness to the product. We attribute signs and meanings to consumer's self-expression. It's totemism".

Examples of Design & Self-expression

To better understand the products that allow users' self-expression, we conducted a survey of objects already on the market. From its analysis and identification of similarities, we started to outline a methodology projectual for the development of self-expressive products. Below some examples of this category:



Image 1- Tangran http://4.bp.blogspot.com/_a98-deJzt_M/S0S_jo6DmNI/AAAAAAAAAF4/D8oCnrHvekk/s1600-h/Tangram+%28decora%C3%A7%C3%A3o%291.jpg accessed 26 october 2009

The shelf Tangran developed by the italian designer Daniele Lago has seven geometric pieces. Combined they can produce many shapes and positions in accordance with the wishes and needs of the user.



Image 2- More furniture system
<http://www.caporasodesign.it/eng/More.html>
Accessed 18 november 2009.

“MORE” furniture system, developed by Giorgio Caporaso, allows different combinations of modules and functions, and hence different forms according to the wishes and needs of its users.



Image 3-Verb

<http://www.criadesignblog.pop.com.br/tag/marlon+darbeau> Accessed 18 november 2009.

Created by designer Marlon Darbeau, Verb is an object composed of three interchangeable parts. It assumes many roles according to the user's desire. It may be a desk, a lamp, a bench, a bookcase, or an object of decoration.



Moldable Mouse

<http://poliuretano.wordpress.com/2008/01/31/mouse-moldavel-feito-de-poliuretano/> accessed 3 june 2010

The Lite-On's Moldable Mouse is a conceptual project that proposes the use of composite materials (clay, nylon and polyurethane). The user can shape its contours to whatever form he desires.



Image 4- Do hit Chair, Do Scratch Lamp, Do Break

<http://boingboing.net/2008/05/02/droogs-do-hit-chair.html>

<http://dailypoetics.typepad.com/.shared/image.html?/photos/uncategorized/2007/09/13/277605de13b36.jpg> <http://www.droog.com/projects/events/do-create-on-location/do-break-by-frank-tjepkema---peter-van-der-jagt/> accessed 3 june 2010

<http://boingboing.net/2008/05/02/droogs-do-hit-chair.html>

<http://dailypoetics.typepad.com/.shared/image.html?/photos/uncategorized/2007/09/13/277605de13b36.jpg> <http://www.droog.com/projects/events/do-create-on-location/do-break-by-frank-tjepkema---peter-van-der-jagt/> **accessed 3 june 2010**

The project "Do Create" created by the dutch company Droog Design, offers some products that aim to promote the "personal production" and encourages the user to interact, play and interfere in the final shape of the object.



Image 2- Color in Dress <http://www.ecouterre.com/diy-colour-in-dress-is-a-coloring-book-you-can-wear/> accessed 28 december 2010

The Color in Dress was a dress created by the designers Soepboer Berber and Michiel Schuurman, which allow the user to color the pattern, creating different and unique clothes.

Analysis

Analyzing the examples above, we understood that there are different ways to develop a product that allows the user interference. The first three examples have the same essence: modules or interchangeable parts. The shelf Tangran and More are composed

of modules that can be organized by the user. Verb, in turn, has interchangeable parts that when combined form and interfere with the function of the artifact.

The Lite-On's mouse is malleable and allows the user interference. The moldability concept is present on two products of the project Do Create "Do Hit Chair" and "The Break"(Figures 6 and 7, respectively). In all these examples, the materiality of the artifact is presented to the user. So, he can make necessary interferences, without being tied to presets.

Another way of personalization explored was the change of the product's interface, as illustrated in Figures 7 and 9. In both projects, the user is invited to participate in the creation of the product without necessarily interfering in form or function, but in the image that the object would be presenting. In the case of " Do Scratch Lamp", the operation of the device is subject to interference, only when the user scratches the black part, the light illuminates the place. The dress "Color in Dress" has different patterns according to visual interpretation of the user.

Methodological insights

After analysis of these and other examples of artifacts that allow self-expression, we believe that is important to consider the concepts of moldability, modularity, interchangeability and interactive interfaces to develop a project that stimulates the expressivity. We understand that the product needs to invite the user to manipulate and transform it, and these concepts can make a simple artifact an object that invites interaction.

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Acknowledgments

We have expressed our sincere thanks to our academic advisor and all the people who belong to Labmemo group, by encouraging the development of the research, support, and valuable discussions. Without them this work would never be possible to be realized.

Nomadism

DESIGNING VISUAL NARRATIVES FOR HEAVY METAL BANDS

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Abstract

The paper presents a study that explores how visual narratives are created in the music industry. Focus is on the genre of heavy metal characterized by rich visual symbolism, in general, and on a number of case bands selected for analysis, in particular. The aim is to identify the key factors underlying and driving the intentions of artists and designers when they create visual artifacts for their bands; and highlight these drivers through selected case examples. Data is collected through three major methods: (1) qualitative semi-structured interviews with band representatives as well as graphic designers and visual artists working for them, (2) analyses of bands' visual artifacts, and (3) observations in concerts.

The paper identifies a construction of two higher level “intent categories” (endogenous and exogenous) encompassing six lower level sub-categories that seem to outline the visual narration practices of the studied case bands. These interrelated categories highlight that design intents and expressions are dictated both by artistic (endogenous) volition and commercial (exogenous) imperatives. The relative occurrence of different intent categories varies from a case to another, revealing different communication strategies and histories, often in accordance to the bands' accumulated recognition and market success.

The narrative process is somewhat similar to more “traditional” design industries, but the weight of exogenous drivers and is bigger and creative freedom higher in such a cultural industry. However, the paper presents a framework and analysis that are relevant to the field of design in general. To tackle the conference themes, the paper contributes to the discussion of “*design's redefined and expanding territories*” and “*design actively searching for new areas and tools of expertise*”.

1. Introduction

The field of popular music has always involved a strong visual component. Album cover art, posters and other print media, stage design of concerts, and other visual artifacts are used to support the musical contents and narratives of the bands and artists. Such artifacts can co-create meanings in sync with different tonal, structural, lyrical and other components of the music itself or even act as self-standing pieces of art creating

additional meanings to the band concept. The artists and their stakeholders can use these visual artifacts as intentional media to transfer specific meanings for their current and potential fans, build awareness and recognition within the music field in general or in some specific sub-category. With the help of visual expressions, bands can thus foster a recognized and meaningful narrative, in a similar fashion than “design for branding” is comprehended in many other industries. In the eyes of a music fan, the visual dimension often plays a significant role in the holistic experience when music is being consumed.

As the music industry is going through drastic changes in terms of new delivery channels and practices, the visual dimension is arguably gaining even more importance. Building recognition is getting increasingly important, as the bands are facing an increasingly growing competition in the rapidly changing global music industry. Many artists and bands are struggling to come up with new means of appealing their potential fans, and keep the existing ones attached.

Despite its evident relevance, the practice of design and visual communication within the context of music production is surprisingly little studied in the academia. Strategic communication of the brand intent as well as creation and management of brand values and equity through distinctive and meaningful design features has yet been the key interest of practitioners and academics [4][5][9][12][16][18] but no major attempts have been made to explore this topic in the music industry.

In those “traditional” contexts, numerous studies have shown how design and visual references can be used as a cue to help consumers relate products at hand to other products that they have previously seen and used and that represent specific brand style, periodic style, life style, or other category [4][5][10][15][17]. Such knowledge is applicable, yet has to be modified, to the context of popular music. As a specific category of popular music, creation of symbolic value through narrative concepts and visual identity has been a notable element for several bands in the area of heavy metal and hard rock. This category is particularly rich in visual and symbolic meanings and, therefore, provides a fruitful ground for studies on the role of visual identity and the mechanism of symbolic meaning creation.

2. The study

Meaning creation in the case of heavy metal bands is explored within the BogFires research project (2008-2012) in the Aalto University in Helsinki, Finland. The project comprises three main areas of inquiry, of which a part titled “contents, concepts, and brands” is one. The purpose of this part is to identify the instrumental, aesthetic and symbolic mechanisms in Finnish metal, with a focus on understanding the interaction of the various band-specific and collective strategies at play. In more concrete terms, the study explores how band (brand) concepts are built in the music industry, within the genre of heavy metal in specific, and how they become manifest in the musical and visual offerings of the bands.

The paper at hand presents, in particular, an attempt to outline and identify the key factors driving the intentions (as well as designers and visual artists they work with) that underlie the visual artifacts and narratives of the bands. The paper suggests six “intent categories” that are derived from initial analyses of the numerous case studies of the

BogFires project. Intentions and intent categories in altering formats have been discussed in our previous publications [6][7][8], and this paper develops this category construction a step further by classifying a number of case bands into these categories.

Data is being collected through a number of case studies, concerning the most notable Finnish metal bands in international markets, other influential Finnish bands in the field and a complementary collection of certain foreign bands. Tentative results from 14 cases are presented in the paper. However, data collection and analysis is not yet complete in any of these cases, and even more cases are under scrutiny in the project.

Data is collected through three major methods: (1) qualitative semi-structured interviews with band representatives as well as graphic designers and visual artists working for them, (2) analyses of bands' visual artifacts, and (3) observations in concerts. Supporting data such as through expert and fan interviews and explorations of music media and other secondary materials has also been used. Textual and visual materials are then explored and organized through qualitative procedures to identify the communicative intent of the bands, as tentatively presented in this paper, and various visual artifacts expressing the intent.

3. Intentional communication

Communication, in general, may occur as an intentional (conscious) or unintentional (un- or subconscious) act. In this study, the focus is deliberately on intentional communication, on choices that are made with a specific purpose in mind. Such an intentional view highlights design as a strategic activity, concerned with how things ought to be, and devising artifacts to attain goals [14].

As a generic approach within the context of intentional communication, our case bands are explored through the basic product communication model that has been used in various applications in design research and related areas (for an overview, see [2]). The model distinguishes three main parts in the (process) of communication: intent, media, and response, as presented in figure 1. Within this framework, design thus functions as an intentional medium having a strategic, goal-oriented character.



Figure 1 – The generic process of communication used in the study.

This paper aims to explore and outline the construction of the communicative intent through selected case studies in the field of popular music and heavy metal genre in specific. The intent is the initial ground of the communicative process and lays the foundation of intentional meanings that are then communicated to the external world through various media. The holistic experience of music consists of numerous artifacts the bands and their various stakeholders produce.

Intentional meanings are, of course, mediated by the various elements of the music itself; its individual tonal, structural and lyrical elements and their total gestalt composition. The aesthetic experience of music has yet its psychological, auditory, physiological, sensorial, even neural dimensions, both emotional and cognitive, but the symbolic and social dimension is always strongly present (for a comprehensive review of various psychological and social dimensions of music, see e.g. [3][11]). Richness of symbolic, “external”, meanings is attached to specific music styles and their various conventions as well as to the specific artist or band that is performing the music.

4. Intent categories

Through the analyses of interviews conducted and other material collected to date in the BogFires project, numerous reasons for intentional choices for visual artifacts have emerged. On the higher level, there appear two principal categories that highlight the dual nature of communication in the field of music, balancing between the artistic volition and commercial imperatives:

- (1) Endogenous categories in which the intent primarily seems to reflect the artistic concept of the band, from within, and
- (2) exogenous categories with the intent to address external “competition” by building recognition and reinforcing differentiation or resemblance in comparison to other bands and the visual conventions and traditions of the genre.

These higher level categories may be further divided into lower level sub-categories that appear in the case data. When justifying their choices on visual communication, musicians and visual artists naturally have various case-specific intentions, but six generic themes (intent categories) have been repeated. These are summarized in figure 2.

Exogenous			Endogenous		
Personal Ideology	Band Narrative	Cultural Context	Heavy Metal Symbolics	Sub-Genre Codes	Visual Identity

Figure 2 – Intent categories emerging in the study.

Exogenous communication

Strong personal ideology of the establishing member(s) and other stakeholders is the starting point and reason for existence for most bands, and also intentional driver for many choices in terms of the band’s visual appearance. The initial reason to create and play music may range from expressing personal feelings, telling personal stories, to

transmitting political, social, and other messages, or simply to the idea of having fun and play music with friends.

Personal ideology may be transferred rather directly to the whole concept of the band. In many cases, however, the “big idea” behind the band concept, or a particular narrative of a particular album or other deliverable by the band, has its own communicative intent. Certain visual references are then used to reflect such narrative. Some bands appear more consistent than others in regard to their band narrative and its’ visual expressions across different deliverables.

The cultural context or national background of the band and its’ members is a specific category of interest in our project that investigates, as the large theme, the internationalization of Finnish metal bands and the construction of the “Finnish metal” phenomenon. Cultural context primarily functions as an exogenous, and often unconscious, driver behind communication, but many bands use the cultural context also as a strong endogenous driver. For example many Finnish bands, as will be discussed in the next chapter, use explicit references to communicate their Finnish background by utilizing the characteristics and stereotypes connected to Finland and Finnish metal bands. For this reason, the sub-category of cultural context is placed in the intersection of exogenous and endogenous categories in figure 2.

Endogenous communication

Having said this, this division is naturally a conceptual construction, and all the sub-categories are interrelated and encompass both exogenous and endogenous intentions. However, the division highlights the occurrence of categories as they are generally argued by studied bands either as exogenous (with an intent to express the “inside-out” artistic volition) or endogenous (with an “outside-in” intent to respond to external needs, commercial or positioning-related) in their very nature.

To address the competition in terms of fan recognition and attention, many of the studied bands have articulated strong intentions either to create visual resemblance or reinforce differentiation in relation to other bands and their visual appearances as well as specific visual “codes” of the genre in which they are positioned. By using visual references intentionally, bands can partly manage the recognition and meanings their audience and music media attach to them. By visual referencing, they may transfer symbolic meanings from a specific genre or try to differentiate themselves from that genre. Many bands seem to be very conscious about their choices; do they really want to be visually identified as a heavy metal band, in general, or a power metal band, progressive metal, or a representative of some other sub-genre.

The visual culture and traditions of heavy metal and its numerous sub-categories is particularly rich in visual communication. The genre has a 40 years long history, with various sub-genres and bands emerging and fading out (see e.g. [1][13]). The music and its culture have been strong and prevailing, and also documented as an important cultural phenomenon [19], with immense reserves of visual symbols.

Categorizations of bands and definitions of music genres play an important role in the popular music discourse, and they are particularly debated within heavy metal by media

and fans. Genre categorization is a means to structure the band concept by building references to other bands with the same kind of music style, or counter references to highlight difference from them. Genre definitions are based on the music style (tone, speed, complexity, use of instruments, vocal style, etc), song structure and complexity, lyrical themes, and as a particular area of interest in this study: visual features and styles. The number and list of sub-genres varies: two acclaimed books [1][13] characterize 20 and 30 categories, respectively, and it is easy to name a whole number of others used in the discussion of the field.

As the sixth sub-category, that of visual identity, concerns the intent to create and nurture, a distinctive and self-standing identity over different visual artifacts and subsequent albums of the band. Such intent could also be argued to follow or precede the other five categories, but the bands strongly regard a distinctive and recognized identity as a virtue of its own. Visual communication may not always be intentionally designed to correspond to any genre styles or cultural context directly, but to create strong and recognizable endogenous identity that creates and maintains a visual narrative of its own specific nature. A strong visual identity and its expressions have potential to create interest among the target audience, pop-up in the music store, on the web-page, and within other visually dictated encounters that a person has with the band.

It seems that bands on different stages of their careers stress different intents, and categories evolve throughout the time. Larger and well-known and, therefore, usually more commercially successful bands put generally more stress on the endogenous intents than newer and smaller bands. Nonetheless, it is suggested that a strong and articulated exogenous intent, particularly in terms of a distinctive band narrative, is an important prerequisite for long-term acknowledgement and success. Integrity, honesty, and overall significance of the band's artistic concept are important aspects for the loyal fans of the band.

5. Review of the case bands

Finally, a brief review of analyzed case bands is provided in the light of the above listed categories. The intent categories result from an initial and partly rough scrutiny of the bands' communicative strategies. All data has not been thoroughly analyzed and data collection is still in-progress in all of these cases, and even more cases are under scrutiny in the project. Therefore, intent emphases, as presented in figure 3, as well as the categories themselves are tentative and subject to change. The aim is neither to provide comparative analysis of the bands in exact measure. Moreover, the intent varies over time and in different contexts even within one case band. The purpose of this paper is, in addition to outline the intent categories of visual communication in these case per se, to provide an overview of how the analyzed bands have accented these categories.

In the figure, strong intent of the analyzed band in the respective sub-category is marked with a black dot, and weak intent with a white dot. In the latter case, the intent is acknowledged as significant but not as a strong or main driver of visual communication. A line depicts that the sub-category is not deemed particularly relevant in the case. An X marks that the band has "counteract" intent to oppose or to break away from the visual references of that category. The band may have a strong intent to create visual artifacts that underline that it does not want to keep up with the visual tradition and

codes of heavy metal, a particular sub-category and their visual “codes”, or of a particular cultural context (like Finnish background). If strong intent does not occur in these categories, it may be compensated with strong band-specific visual identity (sub-category six).

	PI	BN	CC	HM	SG	VI
Nightwish	●	●	○	○	○	○
HIM	●	●	○	×	●	●
Amorphis	○	●	●	○	○	●
Sonata Arctica	○	○	●	○	○	○
Mokoma	○	○	●	×	×	●
Stam1na	○	○	○	—	—	●
Children of Bodom	○	○	○	○	○	○
Insomnium	○	○	○	○	○	○
Ghost Brigade	○	○	—	×	—	○
Swallow the Sun	○	○	—	—	○	○
Dark Tranquillity	○	○	—	×	○	○
Dream Theater	○	●	—	○	●	○
Tool	○	●	—	—	○	●
Bigelf	○	○	—	—	○	○

strong intent	●
weak intent	○
no intent	—
counteract	×

Figure 3 – Overview of the case bands in terms of the intent categories.

To briefly illustrate the categories, a few examples may be picked from the cases. Nightwish and HIM, the big names of Finnish metal in many international markets, are good examples of personal ideology as the strong intent and starting point for the whole band. Tuomas Holopainen of Nightwish has translated his ideology of “escapism” into the coherent fantasy-motivated and scenic visual communication of the band. Ville Valo, in turn, has acted as the main architect of the “love metal” narrative of HIM, cleverly expressed for example through their logo called Heartagram. With this logo and other strong graphical element, HIM has managed to create a distinctive and prevailing visual identity.

Other good examples from the visual intent category are the nationally recognized Finnish metal bands Stam1na with its powerful tooth logo and Mokoma with the unique graphical designs by graphic designer, artist and cartoonist Ville Pirinen. The motives of Pirinen, as well as the entire narrative of Mokoma, are derived from the Finnish nature, traditions and mental atmosphere. The Finnish background as a strong intentional component is also used, yet in a visually different manner, by Sonata Arctica and Amorphis. In the Amorphis case, the entire band concept and their various musical and visual references are built around Kalevala, the national epic of Finland. Finnish Ghost Brigade and Swedish Dark Tranquillity, are good examples of bands that use visual

design elements partly to reinforce deliberate detachment from heavy metal and genre-specific visual conventions. Examples of cover art of the case bands are included in figure 4.



Figure 4 – Examples of cover art of the case bands (from upper row left): Century Child album by Nightwish, Love Metal album by HIM, Silent Waters album by Amorphis, The Last Amazing Grays single by Sonata Arctica, Juurta Jaksain EP by Mokoma, Raja album by Stam 1na, Hatebreeder album by Children of Bodom, Across the Dark album by Insomnium, Isolation Songs album by Ghost Brigade, New Moon album by Swallow the Sun, Fiction album by Dark Tranquillity, Black Clouds and Silver Linings album by Dream Theater, 10 000 Days album by Tool, Hex album by Bigelf.

5. Concluding remarks

The paper has presented an exploration of designing visual narratives in the music industry. It suggested a construction of “intent categories” (endogenous and exogenous) encompassing six lower level sub-categories. These categories seem to outline the visual narration practices of the case bands that were studied. Moreover, a brief review of the studied heavy metal bands was presented in the light of these categories.

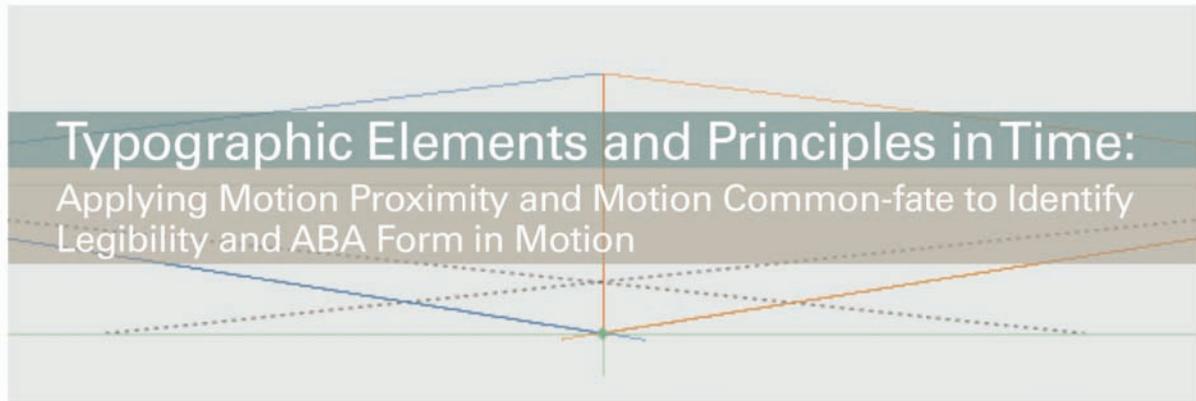
The BogFires project encompasses more detailed analyses and extensive qualitative descriptions of the case bands; their visual and musical narratives, communicative strategies, and visual design in terms of the holistic “gestalt” appearance and specific “signature elements”. These developments will be reported in future publications. As a specific topic, and a particularly interesting one from the design point of view, concerns the process of creating the visual representations. This occurs in interaction between the musicians in the band, their stakeholders, and the visual artist and graphic designers used by the band. The cases have revealed a number of different practices that need to be further explored.

Music industry has its own specific characteristics, and consumption of music differs fundamentally from that of many other products. Nonetheless, it seems that the narrative process and intent categories that occur in this study are somewhat similar to more “traditional” design industries. The weight of exogenous categories may be bigger and artistic volition higher in this field, but the issues this paper presents may be relevant to the field of design more generally as well.

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Abstract

This research aims to deliver useful thoughts on motion design with emphasis on typographic animation on screen by the assessment of gestalts motion. Two typographic design principles—legibility and ABA form are investigated to identify the values in a new dimension—time. Two motion gestalt grouping principles—motion proximity and motion common-fate are applied to demonstrate the assumptions. The research identifies: 1) legibility in time as the quality of movement for literal interpretation in terms of “coupling” movement form and its meaning by the keen control of interval or ISI (Internal Stimulus Interval), and 2) ABA form in time as the manner structuring multiple dynamic objects and trajectories for a natural emergent feature representing regular rhythmic balance by the replication of a cycle in a regular period time and in a variation for contrast or accentuation.

Introduction

“Most communication design and its education have focused on singular time-based events in two-dimensional space. Now time sequences, not necessarily a full-fledged film, are important; it becomes important to teach an understanding of time and to investigate how time is interpreted.” [8]

Motion is largely under researched, yet it is recognized as an important component for screen design and as a four-dimensional design element in addition to the design elements such as shape, color, and space. The purpose of this research is to discuss a systematic way to bring time (motion exists in time) into typographic design systems in support of space-time typography. The discussion provides two motion gestalt grouping principles [4] as a

functional cue for two typographic principles and explorations in time; this is similar to using gestalt grouping principles as practical guidelines for typographic design in space only.

This research does not argue the nature of time, but provides some descriptive studies of time useful in the practice of visual motion in relation to an interpretive aspect by viewers. For instance, we experience motion on screen when a constant progression in speed and direction of stimuli are produced. Thus, nothing exists in the past for the motion itself, it appears and ends continuously. Motion can be divided by time frames that consist of externalized shapes and internalized speed and directions for expectation of future development in terms of interpretation by eyes.

Motion Gestalt [4] deals with interpretation on motion by human's eyes. It extends the explanations of visual motion from cognitive sciences in which the viewers create 'meaning' from the real mechanics of visual attributes. This research revisits two motion gestalt grouping principles—motion proximity and motion common-fate in action to identify two typographic design principles—legibility and ABA form in time. The research designates “the quality of visual stimuli as literal meaning of content by frequencies and regularities for most optimal movement behaviors executed by motion proximity for legibility in time”, and “an engagement as structural interplay by the repetition of movement pattern initiated, creating a parallel sequence over time executed by motion common-fate for ABA form in time”.

Typographic Design in Time and Motion Gestalt Grouping Principles

“Without Typography, our modern communications would be unthinkable. The New Typography enriched by dynamic movement, provides an opportunity to make our communications even more effective, expressive, and engaging than ever.” [12]

Typography and motion is now commonplace and is also extensively used in TV advertising where its ability to convey emotive content and direct the user's attention is generally a good match with the goals of advertising [6].

Motion has a wide range of different expressions as well as typography; therefore typography in motion needs specific supports for typographic manipulation in time. Research for technical supports to create kinetic typography include the range of expressive techniques useful for animating moving typographic forms [6]. The research on expression of emotion as a central use of kinetic typography stated that kinetic typography could reinforce or temper emotive content already present. The research presented the category of portraying movements, and implemented techniques of major categories by computer programming.

Concerning psychology and computer science for motion in terms of visual perception, Rensink discussed attention and virtual representations for the dynamic representations of

scenes in which logical inferences rather than structural connections are emphasized:

“Two adjacent structures are spatially coherent if they refer to the same object, extended over space. Likewise, two successive structures are temporally coherent if they refer to the same object, extended over time.” [8]

Finally, Simons and Rensink made a contribution to distinguish the definitions between motion perception, change perception and difference perception through the investigation of change blindness, They claimed that:

“Motion perception is the detection of unorganized flow at a location, change perception as the detection of ongoing transformation of a structured object and difference perception as an inferential comparison of the current stimulus with traces of long-term memories.” [10]

While the clarification supports understanding mechanisms of perception in motion, concerning visual communication design, it evokes a question about applications of the account at the same time. That is, designers are concerned with coherent outputs that reflect specialized requirements for a communication emphasis using hypothetical notions of motion perception, change perception and difference perception to make and use these identifications for their visual emphasis.

Gestalt [11] asks for good possibilities rather than factual exactness, and Motion Gestalt is an extended notion of Gestalt concerning the dimension of time on screen. It is about an inevitable phenomenon as what we are looking at, listening to, and thinking of. Designers need to know “what” people see as an interpretation of the visual world rather than “how” people see it as a mechanism of the visual world.

In this regard, this research exemplifies two motion gestalt grouping principles testing the theory in action. It begins by outlining definitions by careful understanding on the original notions and specializes a guideline based on the examples that demonstrate theoretical ideas in practice.

This research concerns two useful typographic design attributes—legibility and ABA form. Finally, questions are:

“How can typographic information as literal meaning be identified by motion behaviors cohesive to the written information as legibility in time?” And ***“What will be an influential motion principle that can create legibility in time?”***

“How can typographic engagement as structural interplay be identified that it makes multiple motion events that are ordered and clarified as ABA form in time?” And ***“What will be an influential motion principle that can help to create ABA form in time?”***

Methodology

The research combines needs and resources as a research method to develop the application of motion gestalt grouping principles into space-time typography. The following is the process: (1) two-dimensional examples based on typographic assessments are created, (2) the level of grouping and clarity is accessed, (3) motion gestalt grouping principles are revisited, (4) motion gestalt grouping principles are verbally inferred based on the potential evaluation in the step 2, and (5) motion attributes such as direction, speed, blink, and pause are designed with typographic assessments based on the potential inferences of the step 4. See the following figure.

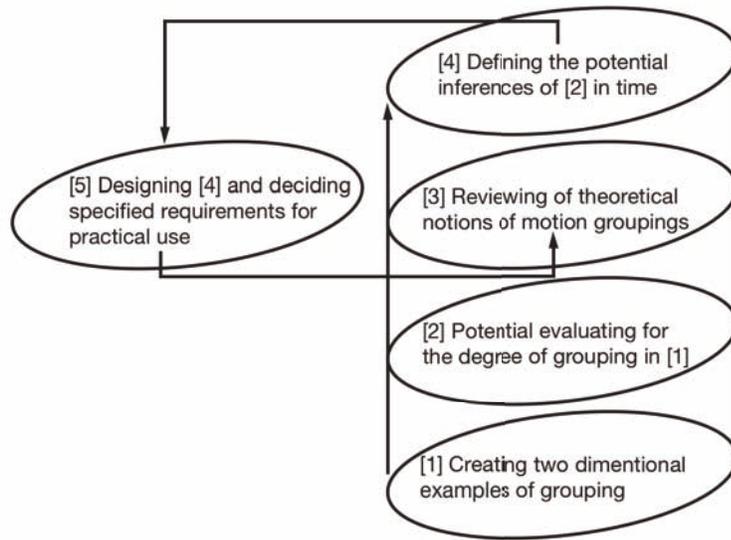


Figure 1 - A process for developing an application of motion grouping principles

For example, motion proximity is applied within three categories in which implications and possibilities of applications of the principle to the range of legibility in time are presented. The first type of legibility in time is presented as consisting of a part or element of regular features in the motion behavior (see Ex. 2 in Fig. 2). Sequencing a natural transition and/or transformation in addition to smoother movement than the first type of legibility in time by shorter ISI follows (see Ex. 3 in Fig. 2). The third type of legibility in time represents visual motion as it progresses through irregularities and/or inconsistent intervals of time (see Ex.1 in Fig. 2).

Grouping Principle	Grouping examples by proximity		
	Ex. 1	Ex. 2	Ex. 3
Dimensions			
Proximity in space	a m	a m	a m
	e i	e i	e i
	b f j n	b f j n	b e i n
	g k o	g k o	f j o
h l	h l	g k o	
d p	d p	d p	
Assessment	Letters "e, f, g, h, i, j, k, & l are grouped, and random in arrangement to create a shape by the grouping.	Letters "e, f, g, h, i, j, k, & l are grouped, and regular in arrangement to create a shape by the grouping.	Letters "e, f, g, h, i, j, k, & l are grouped. They are regular in arrangement, and distinguished from others to create shape by the grouping
Possible inferences to apply motion proximity into legibility in time	Intervals with irregularities & inconsistencies to create "a random movement" in time	Constant intervals with regularities to create "a natural movement" in time	Constant intervals with regularities & higher frequencies to create "a more realistic movement" or "most optimal movement" in time

Figure 2 - Grouping examples by proximity are represented to apply motion proximity to legibility in time

For example, in experiments, Ex.1 and Ex. 3 from the above captioned legibility in time are created for this research, thus the two examples of legibility in time are compared to discuss which is more natural and optimal to interpret the motion event in relation to legible motion. Finally, this research will reveal motion behaviors as it increases viewers' interpretation, requiring less energy to consider legibility in time.

Typographic Elements and Principles in Time

In the following explorations, definitions are offered; motion gestalt grouping principles are revisited which behave the similar role to legibility and ABA form; examples are offered, and finally typographic explorations in time conclude the discussion. Storyboards and graphs of motion and statements synthesize the author's position.

1. Legibility in Time

Legibility and readability are primary functions for successful typographic design. Legibility is referred by the qualities of typographic attributes such as a letter, letterforms, a word, letter/word spacing, weight, justification, paragraph, and grid. Readability is referred by a viewer's ability to read and comprehend the body of work. Often these attributes are

□

used complementarily in that the most legible letterforms could be unreadable if the size is too small or inter-letter spacing is inappropriate.

This paper presents two examples; the characteristics of letters and inter-word spacing to argue what is essential in legibility with regard to translating its function to motion. Carter and Day [2] stated, in spite of the innumerable variations of size, proportion, weight, and elaboration in letterform design, the basic structure of each letterform must remain the same. In extension of Carter's example, the capital J is characterized by the tail of the letter (see Fig. 3).



Figure 3 - As the tail of the letter J grows to become the stroke of the letter U, the reader does not easily decipher the intermediate form.

Specifying the space of letters and words has significant influence to legibility. If the spacing is not identified—too close, or too open, letters and words cannot produce meaningful interaction with viewers (see Figure 4). Spacing is used as an important element for particular typographic presentation as well as its functional aspect for readability. However poor letter spacing can cause discordant presentations and is therefore a problem.



Figure 4 - Three examples of spacing. Ex.1 is spacey; Ex. 2 is irregular, and Ex. 3 is overly close. Optimal spacing is dependent upon a particular purpose of the typographic performance, yet it has to be meaningful and related.

In essence, legibility in two-dimensional typography represents inherent and cohesive typographic communication for a reader to comprehend written forms with least amount of difficulty.

Translating the concept of legibility from spatial relation only to motion, representing smoother and realistic movement—Motion Proximity [4], [5] is introduced. Legibility and motion proximity both concern the quality of features in terms of function. Motion proximity necessarily discusses the intervals of time, a key component of motion to control,

□

for frequent and regular occurrences in which optimal movement can be produced. It is created by more numbers of individual frames presenting consecutive movements of an event to deliver natural motion behaviors for the event. It helps a viewer's ability to comprehend the motion with less energy.

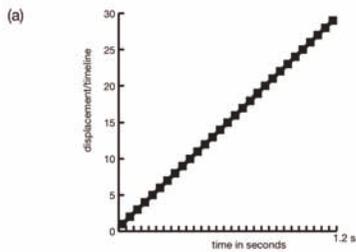
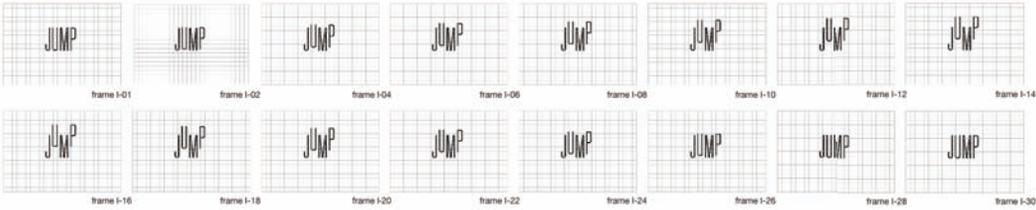
Imagine the typographic event presenting “jump” in motion for example. Beyond the numerical possibilities of expressive typographic solutions with “jump” as a verbal-visual vocabulary in two-dimensions, we design the word to express the meaning in time. The capitals of “j”, “u”, “m”, and “p” are arranged linearly. The letters “u” and “p” transit position to the top with identifiable, frequent, and regular movement. They move up and move down to arrange the original display with the same motion proximity as when they move up. The second example is compared with the first motion event in terms of motion proximity. The concept of movement is the same, but the letters in movement have different motion proximity—the frequency and regularity of the movement. It is irregular and less frequent in the upward and downward.

“What are the two letters doing?” It jumps in the first design, however, the jumping is disturbed by the choppy and irregular sequence of progressions in the second design. This research asks what viewers will see in interpreting the whole body of movement for “jump” by the two examples of design. Motion proximity helps more natural and cohesive movement with less energy to catch up the meaning while the irregularity and choppiness damage or fail the concept of motion. Legibility concerns the quality of created image toward cohesiveness. The research identifies legibility in time as ***the quality of movement for literal interpretation in terms of “coupling” movement form and its meaning***, and suggests ***the application of motion proximity as a useful motion principle in relation to legible motion***—more figurative and representational motion by reality, achieved by ***the keen control of interval or Internal Stimulus Interval (ISI)***. Motion proximity improves movement meaning and information with regard to “legible motion”. See storyboards and graphs following.

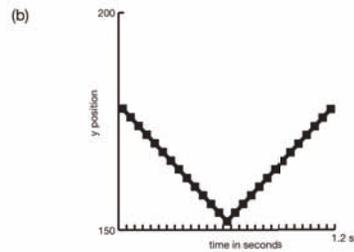
The optimal proximity in motion, as an art, of course, is not absolute. Therefore, information derived from this research should be considered only as a guideline.

Stimuli & Description. The capital of “J” “U” “M” and “P” in 550 (width) pixel * 450 (height) pixel document of the Adobe Flash CSS. All letters are Univers LT Std 39 Thin Ultra Condensed. The color of all letters are solid black. The background color is solid white. Speed and direction are the same for both Motion Storyboard 1 and 2. The motion lasts 1.2 seconds. Frame per second (fps) is 24.0, and the total number of frames is 30.

Motion Storyboard I. The sequence of motion event for “jump”. The letter “u” and “p” are moving up and down through the entire procedure (frame I-01 to frame I-30), and they are consecutive in movement (a). The motion proximity of the movement is the same when the letter “u” and “p” moves up and down (b).

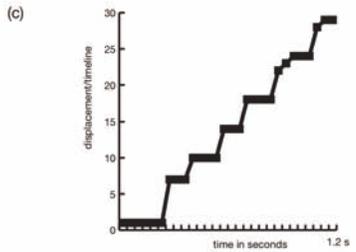
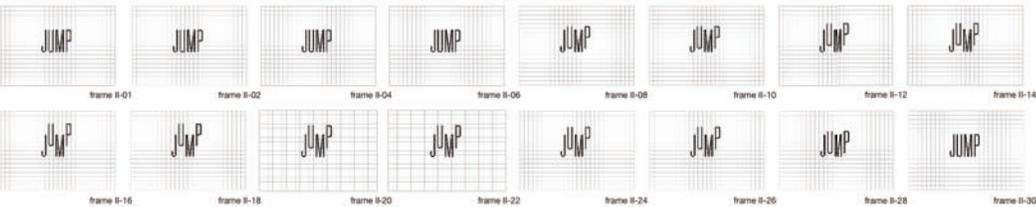


The displacement of the letter “u” and “p” for motion proximity: The intervals of time and the sequence of the movement are regular and constant

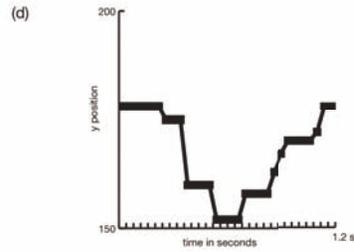


y position change of the letter “u” and “p”: The motion proximity of the movement is the same for both directions/paths—to the top and to the bottom

Motion Storyboard II. The sequence of motion event for “jump”. The letter “u” and “p” are moving up and down through the entire procedure (frame II-01 to frame II-30), and they are infrequent and irregular, for example, there is no progress from frame 01 to frame 06, then it moves to the frame 08 (frame II-01 to frame II-08), and the pause happens again irregularly (c). The motion proximity of the movement is not the same when the letter “u” and “p” move up and move down (d).



The displacement of the letter “u” and “p” for motion proximity: The intervals of time and the sequence of the movement are irregular and inconsistent.



y position change of the letter “u” and “p”: The motion proximity of the movement is not the same for both directions/paths—to the top and to the bottom

Figure 5 - Legibility in time: Both motion storyboards represent the movement of “jumping” as it goes up and down. Motion Storyboard II shows irregular intervals of time and infrequencies in the movement of “up” and “down” to create “jumping”. Do we still see “jumping” through the movement? Accidental pauses or inconsistencies for example prevent cohesiveness to read the original concept of the motion.

2. ABA Form in Time

Visual order is achieved by the interactive system between parts and parts, and parts and whole as viewers pursue the kind of unity by the nature of visual perception. ABA form is a useful grammar to construct visual order by repetition and contrast. ABA form constructs interrelationship for a pattern—“A” functions for repetition, and “B” functions for contrast. Carter and Day stated:

“ABA form provides a working plan for the typographic designer; it defines both the large scale structures and the details... This principle suggests that a fully integrated typographic composition depends upon the successful blending of elements of contrast and repetition. The viewer seeks a variety that stimulates both eye and mind, while structuring the communication experience.” [2]

See Figure 6.

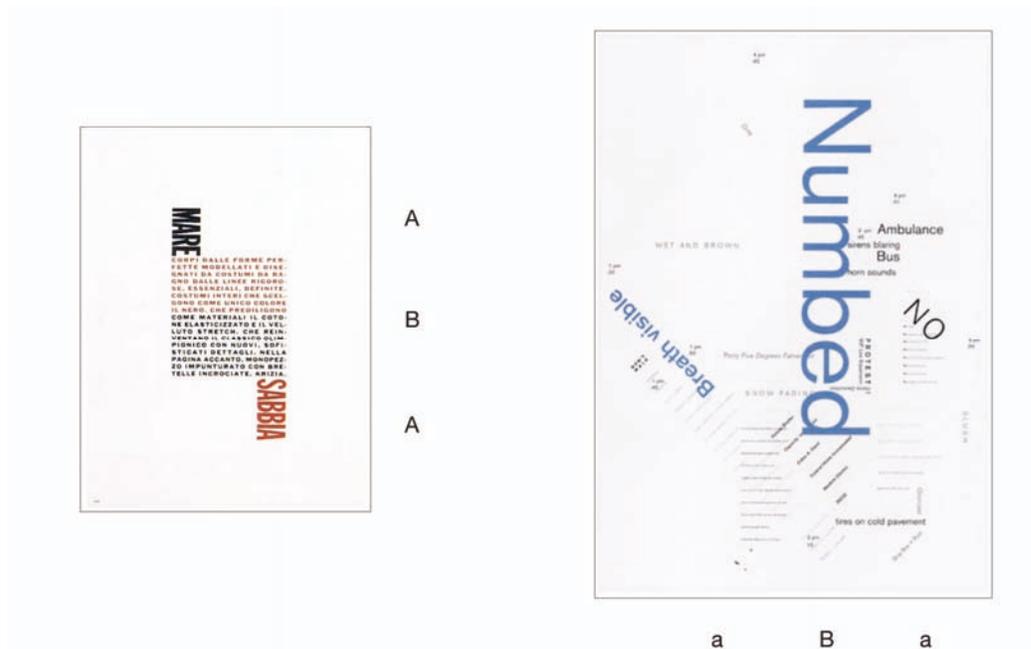


Figure 6 - Examples of ABA form. ABA form establishes the entirety of typographic composition by repetition and contrast, and produces rhythmic balance that provokes visual dynamics. Design (left): Fabien Baron. Design (right): Patrick Crawford

In essence, ABA form functions as an organic system to organize typographic elements into an integrated whole as an engagement by the sensible manipulation of elements of contrast and repetition.

Translating the concept of ABA form in spatial relation only to motion, motion common-fate, representing an engagement in time by parallel movement and replication for

correspondence over time is introduced. Motion Common-fate [4], [5] suggests emphatic features by replication of motion event. The motion is reformed through rhythmic balance on screen as a group. It concerns grouping by parallel movements in repetition of the cycles to strengthen the relations of association for moving objects in time.

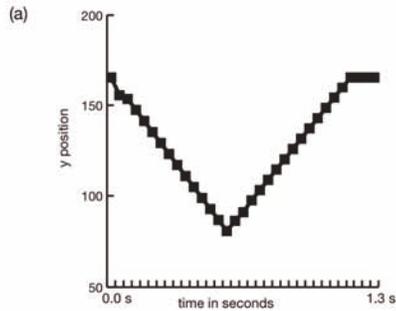
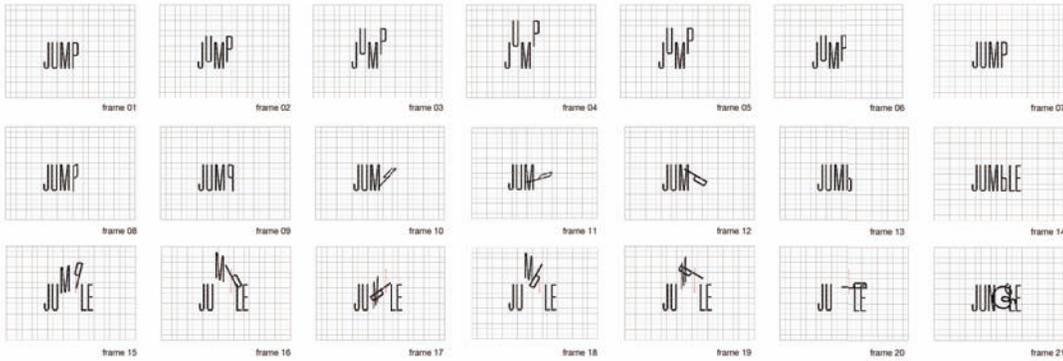
Consider the typographic event presenting “jump jumble jungle” in motion for example. Figure 7 shows a two-dimensional concept of the word “jump jumble jungle”. A few letters from the entire words have particular qualities associated with typographic sensitivities to express the meaning of each word in combination. Beyond the numerical possibilities of expressive typographic solutions on “jump jumble jungle” as a verbal-visual vocabulary in two-dimensions, we design the words to express the meaning in time. The task is to create a visual engagement in time for the connections of multiple motion events in addition to the two-dimensional visual qualities for enriched typographic design on screen.

Figure 7 - An example of a verbal-visual vocabulary with minimal variables in combination

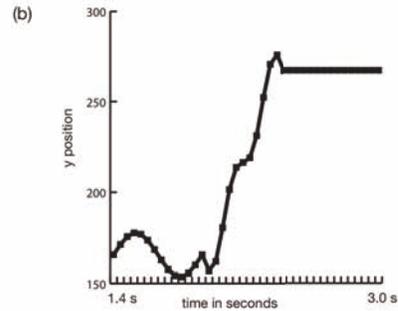
The “u” and “p” move to the top and bottom and arrange to the baseline of the word “jump” {A}, right after the arrangement, the letter “p” starts to move for rotation, and when it finishes rotating to be a “b” instead, it arranges to the baseline of the word together with additional letters “l” and “e” {B}. Right after the arrangement, the letters “m” and “b” move to the top with rotating and move down to the bottom, and arrange to the baseline of the word by changing the letters “m” and “b” into “n” and “g” respectively, and present “jungle” instead {A}. See storyboards and graphs following.

Stimuli & Description. The capital of "J" "U" "M" and "P" in 550 (width) pixel * 450 (height) pixel document of the Adobe Flash CS5. All letters are Univers LT Std 39 Thin Ultra Condensed. The color of all letters are solid black. The background color is solid white. The motion lasts 4.5 seconds. Frame per second (fps) is 24.0, and the total number of frames is 110.

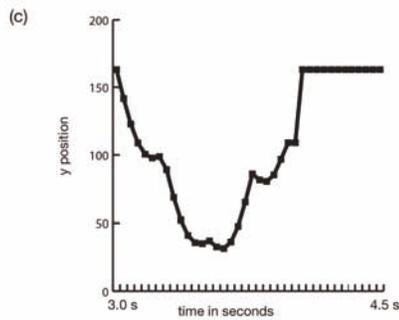
Motion Storyboard. The sequence of motion events for "jump" "jumble" "jungle". The letter "u" and "p" are moving up and down, and they are aligned to the baseline (frame 01 to frame 07) & (a). "p" is rotating to be "b", and after that it is aligned to the baseline with additional letters "l" and "e" to be "jumble" (frame 08 to frame 14) & (b). "m" and "b" are moving to the top with self-rotation and moving down to be "n" and "g" instead to be "jungle" (frame 15 to 21), (c) & (d). Letters are changing about at 0.6 second in repetition (a), (b), (c) & (d), and the middle of motion behavior rotating is contrast to other motion behaviors (moving forward and backward).



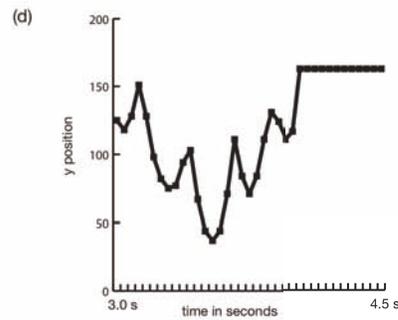
"u" & "p": "u" and "p" is going up and going down at 0.6 second, and then aligned to the baseline.



"p" to "b": "p" is rotating on vertical axis, then rotating on horizontal axis around 2.0 second, and then becomes "b" at 2.4 second, and then aligned to the baseline.



"m" & "n"



"b" & "g"

"m" to "n" & "b" to "g": "m" and "b" are going up with self-rotation, and then going down at 3.6 second, and then become "n" and "g" respectively at 4.1 second, and then aligned to the baseline.

Figure 8 - ABA motion

The example shows how multiple typographic motion events—behaviors, trajectories, and its interpretive aspects [1], are connected over time. The cycle initiated is repeating throughout sequences in a similar travel period. Finally, the motions with different events are engaged as they construct a system by repetition and contrast representing a parallel movement for correspondence over time—“going up and down and lineally aligning {A}, rotating and lineally aligning {B}, going up and down with rotating and lineally aligning again {A}.”

“What is it and what was it?” The transposition and transformation of the letters from “jump” to “jungle” belong together by repetitive rhythmic cycle creating “parallels” over time as outcome, however they actually jumped and went to back to set, rotated and went to back to set, and jumped with self-rotation, and went to back to set in a regular period for repetition:

“The viewers respond not only to elements of contrast and repetition, but also to particular way in which they are combined through principles of compensation, elaboration, and joinery.” [2]

Finally, this research identifies ABA form in time as *the manner structuring multiple dynamic objects and trajectories for a natural emergent feature representing regular rhythmic balance*, and suggest *motion common-fate as a useful motion principle in relation to ABA motion*, achieved by *the replication of a cycle in a regular period time, and in a variation for contrast and/or accentuation*.

This is a framework to define ABA form in time; therefore it will be used as a guideline for further application.

Conclusions

“Time can be stable, distorted, or outright confusing; it can also create tension and engagement, underscore a message, create surprise, or resolve a situation. It is a new dimension for designers to explore, understand, and use.” [7]

Time is a new entity for designers to include. This research intended to deal with the possible use of time featuring typographic design in a systematic way based on a theory and applying the theory in action. The following discussion concludes the author’s position.

1. Legible Type vs. Legible Motion

Legibility is a quality and attribute inherent in typography that makes type easily readable. The categories of legibility [2] include distinguishing characteristics of letters, the nature of word, inter-letter and word spacing, and justified and unjustified typography. In essence, legibility is related to the principles of visual perception—how people see or understand the visual stimuli as a whole. For example, gestalt similarity can be easily used to distinguish a letter from chaotic background as necessary, and gestalt proximity can be useful to

understand optimal word spacing. Not surprisingly, those principles are intermingled, and people see perceptual strength or receptive force as a result of the combination.

This research tried to interpret and identify legibility for time, and principles in time for visual motion based on Gestalt theory—Motion Gestalt is revisited. Motion gestalt is applied theory of Gestalt in psychology, and is explained by motion gestalt grouping principles—motion proximity; motion similarity; motion common-fate; motion good-continuation, and motion closure. Motion proximity was considered to identify legibility in time.

Motion proximity or the degree of motion proximity affects and evaluates motion behaviors in terms of qualities and attributes. For example, imagine a designer creates “jumping” and “spinning” after the jump. The motion behaviors can hesitate if the intervals of time as motion proximity are not frequent enough, and if there are many pauses during the travel—jumping and spinning.

Legible motion is an expression of the particular purpose of motion behaviors, and it will be based on the most fundamental function of visual motion—intervals of time. This is the same as controlling the most fundamental function of visual attributes such as length of bars, size of spaces, width of shape in two-dimensions for legible type. Motion proximity can increase legibility in time. This research will evolve to develop further discussion on the intervals of time in the integration of other motion principles as contributors to understand legible motion.

2. ABA Form vs. ABA Motion

Typographic designers can achieve a structural engagement by applying ABA form. The form constructs a relationship by the repetition of an initiated statement and contrast to the statement. Viewers see the contrast as a whole, and the whole is created by the similar pattern of repetition in terms of visual perception. A key assumption of ABA form suggests that people productively establish contrast and recurrences to recognize a group or fate as visual relationship and system.

This research interprets and identifies ABA form for time, and motion common-fate was revisited as a key principle in relation to the matter of “sharing events” and “rhythmic character” for both ABA form and motion common-fate. ABA motion shares an event that is stated at the initial stage in the form of “repetition”. Featuring another motion in-between the similar event is naturally interrelated, and finally the overall sequences are integrated. It produces parallel movement over time as a pattern for integrity. This research will evolve to develop further discussion on more complex and dynamic typographic events over time.

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Acknowledgments

I would like to acknowledge and express my heartfelt gratitude to the following people who have made the completion of this research paper possible:

Sharon Poggenpohl, my academic advisor, for her discerning guidance for my inspirations.

Diana Cadwallader, my colleague, for her superb treatment of the details and much needed motivation.

Jauneth Skinner, our Head of Department, for her vital encouragement and support.



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Abstract

Being confronted with the use of cutting edge technologies can force a designer to reconsider their processes if they wish to truly optimise the impact of those technologies. This can lead to a sense of vertigo as both cultural values and processes need to be redefined. The author discusses an instance where blurring the territories of two design disciplines could promote a more meaningful engagement with new technologies.

The paper looks at the specific case of smart fabrics being used within the context of product design. It explores how a good understanding of both fashion and product design may lead to better, more informed use of these new materials by product designers. It argues that openly embracing the cultural values and working methods of the fashion world could have a positive influence on the values and methods of product design.

The author defines this new research territory by presenting the results of two activities. Firstly some of the past inheritances and key constructs of both fashion and product design are compared and contrasted. This theoretical study is then cross-referenced with the observations of a live project where third year product design students are asked to design objects with textiles including smart textiles. Throughout the project students are exposed to both fashion and product design thinking.

The author finally suggests how the dissolution of boundaries between the two disciplines may emerge and promote a more meaningful engagement with smart textiles and the development of new soft products.

Keywords: product design, fashion design, smart fabrics, soft products

Existing academic research and other relevant work

Smart fabrics (textiles with embedded electronic capability) that can provide integrated fabric switching and sensing solutions have enabled both 'wearables' (computers or electronic technology worn on or close to the body) and 'soft products' (for example a soft flexible fabric keyboard) to become realities.

The need for academic research to develop the true potential of wearable technologies has been identified through projects such as 'The Emotional Wardrobe' [1]. The researchers were aware that the successful integration of smart functionality into clothing that truly changed the culture of clothing and people's relationship with them would require a new way of thinking "The development process will necessitate information and communication technology (ICT) cultures to be synthesised with established cultures of clothing and clothing design. This will require a multidisciplinary approach, transcending the current boundaries, languages and processes of the industries involved."

While academic research has begun to explore how fashion led design methodologies might evolve in the field of wearables, little research work has been conducted to develop strategies for using these new materials in the world of product design.

Commercial projects such as the 'Fabrications' range of soft products developed at IDEO [2] have begun to explore the potential of smart fabrics in a product design context. The Fabrications collection began to explore the materiality of fabrics used within the realm of product design but as with most commercially driven projects the focus was on developing outcomes. No time was spent discussing or developing an appropriate methodology to support the design of these essentially hybrid objects. The products designed during the Fabrications project were done so by an industrial designer and prototyped in a model-making workshop, they were not conceived at a cutting table or prototyped by a pattern cutter. Their point of reference lies firmly in the world of product design. In a case study of the project [3], one of the key points that emerged after interviewing designers who worked on the brief, was that product designers need to begin to understand the cultural differences associated with using textile materials. Currently the industry doesn't know how to respond emotionally to this type of material. Textiles have a very different image and have the potential of evoking a different set of emotions. Product designers need to understand this and work out how to exploit these qualities to the maximum.

Past inheritances- cultural values and working methods

Product design has cultural roots that are "linked to the development of industrialisation and mechanisation that began with the Industrial Revolution" [4]. Due to the often-long development cycles and associated investment to bring a product to market it has developed a systematic way of working that aims to minimise and control risk [5]. Product design also often professes to make people's lives better through the designs it produces, for example according to the Design Council, the discipline is described as "making things better - better for consumers and users, better for business, and better for

the world” [6]. Might this set of values and rationalised approach to development not be appropriate when designing soft products?

Fashion has its roots in the courts of late seventeenth century Paris [7]. There “lies in fashion an element that modernity would not have wished to acknowledge. Fashion is irrational. It consists of change for the sake of change, whereas the self-image of modernity consisted in there being a change that led towards increasingly rational self-determination” [8]. Fabrics’ often close proximity and association with the body “carries enormous social, cultural, political and moral weight. It is closely bound up with individual anxieties and broader social and historical concerns about the regulation of bodies in social space” [9]. Fashion is also often comfortable with being an appropriate “arena in which to investigate the complexities of modern life” [10]. When working with textiles in a product design context could designers benefit from this thinking? When designing ‘soft products’ should product designers be concerned with and inspired by issues that are important to the world of fashion such as “a fascination with image and narrative” [11] as much as human focused solutions that centre around functionality?

Different cultural roots and values in the disciplines of product and fashion design have also led to very different design processes. For example the fashion design process will often begin with a theme that is drawn from a cultural or historical reference or even be inspired by a muse [12]. Whereas the product design process generally starts with a brief that identifies “predetermined guidelines and sets the agenda for the design process of a project within the context of production, marketing and accounting” [13]. The methods and tools used to create designs are also different. The development of a garment may involve pattern cutting, ‘draping’ (where the material is directly placed over a form to define the shape) and the production of a ‘toile’ (mock-up of the actual garment in a cheaper fabric such as calico). Whereas the development of a product will more often than not involve the use of computer packages such as 3-D Studio Max and the production of models using materials such as cardboard or foam or rapid prototyping technologies. Might product designers, who are used to dealing with hard materials such as plastic and metal, need to adopt a different set of methods when working with textiles?

The student brief

To explore some of these ideas a class of third year product design students, from the University of Dundee, were asked to work with textile materials over the course of a twelve-week semester. Product Design at Dundee is run jointly between Design and Mechanical Engineering with students taking classes in both departments. Product Design modules are then run concurrently in which students are expected to utilise the skills they have acquired in other areas in the development of new products. The aim of the course is “to develop designers who can re-appropriate existing and explore emerging technologies in a playful way and use them as a creative medium throughout the design process” [14].

The module was split into two halves. The first half consisted of a series of hands on workshops encouraging students to engage and understand working with textile materials, which included introductory sessions on sewing and pattern cutting. These

initial workshops were then followed by some which introduced students to a range of technologies that could be used with textiles such as laser cutting and the use of smart textiles using Arduino LilyPad technology [15].

The second half of the module asked the students to embody their newly acquired knowledge in the design and make of a simple soft product, which was in this case a laptop bag. Students were asked to use, in some way, the new technology they had been exposed to. There were a number of reasons why the laptop bag was seen to be an appropriate object for students to design, which included it being: a simple object which would not necessarily require complex pattern cutting; an object which is a product, has association with the body and requires students to consider issues relating to fashion and an object which students could identify with on a personal level.

Associated module content

As well as introducing practical techniques in handling fabrics (through workshops) to students they were also exposed to other aspects of fashion thinking by informal presentations in the studio. The ideas developed in the 'Past Inheritances' section of this paper were explored with them, looking at the history and cultural values of fashion designers, as well as discussing the differences between product and fashion design. Contemporary fashion designers were introduced to them throughout the module and often alongside the work of product designers. For example when looking at construction details using fabric we looked at the intricate folding methods used by fashion designer Issey Miyake as well as the inflatable products and temporary architecture created by the company Inflate. When looking at the use of smart fabrics and electronics in textiles we explored the experimental fashion of Hussein Chalayan as well as looking at the IDEO Fabrications project.

Some introductory exercises



Figure 1 – The concept

Getting the students comfortable with handling textile materials was key to the module. From week one they were set a series of tasks that encouraged them to engage with textiles and fashion design methods in a hands on way. After some skepticism around having to use a sewing machine the students worked enthusiastically on the tasks they were set. The results of these are outlined below.



Figure 2 – Exercise 1, Sewing

The first exercise tasked students to use a premade pattern and follow a set of instructions to create a simple bag. The task required them to cut, mark, pin and sew fabric. They all achieved some degree of success in this exercise, though the results varied substantially. It served as a very good exercise for them to overcome initial inhibitions around working with the material and began to give them some basic skills in the art of sewing.



Figure 3 – Exercise 2, Pattern Cutting

The next task aimed to build on the basic skills acquired in the first exercise. Students were introduced to the concept of pattern cutting and required to design and make their own soft toy using both pattern cutting and sewing. They were encouraged to create 'toiles' (or 'prototypes') using calico to develop the shape. They were asked to focus on exploring the concept of turning something flat into something 3-dimensional.



Figure 4 – Exercise 3, Laser Cutting

This was the first exercise in which students began to explore a range of technologies that could be used with textile materials. Here they were tasked to explore the potential of laser cutting on a range of fabrics. Students changed the variables of both laser power and speed to create different effects. They began to realise that overcoming the technical challenges associated with the technology takes both time and patience.



Figure 5 – Exercise 4, Electronics

In this exercise students were introduced to the notion of embedding electronic capability into textiles to create ‘smart fabrics’. Students already had some programming experience. Here they gained hands on experience using the Arduino LilyPad system designed for textiles, which has thin washable components, connected to each other using conductive thread. They were tasked to make something simple using a range of sensors and switches.

The final outcomes



Figure 6 - A successful bag- A good balance of product and fashion design



Figure 7 - An unsuccessful bag- too focused of product design



Figure 8 - An unsuccessful bag- too focused on fashion design

Each student on the project produced a final laptop bag at the end of the twelve-week project. The success of these final objects varied significantly. All students attempted to use technology in a novel way in their projects, though they did not all chose to engage with smart materials and some focused on novel construction techniques or manufacturing methods. The most successful projects seemed to be the ones where students managed to find an appropriate balance between their existing product design knowledge and their newly acquired insights into the world of fashion. For example, one student chose to work with leather. It was a new material and skill for her, but she realised that there were elements of her product design education and prototyping skills that she could apply to the challenge. Those students who resisted engaging at all with textiles or fashion were not successful, as they did not take advantage of the material qualities of fabric. Those students who swung too far in the other direction, essentially attempting to become fashion designers, produced poorly executed bags that were ill conceived and lacked credibility either as products or fashion accessories.

The student's perspective

As part of the research I felt it was important to gain the students perspective on their experience of working with textiles and engaging with concepts relating to fashion. A semi structured interview format [16] was used. Some of the key points that emerged from the interview process were:

- There was a very mixed response by students when asked how they felt when found out they were going to be working with textile materials ranging from “excited- I secretly enjoy sewing” to “I felt pretty anxious about it, textiles are a material I’ve never used before”.
- Once they actually begun to work with the materials there seemed to be an overall consensus that it was much harder than they had imagined it being. A number of students seemed to struggle with the idea that textile are flexible and often stretch- “because the materials move, it ends up doing something that you don’t expect”.
- A number of students found it forced them to work in ways they were not used to, particularly in terms of planning- “I didn’t realise how much planning was involved in making things, in forward planning”.
- A lot of students wished there had been more time and more in depth workshops in the first half of the module to gain greater understanding of sewing techniques and use of electronic technology.
- Students found it much harder to articulate how they might have been influenced by some of the fashion concepts that were introduced, though there were a few insightful comments such as “it made me think a bit less about functionality and more about how people will perceive the object”.
- When asked whether students would now consider incorporating elements of fashion thinking into their own methods many commented that they would think about the aesthetics of their products differently from before.
- One of the most illuminating discussions was over the perceived barriers to using textiles in product design. For many students it was beyond their preconceptions to use these materials before the module, one even commenting that she didn’t feel you were “allowed to do anything like that”. Many mentioned that “we think more in solid objects than soft objects”.

The tutor's perspective

Having watched the students work throughout the module and after interviewing them, I have some reflections on the brief to create a laptop bag. Though the laptop bag was chosen as a simple object that has some associations with the body, I found that some students responded negatively to the brief. I believe this was because they felt it was too much of a 'fashion' item and found it hard to reconcile this with their identity as a 'problem solving' product designer. In a few cases this resulted in negative attitudes towards the project and using textile materials. Perhaps it might have been better to give the students something more familiar to them as a product to design in textiles? This could then have allowed them to identify and take ownership of the task more and concentrate on the challenge of working with the new materials.

The module content was set up to allow students to choose to work in a number of ways technically with fabrics, for example looking at novel construction details, using manufacturing methods such as laser cutting and embedding electronic technology using smart materials. This was done to allow students to play to their strengths when creating final objects. Ironically, this resulted in a disappointing uptake of smart fabrics. The project is still pertinent to designing with smart fabrics though, as similar material qualities are evident in all fabrics, but on reflection, it might have been more appropriate to limit the technologies introduced to just electronics.

One of the key observed challenges that students came across, particularly towards the end of the project, were limited sewing skills. During the earlier prototyping phases this did not manifest itself so evidently. As the students worked towards producing their final objects though, the fidelity of bags was poor. This was partly due to limited skills in some students as well as a misunderstanding of the time it would actually take to manufacture polished prototypes.

The dissolution of boundaries

To conclude this paper I would like to cross-reference the two research activities presented in this paper, namely the theoretical study and the student project, to suggest how the dissolution of boundaries between disciplines may emerge. The aim of this is to suggest how a more meaningful engagement with smart textiles and the development of new soft products may be developed in the future for product designers. The emphasis has been placed on indicating areas of fashion design that could be incorporated into product design. These are embryonic ideas that essentially indicate research themes that I would hope to develop and expand on in the future.

Society, culture & philosophy

Fashion is intimately bound up with concerns over society and culture, particularly in terms of capturing the zeitgeist. This intimate appreciation of people's likes, dislikes, outlook and concerns is deeply human and product design may well benefit from paying attention to this way of thinking. Fashion design is also, as a consequence of this, considered more suitable as a topic for philosophers e.g. Barthes [17]. Perhaps over time we could achieve something equivalent in product design?

Stigma around using textiles

There is definitely a stigma associated around using textile materials for male product designers. My experience of this project showed that some would rather not be seen sitting at a sewing machine. When the student project first started you could see some members of the class squirm as they were asked to thread up their machine. Given that there are now more and more technical textiles available that open up a world of possibilities in terms of their use, how can we put mechanisms in place to overcome this fear and lack of understanding?

Relationship to the body

Fashion design's intimate connection and sophisticated understanding of the body must be relevant to product designers, as more and more products become mobile and wearable in the sense of ubiquitous headphones, earphones and clip-on iPods etc. (in addition to the field of smart clothing 'wearables', in which a role for fashion design is at least acknowledged). As fashion designers approach products as 'accessories', is there any evidence of migration from the direction of product design? How can this knowledge be translated across disciplines?

Materiality

One of the key requirements to using textiles effectively is understanding and exploiting their material qualities. They are flat but can be turned into something 3-dimensional. They are soft and can be handled in ways that other materials cannot. They drape, they stretch and they move. To develop soft products the materiality of textiles needs to be conveyed and understood by product designers.

Prototyping

One of the liberating features of working with textiles for product designers is that prototyping can be very quick and immediate compared to traditional hard materials. You can also prototype in a material very close to the one you will be finally using. There is certainly still some forward planning required in terms of 'lay planning' etc., but this way of working ultimately opens up a new perspective on prototyping for product design and should be fully appreciated.

Education

One of the fundamental activities that must take place for fabrics to be used more appropriately in product design, is education. Most students' last experience of working with fabrics was in their early years of secondary school during home economics classes. Many students on the project presented here admitted that they had never considered textiles as a material that could be used in product design. At some level textile materials should be folded into their education and introduced as a possibility alongside the more conventional hard materials associated with the subject.

To explore the potential of smart fabrics—culturally as well as functionally—will demand the combination of the complementary strengths of product design and fashion design. I

propose an interdisciplinary practice of *soft product couture*, in which digital product design is shaped by the processes and philosophy of fashion design.

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Seamless Performance: Designer as Mediator for Knitted Medical Textile Innovation.

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Abstract

Design for medical research has traditionally focused on technical functionality and performance outcomes [1]. Recently however there have been significant changes in the way patients approach ‘first aid’. Emerging product areas support either general health and well-being, or chronic conditions which require aids worn on a daily basis in the same way as clothing. In both cases this has shifted the focus from functional design to design which must perform both technically and aesthetically.

The patient-led approach to healthcare demands the redesign of the devices and aids used on a day to day basis. Knitted products within this area typically include compression garments and supports. This range of products requires the aesthetics of sportswear and fashion whilst demanding the technical performance underlined by class one medical devices. Wholegarment technology offers a solution for the production of knitted medical textiles [2]. A new approach to functional design offers an exciting specialist area for textile designers.

This paper reports on a CIF funded project at The University of Leeds. During the project researchers collaborated with a specialist manufacturer and high street retailer to develop design conscious medical devices using Wholegarment knitwear technology. The project began with the premise that this technology, designed for innovation within the knitwear industry, could enhance the functionality of products within a very different market sector [3]. The project outlines the current UK market for Wholegarment technology within healthcare and potential future growth areas.

The paper examines an alternative approach to design for healthcare, and details why this design system is appropriate. Examples discussed include how technology can allow products to be tailored to needs of the individual and how broader lifestyle trends can be incorporated into functional design to add value.

Findings discuss the role of the designer within a multidiscipline team, and consider the conversation that developed between industry and retail, mediated through design.

1: Background

Design for medical research has traditionally focused on technical functionality and performance outcomes. Recently however there have been significant changes in the way patients approach 'first aid'. Emerging product areas support either chronic conditions which require aids worn on a daily basis in the same way as clothing for example diabetic socks, worn to improve circulation, or supports worn for general health and well-being for example sports supports worn to protect joints from damage [4]. In both cases this has shifted the focus from functional design to design which must perform both technically and aesthetically [5].

Research has indicated that a positive attitude to healing is a very important part of the recovery process. Recovery can be speeded up when there is a focus on 'wellness' as opposed to 'sickness'. [6]. Medical textiles, especially devices worn on a day to day basis can support this thinking, providing aids that look less clinical and more fashionable.

"Health care textiles are beginning to shrug off the clinical aesthetic that characterises medical fabrics. Collaborations between physicians and textile designers are resulting in bandages and braces that resemble mainstream fashion more than forensic instruments. Patients want to resume normal life as soon as they can, without the uncomfortable bulk and clinical look of bandages." (Quinn 2009 p85) [7]

Consideration must therefore be given to colour, material and styling to provide devices that function and provide the aesthetics to match patient expectation. In 1997 designer Louise Russell first produced a collection of healthcare textiles "Philosophy fabrics for Health and Wellness" manufactured by Carnegie Fabrics (New York) with consideration given to the beneficial properties of health and wellbeing integral to the design process and outcomes [8]. Contemporary design for healthcare considers these design criteria within functional design applications. Textile designer Ptolemy Mann is a colour expert who consults on healthcare projects in order to exploit the potential wellbeing of colour selection within medical textile applications. She believes that selecting the right colour palette can have a large impact on patient perception:

"colour is an extraordinary tool, and when used deliberately it can make people feel so much better". (Mann 2009 p107)[9]

2: Knit in Medical Textiles

Health care is a growing sector for knit design; a UK Market review [10] looking at niche medical applications identified a range of unique characteristics provided by knit technology suitable for healthcare applications.

2.1 :The Technology

Seamless manufacturing processes developed by Shima Seiki and Stoll are the only textile manufacturing methods which can produce knitted garments which require no

making up. Instead of knitting a front a back and two sleeves which must be linked or sewn together, this production method knits the whole garment as one three dimensional piece. This technology has become more accessible due to recent improvements in programming and machinery:

“Higher production speeds and finer gauges are becoming available from both Shima and Stoll and there is new urgency to develop technical, medical and performance garments.” (Siddons 2009)[11]

Wholegarment (Shima) and Knit and Wear (Stoll) are capable of knitting integral three dimensional forms which are seam free, made to measure with the potential to specify compression requirements built into one product. According to Aidan Tracey of Future Textiles this has allowed the manufacturing process, designed for the knitwear industry to become of interest for medical applications [12]. These technical capabilities are of particular interest for class one medical devices because of the potential added value of a design aesthetic freely available using Wholegarment technologies.

2.2: Research Areas

The three key areas identified below allow research and product development to be specifically focused on the capabilities of the technology itself:

- 1: Skin conditions: the seamless nature of the technology is of particular interest to individuals who suffer irritation from various skin conditions including eczema, hypersensitivity, athletes foot and conditions associated with diabetes.
- 2: Compression garments: the technology can also be used for graduated compression within compression supports and compression garments.
- 3: Made to measure devices: the nature of the production method allows individual sizing to be integrated into production for one off pieces where fit is paramount, for example stump socks for amputees.

2.2.1: Skin Conditions

Seamfree construction is central to the Wholegarment manufacturing process. The technology allows individual pieces to be constructed on the machine with no requirement for post manufacture making up offering the potential for completely seam free construction. This has the potential to reduce irritation on the skin. This is beneficial to sufferers of skin complaints including eczema, hypersensitivity and conditions associated with diabetes. UK manufacturer Skinwear is currently developing a range of childrenswear for children with skin complaints under the brand ‘Skinnies’. These products are available online and by prescription.

2.2.2: Compression Garments

Conventional knit technologies do not have the capability to alter compression requirements accurately within a single product. Sizing must be very accurate in order to maintain the required compression. Wholegarment has the ability to provide different levels of compression and support within one seamless piece. Michael Siddons recently

commented in Knitting International that compression would be one of the most important applications for seamless manufacture [13]. Scan2knit body scanning has been used by Professor Tilak Dias formally of the William Lee Innovation Centre in Manchester to develop compression garments for specific requirements.

2.2.3: Made to Measure

Wholegarment technology offers the potential to knit pieces to an individual shape. This is an important consideration for amputees who require unique fitting stump socks to protect against irritation from prosthetic limbs. Future Textiles are currently manufacturing stump socks for the NHS.

3: Research Question:

How can Wholegarment knit technology be utilised to design and manufacture medical aids that combine a high level of performance with a strong design aesthetic?

The aim of the project was to design and manufacture a seamless compression based joint support prototype which combined the performance requirements essential for medical support with a design-led approach provided by Wholegarment knitwear technology. Through collaboration with industry the outcomes of this project was to manufacture and test the prototype for future commercialisation.

4: Research Methods

There were three main elements to this research;

- Market and product review
- Design Development
- Testing and Application

4.1: Market and Product Review

A review of the UK Wholegarment industry was undertaken via telephone interviews, industry visits, desk research, shop reports and visits to trade fairs including Techtexil and Pitti Filati. This review provided a contextual framework for the project, a product area for development, and industrial partners for collaboration.

A more specific product review analysed the design and manufacture of joint supports currently on sale in the UK.

4.2: Design Development

Design research was undertaken through lifestyle analysis, market and product review, and competitor profiling. Sampling investigated materials, fabric structure and design. Sampling was undertaken on a Shima SES122FF machine before manufacture on the SWG09IN.

4.3: Testing and Application

In collaboration with a UK highstreet retailer product testing was undertaken to establish potential market for the products. The testing was undertaken as part of a larger piece of consumer research specifically focused on healthcare products for minor injuries. Focus groups were split into different categories according to family background. Researchers facilitated open discussions to gain information about buying preferences in relation to products, performance and branding.

5: Market Review

A market review was undertaken of joint supports available on the UK highstreet and through UK based online suppliers [14]. A range of brands were identified who specialised in compression based joint supports. These included; Boots, Muay, Vulcan, Medi, Futuro, Therafirm, Eastbay, Nexcare, and Thermoskin. All supports are classified as class one medical devices.

There are two types of manufacturing methods for the majority of joint supports available. Supports are either made from neoprene, or knitted to form an elasticated support in a nylon based material. Construction of the products varied however some products have additional Velcro straps, bracing mechanisms or cushioned support.

A range of joint supports were analysed to determine design, production method, making up, and functionality.

5.1 Specific Points of Analysis

5.1.1 Fibre Composition

All supports were made from texturised nylon based materials. Additional fibres identified within the yarn composition included; cotton, elastic, polyester.

5.1.2 Fabric Structure

All supports are made from rib structures. All supports except the Boots Elasticated Support have an elastic yarn laid into the rib structure. Tuck rib is the most common rib structure, within different yarns providing the rib and tuck courses. Several supports have central panels of a different fabric structure, including ½ cardigan or full cardigan. Central panel placed in a variety of different positions, both on knee and behind knee. Fabrics are plated with one yarn appearing on technical front and another yarn appearing on technical back.

5.1.3 Shaping

Minimal shaping, achieved through either changes in fabric structure or increasing across width.

5.1.4 Compression

Although all supports specify benefits of compression for joint support, no indication of the actual levels of compressions provided by any of the supports analysed.

5.1.5 Construction Details

None of the supports analysed are seamfree. Thermoskin Elastic support claims to be seamfree however the seamless tube is overlapped at the top and bottom. All supports except the Boots Elasticated support are tubular. Boots Elasticated support has a side seam as well as seams top and bottom. The majority of the supports have a simple turned hem which is either flatlocked or overlapped. Some supports have additional rubber, latex, elastic trim within the hem.

5.2 Conclusions

Although there was some consistency across the range of samples, especially in the basic materials used (nylon/elastic based) and basic construction methods (fabric tube with seams top and bottom) it was interesting to note the variety of design approaches. All fabrics were based on tuck rib structures. Fabric structure varied across the range of products with several products including intarsia panels of fabric of an alternative structure. However there was no consistency in the placement of these additional panels within the supports.

Although all samples claimed to be compression aids. None of the samples analysed had specific details either of the required compression necessary for sports supports or the compression provided by the individual aids. Supports varied in colour; the majority was bandage/skin coloured, although white (Boots) primary colours (Muay) and some attempt at gender specific colourways, black and pink (Vulcan) were identified. There was no consideration of branding or patterning within the samples.

6: Design Development

The Wholegarment market review (2.2) identified several potential niche areas for investigation. Our industry partner, Future Textiles, had a technical product, a seamless joint support for sport which required design input to make it commercially viable. A market review of this product area (5) identified potential research areas uniting performance with the needs of the end user. Using this basic product the design team worked with technologists to create a functional and aesthetic outcome.

“Performance sportswear design is growing in importance and crosses the boundaries between design, technology and marketing disciplines. It embraces creativity and aesthetic awareness combined with an extreme requirement for technical understanding and innovation.” (McCann 2005 p44)

“Performance sportswear design requires an approach where the form and function meet the needs of the end user.” (McCann 2005 p45)[15]

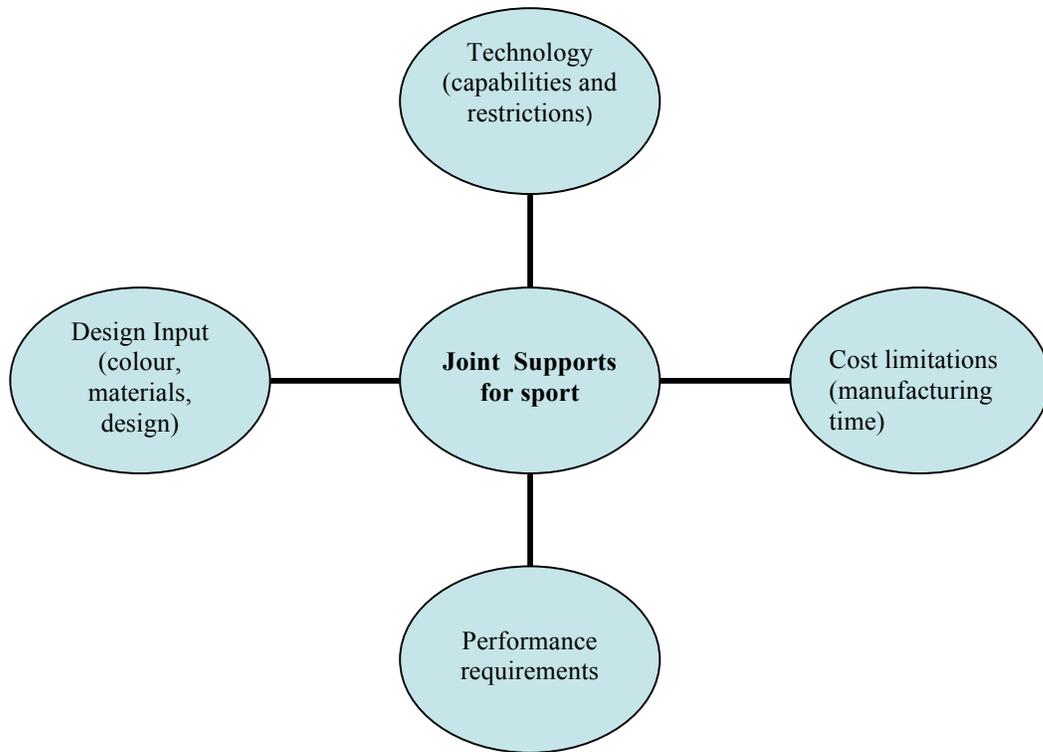


Fig 1: Design Considerations

The design development for this research began with a new technical product; a seamless joint support developed by Future Textiles, and a knit technology for manufacture; a SWG09IN Wholegarment Knitting Machine. The brief was to enhance the aesthetic design of the product exploiting the manufacturing capabilities of the technology. Initial design considerations included:

- the technology itself: limited feeders on machine restricted colour palette, material choice limited to yarns suitable for this production method.
- the cost limitations: including number of colours and choice of materials which impact manufacturing time,
- the performance requirements: providing the required compression had an impact on materials and design
- the design input – specified through trend analysis, yarn selection and colour palettes. (fig 1: Design Considerations)

The needs of the end user were twofold in this investigation. Functionally the product had to perform; to support joints through compression. Consideration had to be given to fit, sizing, comfort. Secondly the design aesthetic was integral to the design brief. The performance of the product also relied on how it looked. Designs needed to develop a strong image from a cultural perspective.

Aesthetic developments considered, colour, patterning and materials. Men's and ladies styling were considered independently and final design collections considered lifestyle issues including: 'inclusivity' 'luxury' and 'sports and fitness'. Within these broad

lifestyle areas topical considerations including London 2012 and the World Cup provided specific design inspiration.

Colour, materials and patterning was restricted by the technology. A palette of 2 and 3 colours were available. Samples investigated the inclusion of a variety of novel yarns and materials including lurex, mohair and silk. Materials were incorporated into designs using a plating feeder so that the comfort of the product was not affected. Patterning included 2 colour jacquards and stripes.

7: The Role of the Designer

The design approach in this research involved a design team collaborating with textile technologists and retailers. Design had been largely overlooked in the initial stages of product development, this had led to a lack of commercial interest in the product. The collaboration between designers and The University of Leeds and technologists at Future Textiles allowed a conversation to develop which supported both the function and aesthetic requirements of the market area.

“Performance sportswear design, concerned with end user requirements is closer in philosophy to industrial or product design than to fashion design” (McCann 2005 p55)[16]

What both designers and technologists shared was knowledge of knit structure and manufacture. A dialogue quickly developed which kept the textile material at the centre of product development. Due to the flexibility of the manufacturing process it was possible to incorporate colour and design without compromising performance. This provided prototypes with a new aesthetic appropriate to the competitive performance sports market area.

The success of this project can be identified through the interest of a large UK retailer in further testing this product for sale.

Although this collaborative approach to design has achieved successful product outcomes in this example it is worth noting that the IP has remained with the technologists and the design input provided by researchers has been difficult to measure commercially.

8: Testing

Prototypes were tested via consumer research undertaken by a large UK retailer. Outcomes of the consumer research indicated a positive response to the re-designed joint supports. Focus groups identified several key factors which would influence buying decisions:

- Price
- Clear labelling/packaging
- Sizing and levels of compression
- Washable/reusable

- Colour
- Ease of use
- Little interest in the science behind products, and regard too much information on products as suspicious
- Consumers would only buy a support in response to an injury

Focus groups were familiar with the products although surprised by the ‘fashionable’ outcomes, which they conventionally associated with ‘tubgrips’. Groups did feel that these items could be costly and that sizing would be a priority requirement as purchasing the wrong size would make the product useless. Clear labelling of product, sizes and strengths of compression was identified as essential.

Focus groups were shown a Joint support stimulus board, response to this stimulus board included:

- Liked description of product
- Liked word ‘knitted’ as it was homely and fashion based
- Best thing was that it was available in a variety of colours which they felt was important for women
- Feels new and different, the description covers everything you want from the product
- Questioned term ‘optimum compression’ and felt the product would have to have very clear sizing in order to fulfil that need
- Thought seamless/breathable/colour were new concepts
- Having a variety of colours makes it more of a fashion item and will push up the price

8.1: Conclusions

Results of the consumer testing indicated that some elements critical to the research aims are important in consumer buying decisions: these included, the design (colour) and the performance (compression). However other factors important to the customer for example price, might be prohibitive using the Wholegarment approach. The consumer research indicated that it would be important to communicate the enhanced performance of Wholegarment sports supports in order to justify pricing.

9: Conclusions

This research has identified that there are niche market areas for exploitation using Wholegarment technology. Current products can be enhanced using seamfree construction methods, these include compression based garments and supports, seamfree garments to prevent irritation, and made to measure garments and supports.

Joint supports provided a product for research and development which required a combination of performance and aesthetics to achieve a commercial outcome. Design development encouraged a broader approach incorporating lifestyle trends to determine colour, patterning and materials. Outcomes assessed through customer research received positive feedback and were identified as ‘new’ and ‘different’.

This research maintains that the role of the designer is central to product development in order to communicate the needs of the end user and interpret the functional elements of the technology.

Whilst this research focused on the commercial interest in enhancing the design aesthetics of a traditionally functional product, further research is required to test whether perceived performance can be enhanced through a product which looks good well as functions effectively.

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Acknowledgments

This work was developed as part of a CIF funded project at the University of Leeds in conjunction with Aidan Tracey of Future Textiles.

Innovation by Design: Using Design Thinking to Support SMEs

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Key words: Design Thinking, Innovation Cultures, Service Design, Serious Play, and Service TRIZ

Abstract

Small to medium sized enterprises (SMEs) are generally clear on the need for innovation; however they are very often less clear on how innovation can be brought about. One possible reason for this may be because of a lack of an innovation culture within their business. Global giants such as Google and Apple are companies with highly evolved innovation cultures that the average SME may have difficulty in relating to. Developing appropriate tools for SMEs to allow them to develop their own innovation cultures is a core activity for the Centre for Design & Innovation (c4di). This paper describes how SMEs have been assisted through the application of design thinking to develop their own innovation cultures through a programme of workshops and one to one support. This paper strives to look beyond the rhetoric behind design thinking to critically evaluate the techniques and approaches that have proved to be of particular value when working with companies.

Introduction

Many SMEs whilst acknowledging the importance of innovation do not necessarily have an innovation strategy. One reason for this is the difficulty in gaining an impartial external perspective that can inform the SME of its strengths and potential areas of development for the future. In 2008, c4di (www.c4di.org.uk) was established in Aberdeen, Scotland. The centre aims to assist SMEs by working with them to establish an innovation strategy. The centre has developed a series of workshops and resources designed to provide SMEs with clear insights into how they might bring about an innovation culture that is appropriate for their organization. The programme is based on a constructivist experiential approach to learning. Exercises have been developed that involve hands-on participation and include a playful series of activities that are designed to encourage a shift in perspective whilst promoting collaborative design thinking. The programme covers a range of design methods from ethnographic observation to rapid prototyping. The general approach is based on serious play. This involves using the extended metaphor of games and activities designed to give people permission to think without the usual inhibitions that tend to suppress creative thinking. The wider aim is to develop projects with SMEs that can lead to new product or service innovations.

In Don Norman's recent article 'Design Thinking: A Useful Myth' (2010) his description of design thinking as a myth promoted by design consultants or which in reality is just another way of describing creative thinking, is typically provocative.

However, whilst agreeing with the view that creative thinking is an inherent characteristic of all human beings and not just a skill possessed only by designers or other creative individuals, the c4di team are applying an approach which is derived from the world of design. Design thinking must include creative thinking by individuals and involves collaboration, often between multidisciplinary groups leading to problem identification and problem solving. It is not restricted to designers whose training may predispose them to being able to tolerate higher levels of ambiguity, which is a particular attribute that tends to support lateral thinking (De Bono, 1967). The term design thinking provides convenient shorthand to describe an ethnographic approach to gaining insights into human needs that can trigger important innovations generally in the form of incremental as opposed to transformational. c4di's approach to helping SMEs was to look particularly at innovation models based on a standard design process. This process includes the following key steps:

- Understanding
- Observation
- Ideation
- Prototyping
- Synthesis
- Iteration
- Implementation

The following paper looks at how these steps in the design process have helped inform an innovation learning strategy.

Understanding

Understanding at what stage an organization is at, in terms of its readiness to innovate is essential if the company is to benefit from any form of support or intervention from an external organization. Ian Davis (2010), Managing Director Emeritus of McKinsey & Company, speaking on the NESTA website on the global challenges facing the UK economy in the next decade, makes a number of useful observations about the nature of innovation. He identifies three main categories of innovation that are; innovation of products and services, innovation of manufacturing processes and innovation of the business model itself. He also alludes briefly to innovation within the culture of the business. He suggests that for most organizations focusing on efficiency may be more appropriate, and that most organizations should only focus on one of these areas at any particular time. Developing an understanding of the needs of an SME requires the questioning of assumptions. For example companies will be used to describing what they do in particular terms such as 'manufacturing' or 'service'. Often this description fails to capture other forms of intellectual property or resources that can be exploited. For example a company manufacturing pressure sensors developed a more profitable business by giving away its sensors free in return for collecting the telemetry from the devices. Providing a service based on the analysis of the data being collected by the sensors, and then presenting the resulting data in an easy to understand format, proved to be a much more successful business model. The firm's original assumptions were based on a purely manufacturing business model. The new company description is now based on being an information and visualization provider and as a result has become much more profitable.

A key first step in assisting SMEs is establishing the company's core values. The core values of an organization are the qualities for which it wishes to be recognized by its customers and employees. In the most successful organizations the core values are shared by all the internal stakeholders and are reflected in the corporate identity. If there is any disparity between the ways in which its stakeholders perceive the organization, the result is confusion, mixed messages and a lack of clear vision. The brand will not be effective. Establishing the core values of an organization is a fundamental first step that subsequently guides all other decisions. An approach we have found effective for beginning to establish the common core values of an organization or at least the values it wishes to aspire to, is one based on image sorting and the creation of mood boards. This technique asks individuals to select images that could represent some of the core values or alternatively are the exact opposite of the values they recognize. Visual imagery provides an effective way of introducing abstract qualities that can be used to describe how the company perceives itself or how others perceive it. c4di has developed visual cards that are used in combination with the capturing of key words to identify whether the companies self-image is consistent or contains inherent contradictions. For example a company may select images that may reflect environmental aspirations whilst at the same time they may wish to appear at the cutting edge of technology. These two values are not mutually exclusive but would need to be considered carefully in any subsequent branding strategy.

Observation

Observational methods are used to identify key problems or issues that we can then use to generate specific projects. In a workshop situation this is illustrated by an exercise we call 'Who Lives Here?' Groups are given photographs of someone's house showing the normal everyday interior. The group is then asked to deduce what type of person lives in the house, their occupation, and what their likes and dislikes may be. This simple technique shows how a user profile can be used to gain insights into customer needs. The 'extreme user' concept is another way of identifying issues that can form the focus for new innovative solutions. An extreme user may be someone who really loves a product or service, perhaps is an early adopter or alternatively, is someone who is actively unhappy with the product or service. It is these people that can provide genuine insights about what works or more importantly what doesn't work. For example they may have found the product or service unsatisfactory because it does not meet their needs and as a result they persistently provide negative feedback about it, alternatively they may be the person that maintains the product or service and knows more about it than anyone else as the result of firsthand experience. It could be a repair engineer for example who is most familiar with what goes wrong with a product. Fig 1 shows a standard distribution curve to illustrate where these two extreme user groups can be found.

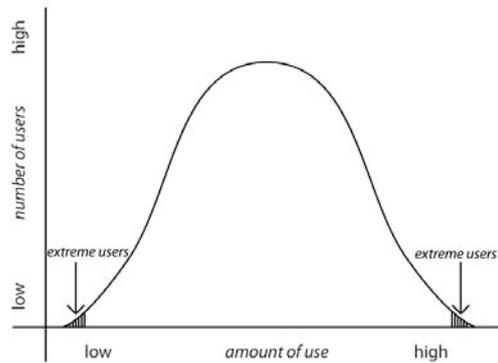


Figure 1. Extreme users are few in number who may use the product or service very little or a great deal. In either case their experiences can provide valuable insights.

The extreme user is a powerful concept for identifying the shortfalls in existing products and services. If it is not possible to identify an extreme user we can all become extreme users by simulating situations for example using restricted mobility suits to represent particular disabilities. In design terms this would be regarded as an empathic approach (Malins and McDonagh, 2008).

When examining service innovations the use of customer journey maps is a useful technique. It involves plotting the critical touch points of a customer's experience of using a service and identifying how people felt at a given touch point and comparing a number of journey maps which can then be used to identify where critical moments have occurred which can highlight opportunities for service improvement and potential innovations.

A technique based on the use of the Russian problem solving methodology TRIZ first developed by Genrick Altshuller (1946) has also proved to be effective. TRIZ was originally developed to solve mechanical or engineering based problems. In recent years it has been applied to a whole range of business problems. As a way of extending its use as a resource for service innovation the c4di team has developed a new interpretation of the original 40 TRIZ principles for applications to a business context. It is available at the c4di website (www.c4di.or.uk/servicetriz). By making this resource freely available in this way, we hope to gather feedback from users from a wide range of business experiences that can help to validate this particular use of the TRIZ methodology. The site encourages people to add their own examples and comments to illustrate how they have applied the technique. Using the web to validate tools in different contexts is an alternative way to verify the effectiveness of a process.

Ideation

Ideation involves introducing clients to a range of idea generation methods. These include facilitating brainstorming sessions using a range of intuitive methods as well as more systematic creative problem solving techniques. In the design world these are well understood and well used. The sheer volume of ideas that can be generated when these sessions are properly facilitated comes as a surprise to those not familiar with the use of these methods. For example we use the same brainstorming rules described by Tom Kelley (2004) in his book 'The Art of Innovation'. These are

- encourage wild ideas (all ideas are equally valid)
- go for quantity (the more the merrier)

- be visual (any sort of drawing is okay)
- defer judgment (evaluate ideas after the session, not during)
- one conversation at a time (all participants should have an equal say)

Following the ideation stage we then introduce techniques for evaluating ideas. These include the clustering of ideas, voting on ideas, and developing rapid prototypes.

Prototyping

Prototyping and using various forms of visualization has always been a key method in the design process. It is important to be able to see an idea as quickly as possible. To be able to talk about it, try it out with users and visualize it. We use the term prototyping to describe the cobbling together of anything that comes to hand that can be used to model an idea or concept. Recycled materials, card, and foam board can all be used. We often use Lego or other toys to develop models that represent products and services. Hence the use of the expression ‘serious play’ when describing these activities.

Synthesis

Working with multidisciplinary groups of individuals has proved to be a critical factor in developing new thinking and interesting ways of working. In order to establish a dialogue we begin by asking participants to identify key issues faced in their business. These are then transcribed onto hexagonal shapes. The use of hexagons is important in the way they can be pushed together physically to maximize the number of instant connections that can be made to address issues and suggest potential solutions. We then use well-known business solutions to explore how these issues have been addressed previously and then subsequently we map appropriate design methods onto these. Individual hexagon maps created in this way provide a way of gaining insight into both the problem and solution space. However the most interesting element of this technique is when collaborative maps are produced with a group of people from different businesses. The resulting map provides a shared solution space providing new perspectives on existing issues. See Figure 2.

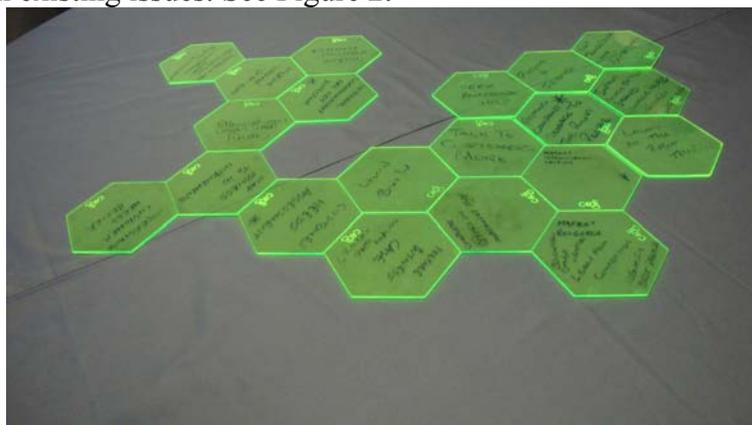


Figure 2 Shared collaborative mapping problems and solutions using hexagons

Iteration

In educational terms the idea of a cyclical (iterative) model of learning (Kolb, 1984) and reflection in action (Schon, 1983) is well understood. However, this is less well understood in the context of innovation that may be perceived by non-design thinkers as

a linear process. Developing an approach to innovation based on the concept that it is a repeating cyclical process moving through the stages in the design process as described, is an important concept to communicate when working with companies. Developing an innovation culture based on continuously revisiting inherent assumptions means companies are well prepared for any future eventualities.

Implementation

Having identified that a particular form of innovation is appropriate for a company it is important to consider how the company's internal culture can support and implement an innovation strategy. Innovation is about new ideas and new ideas require creative thinking and creative thinking requires the right kind of encouragement. c4di has been working with SMEs to support innovation by applying design thinking to identify new products and services. David Kester (2009), CEO of the Design Council speaking on a Harvard Business School video about developing a culture of innovation, stresses the need for developing a culture of openness in which creative ideas can flourish and the need to in-bed the innovation culture into all aspects of the business is emphasized. He stresses the importance of the business being outwardly facing, in other words, asking the right questions based on acquiring a true understanding of the needs of their customers.

One of the best illustrations of how an innovation culture works can be seen in the excellent short film made by the 60 Minutes Programme in America in which the well-known design consultancy IDEO, were challenged to re-design the shopping cart in a week. During the film David Kelley (2009), of IDEO, remarks that not all the best ideas come from the boss. The film reveals the IDEO headquarters at Palo Alto in California in which bicycles hang from the ceiling and in which there is an atmosphere of fun and creativity. Although it is more than 10 years since the original 60 Minute Programme was screened, there are still many lessons to be learned from this film from the point of view of developing a culture of innovation, including the informality of the environment, the interdisciplinary collaborative nature of the team and the willingness to prototype ideas at an early stage. As children we learn to play without inhibition but there are always rules to provide structure. As adults we find it difficult to recapture this level of uninhibited thinking. Often we are working under a whole range of pressures and constraints that inhibit creative thinking. The author Tom Wujec (2010) has worked with many different groups of individuals helping them with creative problem solving. His workshops include an activity called the 'Marshmallow Challenge' in which teams have to build the tallest tower they can with pieces of spaghetti, masking tape and string, whilst balancing a marshmallow on top. The teams that do best in the challenge are groups of children who continuously prototype during the exercise by starting with the marshmallow first. Groups of managers tend to do particularly badly mainly because they assume the marshmallow to be light and fluffy and easily supported by the spaghetti but as time runs out for completing the challenge they discover it is not as lightweight as they thought. The lesson of these workshops is clear, that continuous prototyping is an effective strategy and that it is essential to question assumptions. Offering a financial reward to the team with the tallest tower tends to reduce the level of success. Dan Pink (2009) who writes for the Harvard Business Review has written extensively on motivation. He reports similar results to those reported by Tom Wujec. When different groups are offered financial incentives to solve a simple visual brainteaser known as the 'Candle Problem', they take longer to

solve the problem. Pink believes that the best motivation comes from providing individuals with autonomy to make their own decisions, a clear agreed purpose and the ability to become masters of their area of expertise. The working environment is critical to developing a culture of innovation (Groves, 2010). It is no coincidence that the most innovative companies in the world have the most stimulating work environments, for example, Pixar and Lego. In these companies employees are encouraged to customize their workspaces. The space is organized to encourage informal interchange that can lead to better communication between individuals and departments. An interesting approach to a work environment that connects all departments is illustrated by the BMW Leipzig Factory (2006) designed by award winning architect Zaha Hadid in which the assembly line cuts right through the middle of the offices and staff restaurant. In this way all the workers are intimately aware of the products being made and can share in the ownership of the completed product. Whilst this works very well on the scale of a car plant, how can this idea be applied to the smaller business context? The essence of this idea is to involve all the stakeholders in the business' core values making sure those values are reflected in all aspects of the business.

The importance of the team dynamic in an innovation culture has long been recognized. Companies sometimes employ behavioral and psychometric testing such as the Belbin Team Inventory (2010) to ensure employees possess the necessary team attributes. In Tom Kelley's (2005) most recent book 'The Ten Faces of Innovation', a number of key character types are described, for example, the 'Anthropologist' who identifies innovation opportunities by observing users, the 'Cross Pollinator' who develops original solutions by making connections, or the 'Hurdler' who ignores conventional thinking. These roles are not exclusive to one individual but are recognized as essential for a successful innovation culture. In a small company being able to adapt and recognize the different roles that need to be adopted is essential. Larger companies may also benefit from having a multi-cultural staff base. Multicultural approaches can often provide differing perspectives on a problem and encourage new thinking. Cultures in this context may also include backgrounds based on personal experience of working in different departments or companies. Visitors to the company can also be an important source of new input and new thinking. They have a way of asking the 'dumb' questions that businesses are too smart to ask themselves which can help to challenge long held assumptions, 'why do you do that?' 'I don't know we've always done it that way.....'. So encouraging visitors to see round a business is a good way to get feedback and new insights. Larger organizations may pay visiting experts to provide an inspiring or informative lecture that is a great way of keeping up with the latest thinking and trends. Another important activity is the 'show and tell' session. Engaging external facilitators can help to make connections between different companies, which can often lead to some very significant collaborations, and subsequent innovations. Barriers to creative thinking can be categorized into two types, internal or external. The internal type is mainly due to our conditioning from an early age. Most people don't like to be seen as strange or unusual in any way. We need to fit in but putting forward new ideas always requires a certain degree of personal risk. The risk is a loss of peer esteem that can lead to feelings of anxiety that in turn prevents creative thinking. We are worried that our ideas may be seen as stupid or unrealistic. External barriers are a result of our working environment. There may be silos between departments that work against collaboration and the innovation culture. Existing departmental structures sometimes related to budget ownership can be intractable but more important than many of the external

factors is the way that individuals receive recognition for their efforts within the organization. Recognition can be more important than other forms of reward. When the boss declares the need for a brainstorming session whilst also indicating that your job is on the line if your ideas are not at least worth a patent or two, the outcome is not likely to be great. The result is to trigger the flight response suppressing the sort of neural transmitters in the brain we need to stimulate a creative state of mind to encourage wild ideas. Without a supportive culture of innovation, the chances of developing new profitable ideas for improving products and services are going to be much less likely to occur. If the boss is the only person who can have a new idea it could be a long time coming. Developing a stimulating work environment is much more likely to encourage innovation.

Conclusion

Using design thinking to assist SMEs to bring about innovations can be very effective. The difficulty is convincing SMEs that engaging with design thinking is something they need. The term 'design thinking' is a useful way of describing a range of intuitive and systematic methods derived from design techniques. Using experiential approaches to the design of workshops has proved to be a useful way of engaging SMEs and helps to overcome the natural reticence that often interferes with creative thinking. Some of the methods described in this paper will be familiar to the professional design community but will be less familiar to organizations out-with the creative industries. c4di is positioned between the academic and commercial contexts providing an important bridge between the two. Whilst this is increasingly recognized as a valuable resource it still remains a challenge to find appropriate funding to ensure the long-term sustainability of this work. Whilst acknowledging Don Norman's proposition that 'design thinking' is something of a myth the term has provided some valuable practical methods that have resulted in some significant innovations.

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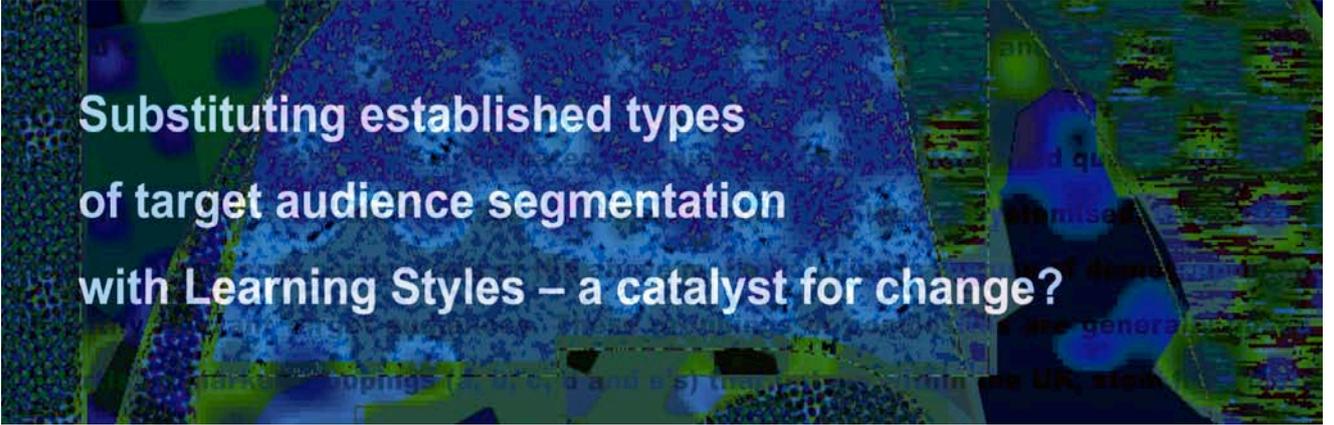
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Vertigo



Substituting established types of target audience segmentation with Learning Styles – a catalyst for change?

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Abstract

This paper outlines the early stages of an investigation into the effect on Communication Design methodologies and outputs by substituting established types of Market Segmentation (e.g. A, B, C, D, & E's, gender, socio-economic status, patterns of consumption etc), with the various theories and categories used by teachers and academics to identify the styles and/or modes by which people learn, that within a pedagogic context are generally known as Learning Styles.

The motivation to this project stems from my own experience as a practicing designer where the prescriptive use of existing communication design research methodologies within Advertising, Graphic Design and Marketing, can often lead to clichéd and mediocre solutions. Indeed it is often marketing professionals that research, frame and define the communication problem before it reaches a designer. Consequently however imaginative the designer, if the design brief has been developed in a prescriptive manner, then the subsequent design solution that successfully addresses the brief is also likely to be prescriptive and mundane.

Marketing, Advertising and Design professionals use a range of research methodologies to analyse and define a communication problem in order to develop a design strategy or brief. These quantitative and qualitative methodologies often include approaches such as: focus groups, swot analysis, brainstorming, mood boards and multiple design solutions; media analysis, strategy and planning; patterns of consumption, consumer goals and motives analysis; brand positioning and market analysis; brand values and propositions. However core to, or used in tandem with almost all of these research methodologies, is the use of some form of Demographic, Market Segmentation and/or Consumer Behaviour analysis in order to define the target audience.

Therefore my approach of radically changing a core research component and design criteria: i.e. substituting established target audience groupings with a range of different Learning Styles has not only the potential to act as a catalyst to the formulation and addressing of new Communication Design criteria, but also to provoke new approaches

and possibilities within established Advertising, Graphic Design and Marketing research processes and outputs. Consequently I propose to deliver the same core message in several different ways through a variety of media and formats, using extant and emerging communications technologies. Each delivery will be tailored to a different style of learning. In today's multi-media, multi-platform, multi-channel environment, I believe this approach is eminently achievable and practical.

Although this approach is likely to create several communications with the same core message, each communication will be designed to accommodate and engage a particular Learning Style. Depending upon the context of the delivery (most likely an exhibition), users may then browse and select their preferred communication, indeed they may select more than one communication and view the same core message through a variety of formats. This approach of enabling the user to view the same message in a variety of formats could not only makes it possible to facilitate greater understanding of the message but should also enable the user to make judgments on which type of communication is most appropriate for them.

Radically changing a core design criteria or research component

I anticipate that this approach of radically changing a core design criteria or research component will not only facilitate the analysis of communication design problems from different perspectives and consequently may lead to unexpected, unforeseen outcomes and insights, but will also allow me to address the continuing requirement for new practical and theoretical knowledge in relation to the use and potential of extant and developing communications technology.

This approach of adjusting or radically changing a core design criteria or research component, in order to evaluate and address a problem from a different perspective is an established methodology. For example TRIZ, an engineering design theory and methodology developed in post war USSR, uses a "contradiction matrix" to explore the use and impact of substituting different design criteria as a way of idea generation, redefining and addressing design problems.

"The Theory of Inventive Problem Solving (or TRIZ, in the Russian acronym), developed by Genrich Altshuller... is based on studying thousands of patents... TRIZ aims to create an algorithmic approach to the invention of new systems, and the refinement of old systems." [1]

Therefore, I propose to investigate if it is possible to define target audiences not by socio-economic status, demographic groupings and patterns of consumption (although the more recent post modern marketing theories concerning consumer goals and motives may prove to have a bearing on this project) but by the various theories and categories used to identify the styles by which people learn.

However, in order to make the target audience categories viable, there is likely to be one residual traditional demographic component, that of age and/or level of educational attainment. I have chosen to set this as a "lay reader" an established target audience grouping as used in Publishing. Within the UK, a lay reader can be described as an individual that has achieved the basic educational attainment expected for a 16 year old,

although their educational attainment and/or life experience may place them significantly above this threshold. The individual is also likely to have an interest in the subject of the communication but not necessarily knowledge in breadth and/or depth.

What are Learning Styles?

Learning Styles are models, diagnostic tools and paradigms that attempt to define or map how people learn, the majority of these models also propose strategies for teachers and students to employ in order to teach and learn more effectively. Although theories and concepts about Learning Styles and Cognitive Styles go back to the 1940's, it was not until the 1970's and 1980's that Learning Styles started to become a significant area of interest and research within Commercial and Academic areas. Although the phrase Learning Styles is simple and succinct it belies the complexity of a subject that is further compounded by different and sometimes competing interests.

“Yet beneath the apparently unproblematic appeal of learning styles lies a host of conceptual and empirical problems. To begin with, the learning styles field is not unified, but instead is divided into three linked areas of activity: theoretical, pedagogical and commercial.” [2]

The latter “*linked areas of activity*” can be broadly described as Cognitive Psychology/ (theoretical), the Theory and Practice of Teaching & Learning (pedagogical), Corporate Personnel Assessment and Development (commercial).

Therefore the divergent and complex nature of the latter disciplines gravitates against a consensual definition of Learning Styles. However I have selected one definition from *Perspectives on Thinking, Learning, and Cognitive Styles*, edited by Sternberg, R. and Zhang, L (2001). The definition may lack some depth but I would maintain it describes the subject coherently and succinctly.

"Theories of Learning Styles deal with how people like to learn." [3]

The inclusion of the rather trite word “like” is key, not only to the latter definition but also to this project. By mapping and understanding the styles by which people prefer or “like” to learn, not only enables teachers to develop their curriculum and delivery, to address and engage these different styles, but equally importantly, from my perspective it could provide credible criteria on which to develop communications that will successfully engage different styles of learner.

Whilst the word “style” can mean a way of undertaking an activity, such as “hands on” or “theoretical”; alternatively it can mean an identifiable form, such as “classical” or “gothic”. The latter uses and meanings have an inherent ambiguity because they are a short hand to describe and group, complex human ideas, activities and/or artifacts. I see this ambiguity as a positive, it is unlikely that any individual will align directly with any one particular Learning Style but are more likely to gravitate toward or prefer a particular style of learning. Indeed learning preferences or styles may change depending upon age, experience, motivation and context.

Problems with Learning Styles

Learning Styles or the miss-use of Learning Styles, are not without their critics, for example Toby Marshall, in his article, "*Do children need 'learning to learn'? The promotion of learning styles over knowledge is a recipe for ignorance*". Initially Marshall outlines the argument for the "*learning to learn*" strategy.

"Contemporary educational thinking is obsessed with the question of method... the world in which we live is changing with such rapidity as to render traditional canons of knowledge redundant... teaching that aims to transmit knowledge will fail to equip pupils for the world in which we live."

The premise of the latter is that "*learning to learn*" or the utilisation and development of Learning Styles is more important than subject knowledge itself. However Marshall then goes on to maintain:

"The promotion of learning styles over knowledge is a recipe for ignorance... there is nothing close to a unified, commonly accepted definition of learning to learn. Rather, there exists a miscellaneous set of attributes and approaches that have been grouped together on the arguably tenuous basis that they all encourage pupils to consider the how, as opposed to the what, of learning. A concept this baggy is unlikely to make for clear curriculum development." [4]

However, I do not intend to "*promote learning styles over knowledge*", indeed I aim to place a priority on "*the what*", that is a particular body of knowledge, although the media and format of "*the what's*" delivery may change in order to make it more appropriate and engaging to particular styles of learner. Therefore I propose to deliver the same body of knowledge or core message in a variety of different formats and the user may then select the format/communication they find the most appropriate or indeed select and engage with more than one. My approach is not necessarily making "*a more compelling case for knowledge*" but to make the knowledge or information itself more compelling, engaging, accessible and understandable through the use of extant, developing and emerging communications technology.

However rationalising the various sets of "*attributes and approaches*" from the numerous Learning Style theories and models in order to form a credible basis on which to form a range of target audience groupings or characteristics is far from clear cut.

Out of the 100 or so extant Learning Styles, Coffield, F. et al's comprehensive 200 plus page, report from 2004, identifies and evaluates thirteen they considered the most currently influential: Allinson and Hayes; Apter; Dunn and Dunn; Entwistle; Gregorc; Herrmann; Honey and Mumford; Jackson; Kolb; Myers-Briggs; Riding; Sternberg and Vermunt. Most of the latter are also intended as diagnostic tools to determine an individual's learning preferences and/or capabilities. However, these models or instruments and their ability to achieve an accurate diagnosis and effective or coherent strategy for addressing the diagnosis, appear to lack credible empirical evidence. The following quote from Coffield, F. et al's conclusion begins to highlight serious concerns about Learning Styles.

"The sheer number of dichotomies in the literature conveys something of the

current conceptual confusion. We have, in this review, for instance, referred to:

- convergers versus divergers • verbalisers versus imagers • holists versus serialists • deep versus surface learning • activists versus reflectors • pragmatists versus theorists • adaptors versus innovators • assimilators versus explorers • field dependent versus field independent • globalists versus analysts • assimilators versus accommodators • imaginative versus analytic learners • non-committers versus plungers • common-sense versus dynamic learners • concrete versus abstract learners • random versus sequential learners • initiators versus reasoners • intuitionists versus analysts • extroverts versus introverts • sensing versus intuition • thinking versus feeling • judging versus perceiving • left brainers versus right brainers • meaning-directed versus undirected • theorists versus humanitarians • activists versus theorists • pragmatists versus reflectors • organisers versus innovators • lefts/analytics/inductives/successive processors • versus rights/globals/deductives/simultaneous processors • executive, hierarchic, conservative versus legislative, anarchic, liberal.

The sheer number of dichotomies betokens a serious failure of accumulated theoretical coherence and an absence of well-grounded findings, tested through replication.” [5]

However, even from the truncated list above, various themes or similarities seem apparent, such as: *convergers, hierarchic, organizers, reasoners, concrete, assimilators, analytic learners* could possibly be rationalized or conflated under one broad ranging description, whilst *innovators, divergers, explorers, and abstract learners* could possibly be rationalized under another.

Although one of the key functions of Learning Styles is to diagnose individuals, this is not an aim of my proposal, the aim of my research is to create a series of communications: each communication accommodating and aligning with a broadly defined learning preference, strategy or style, although invariably the user may employ some form of self-diagnosis by selecting their preferred communication.

Whilst it can be maintained that helping students identify their own preferred Learning Style, can enable the student to “learn to learn” more effectively, on the other hand a prescriptive approach can also lead to a lack of flexibility not only from the teacher but also from the student, for example - I am particular type of learner therefore I will only engage with subjects and/or material that aligns with my Learning Style. Alternatively - as a teacher, I have diagnosed this student as a particular type of learner consequently I will teach them in a manner that only aligns with their Learning Style. Indeed even if one were to ignore the theoretical and empirical doubts relating to Learning Styles. Diagnosing and tailoring a Learning Style strategy for each individual student within many Educational contexts is likely to be impractical due to the time and resources required. It can also be said that the function of education does not solely concern itself with appealing to a student’s preferences and developing a student’s strengths: that is - identifying, facilitating and developing the manner in which they prefer to learn, but also concerns itself with enabling students to address their weaknesses: that is – enabling them to develop areas of knowledge or styles of learning they may tend to avoid.

Therefore a curriculum or “communication” that offers a variety of modes of delivery,

content and activity designed to accommodate different types of learner or “target audiences”, should enable the latter to engage with a subject or core message in a variety of ways, This approach may not only enable the audience to identify their own learning preferences but also develop some awareness of, if not understanding of other Learning Styles or strategies.

Segmenting target audience based on Learning Styles to formulate credible design criteria for prototype communications

As can be seen from Coffield, F. et al’s, by no means exhaustive list, Learning Styles utilise what could be described as somewhat ambiguous and/or opposing attributes or characteristics such as: *activists versus reflectors; adaptors versus innovators; assimilators versus explorers* etc.

However, one of the strengths of design and in particular Communication Design is the discipline’s ability to reconcile dichotomies, address fuzzy problems and give tangibility and engaging coherence to sometimes hazy or seemingly intangible ideas, characteristics, processes or themes. Richard Buchanan’s propositions about “*Why Designers Are Valued*” would at least in part support this view.

“Why Designers Are Valued

Whole/part: designers look at the whole in relation to the parts; they see the big picture

Bring to life/creativity: designers have a passion for making things

Comfortable with ambiguity: openendedness; not prejudging the solution; take chances, take risks; try multiple solutions

Polysensorial aesthetics: an aesthetic of many senses; this is about the actual making: prototyping; drawing; visualizing

Emotion/empathy: emotion is a way to engage with the world; passion; designers care about people” [6]

At this stage in my research it may be problematic to credibly identify different styles or types of learner, however, what does not appear to be at issue is that different people prefer and employ different ways or styles of learning and it is reasonable to propose that they learn more effectively, if they are offered and engage with a communication that aligns with their own learning preference or indeed a series of communications that may help them to identify their own learning preferences and styles.

As discussed previously, the theoretical and empirical research relating to Learning Styles can be contradictory and vary in coherence and credibility. Therefore at present without further research it appears problematic to create an authoritative or credible list of attributes, characteristics and/or definitions that broadly identifies styles or types of learner in order to provide credible criteria on which to segment target audiences and consequently design a series of prototype communications that addresses these audiences effectively.

However, I still propose that through further research it is possible to develop a series of apposite design criteria based on the styles or modes by which people learn; then

develop a series of prototype communications that endeavour to address this criteria. This criteria, is likely to be developed from further research, evaluation and identification of any reoccurring credible themes and characteristics that span substantial proportions of the Learning Styles genre. The latter will also require further research into associated and more established areas such as: Cognitive Psychology, Cognitive Behaviour, Educational Psychology, Educational & Instructional Design not only to evaluate the reoccurring themes and characteristics but also to develop adaptations and/or alternatives.

As a Communication Designer with a focus on the delivery of information, I must stress the communication experiments or prototypes I intend to produce are not intended as diagnostic tools or instruments for teachers and/or psychologists. Although invariably the user may employ some form of self-diagnosis by selecting and engaging with a preferred communication.

Evaluating prototype communications

Herein lies a contradiction; in order to create and evaluate these communications, the latter would logically require the testing of them on the target audiences for which they have been designed.

A consequence of this latter approach would inevitably require identifying individuals with different Learning Styles on which to test the prototypes. This approach would seem to lack particular credibility as I have already maintained that using existing Learning Styles theories as diagnostic tools is problematic to say the least.

However, the approach described previously of evaluating reoccurring credible themes and characteristics that span the Learning Styles genre through further research into associated and more established areas such as: Cognitive Psychology, Educational Psychology and Educational Design, in conjunction with research into relevant Communication Design theories, practices and outputs, (in particular how a message may change depending on the format and context of its delivery) should provide an appropriate theoretical framework with which to effectively interrogate, analyse and critically evaluate the prototype communications and the process of their development.

Have Learning Styles already been used as a way of segmenting or defining target audiences?

The answer to the above is most certainly yes. Many theoretical textbooks on pedagogy refer to the use of various theories of Learning Styles, the following is just one of many examples.

“The effective student teacher is one who tries to ascertain the students’ learning styles and is able to work with them. At issue here is not so much the description that one places upon the learning style, but what one does when faced with a class of students whose learning styles and preferences are varied within a single class.” [7]

Therefore this approach of segmenting or defining the student cohort (target audience) by Learning Styles and designing communications or activities for different styles of learner is often used knowingly (or indeed sometimes intuitively) within a teaching and learning context. For example a teaching session or sessions that include a variety of activities and modes of delivery designed not only to maintain interest and pace but also equally importantly designed to engage different styles of learner or learning.

Designing messages informed by learning theory is also practiced within professional Communication Design, particularly in the design of exhibitions and installations within museums, galleries and events. However, as far as I can ascertain at present, through preliminary interviews with exhibition designers, the latter do not use learning theory in the particular way I am proposing. This is an area of research, I intend to develop, however professional Communication Design consultants can be reticent about revealing the particulars and nuances of their methodologies and approaches.

The core message or body of knowledge to be communicated

The criteria for the selection of the core message or body of knowledge to be communicated has been primarily pragmatic, in the sense that it is a body of knowledge with which I am already familiar and have a considerable practical and theoretical understanding: *the development & history of Western letterforms & typography*. Using the latter subject knowledge allows me to focus on the subject areas core to the proposal, areas that in themselves are relatively diverse that is: Pedagogy, Cognitive Psychology and Communication Design.

Further substantial research into and developing the body of knowledge to be communicated is likely to make the project too large, complex and impractical. I would also maintain that the history of Western letterforms & typography, when contextualised in relation to developments in technology and culture has rarely been presented or communicated in an engaging or stimulating manner particularly to a lay audience. The evolution of the Western alphabet; the history of its use in conjunction with the development of technology and culture has a broad ranging educational and cultural significance and consequently could, or indeed should be of interest to anyone that uses an alphabet.

Format and delivery of the core message or body of knowledge

In order to deliver a core message through what is likely to be a diverse variety of formats whilst still allowing users to select an appropriate format, then some form of exhibition or at least the development of a series of exhibition components where all formats can be present and accessible at the same time would enable this approach.

Conclusion

Although this proposal requires further research in order to develop more authoritative and corroborative definitions of learning strategies or styles. I would still maintain the latter could provide new Communication Design criteria and research opportunities.

Developing prototype communications to address the latter also offers opportunities to explore the potential of using extant and emerging communications technologies individually or in combination.

Although Coffield, F. et al's, comprehensive critical review maintains that certain Learning Styles lack validity;

“some of the best known and widely used instruments have such serious weaknesses (eg low reliability, poor validity and negligible impact on pedagogy) that we recommend that their use in research and in practice should be discontinued.” they also appraised some Learning Styles as “promising” and go on to say, “On the other hand, other approaches emerged from our rigorous evaluation with fewer defects and, with certain reservations... we suggest that they deserve to be researched further.” [8]

Therefore, what does not appear to be at issue is that some Learning Styles or aspects of them have at least some validity or merit, that different people prefer and employ different ways or styles of learning and it is reasonable to propose that they learn more effectively, if they are offered and engage with a communication that aligns with their own learning preference or style.

I would also maintain that my prototype communications and research findings could provide a platform or act as a catalyst for further theoretical and practice based Pedagogic and Communication Design research and discourse.

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Good Taste vs. Good Design:

A Tug of War in the Light of Bling

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Abstract

Some products are considered to be ‘bad taste’ and therefore of less value. However, if we focus on what a product does with and for its users, rather than on what a product is, we can disregard superficial statements based on taste and instead reach a better understanding of design. This reasoning is based on the relationship between ‘good taste’ and ‘good design’, terms which are sometimes confused and treated as synonyms. In this article, we explore the tension between ‘good taste’ and ‘good design’ and how designers can use that tension in the design process. We consider ‘good taste’ to be rooted in a subjective context of inherent values, whereas ‘good design’ arises from competence and is based on professional skill. ‘Bad taste’ is here exemplified by products associated with the lifestyles of rap artists and the subculture of bling. In the context of a course on trends, industrial design students were given the task of exploring how bling products are perceived in everyday life and proposing future bling scenarios. Their views on bling were compatible with how bling is presented in the media. However, when the students began to consider what the product **does** rather than what it **is**, they were able to use bling as a source of creativity for their own bling projects. What other design opportunities are overlooked by regarding products as being in ‘bad taste’?

Prologue: Why bling?

'I love the word "bling". It can be loud, proud and sparkly, as well as cheap and tacky.' [1]

The quotation above comes from a blog about weddings, and describes a dress and its intended accessories that will make the bride feel like a diamond in a piece of jewellery. We believe that this statement summarises what characterises bling exceptionally well. Bling products are conspicuous and therefore impossible to ignore. Bling divides public opinion, either you like it or you don't. Bling generates strong feelings and opinions, something we experienced very vividly the first time we presented our thoughts on bling during a research seminar. The discussion that followed was, explosive to say the least. All the participants wanted to comment on it, and many felt an urge to accentuate their distaste for, and repudiation of, bling. For a moment, the audience forgot about political correctness. Instead they voiced comments in which prejudice and personal values were obvious. For example, bling users were claimed to be vulgar, uneducated, stupid, and unintelligent, representatives only of material and monetary values unconnected with what is good and morally correct.

During the rest of the seminar, the word 'bling' spread among the participants. 'Bling' could be heard both during coffee-break discussions and the presentations of other participants. We were not prepared for these reactions but we realised that we should investigate the phenomenon of bling more closely. What is it about bling and what makes it so emotionally charged? The dramatic reactions during this first seminar have functioned as our motivation for investigating what actually happened. Why is bling considered to be bad design among designers? The purpose of our theoretical and philosophical analysis of the relationship between bling, good design, and good taste is to illustrate how a product that represents an extreme taste can give insight into how people always react emotionally to design, and that this reaction is based on normative social values. So, what can bling teach us about design? One thing is certain: Bling makes people talk!

The struggle between good taste and good design

'Good' taste

In order to understand the struggle that takes place between bling as design expression and good/bad design, we want to begin by determining what is meant by 'good taste'. Brunius [2] claims that a person is regarded as exhibiting good taste if he or she is refined – in his or her dealings with other people, choice of clothes, choice of home environment, and opinions about art, etc. When a statement is made about aesthetic taste, it is per definition an evaluation. A person states that something is good or bad, or agreeable or disagreeable [2]. If a person in addition expresses significant experience as the reason for his or her opinions, this person is a competent judge of taste [2]. Consequently it is not appropriate to simply express an opinion relating to taste; one must also show that the thoughts behind that opinion are adequate to count as an expression of taste. Underlying this reasoning is Plato's thesis about the world of ideas: that thought is what counts and what preserves beauty, refinement, tastefulness.

According to Plato [2], beauty in objects implies partaking of the truly beautiful, i.e., the form or the idea of beauty. Consequently, what is supremely beautiful is also what is supremely good. Plato was critical of art, because it was either mimetic or reproductive. It depicts the world in a poor imitation of the world (of the senses), which in its turn is a reflection of a purer world (of ideas). Many centuries later we are still trapped in Plato's argument about beauty. People yearn for good taste, and see beauty as something elevated and divine. Though expressed differently today, people still adopt values indicating that ideas are more beautiful than actions. For instance, Norman [3] claims that products' beauty emanates from the user's *conscious reflection* and experience influenced by knowledge, learning, and culture. When it comes to design, it is often pointed out that a product must have content, not just appearance [4]. The product should be well worked-out from a holistic perspective, i.e., thoughts about the product are more crucial than its creation [5]. Merely imitating something that already exists gives the product less value than innovative aspects that demands reflection [4].

According to Kant [2], people experience beauty by way of their imaginations, e.g. free play. Kant differentiates between different kinds of beauty. Pure beauty can be found in ornaments and decorations, i.e., in the beauty of free play. Another kind of beauty is that which has a purpose, e.g., architecture. A third kind of beauty exists in the ideally beautiful, morality for instance. The beautiful can be equated with the true and proper. This can be compared to how Sandqvist [6] defends ugliness by arguing for the idea that what is ugly is alive. People are attracted to ugliness because it is alive and filled with delight. Ugliness escapes the demand for credibility (cf. preserved knowledge, [6]), and is allowed to express itself and play. Bad taste is more tolerant, 'mischievous', and provides more joy than good taste, which labours under the demands of maintaining the true, the divine [7]. Sandqvist [6] describes ugliness as the reason for beauty, not its antithesis or negation.

Hume is of the opinion that taste [2] can only be justified through joyful experiences, emotions, and desires. A product creates meaning for its user, irrespective of whether that meaning is intended by the designer or arises anyway [8]. It contributes to delight and thus to beauty, regardless of whether the arbiters of taste have branded the product as an example of good taste or not. Ahl and Olsson [9] claim that the arbiters of taste utilise guilt and shame; 'If you don't have enough cultural capital to know what is right, you still know that you don't know, and that you don't have this ability and should therefore be ashamed.' Furthermore, Ahl and Olsson [9] believe that good taste is equated with being a good person with a strong sense of morality. Such a person purchases products that have clean lines (with respect to form) and are environmentally friendly; he or she is not likely to lounge on a leather couch with a rustling bag of crisps watching the latest reality show on TV.

The sinful is ugly. According to Eco [10], the introduction of ugliness and suffering contributed to paying homage to the divine (the death of Jesus on the cross, who is illustrated as tormented and misshapen) and also encouraged other kinds of ugliness, as long as they were exaggerated for moral purposes alone, in order to strengthen piety. People flee their own mortality by shutting their eyes to what is sinful and ugly [6]. Perhaps that is why good judgement has been accorded such a prominent place in our culture, and contributes to making people hold on to what is good as they approach the tasteful or tasteless. The core values for taste have been passed down through so many generations that people view them as autonomous and react emotionally without the least reflection [11].

Bourdieu [12] discusses the link between culture and identity. By using taste a person can, according to Bourdieu, confer different class allocations on people in his or her surroundings and thus, at the same time, communicate affiliation with a group. When people wish to point out differences between 'us' and 'them' by expressing their taste, they use dualities such as authenticity, simplicity, individuality, and their opposites [13]. Our entire society is based on rivalries between us and them. Cornell [14] and Richins [15] describe consumption as an activity by which people use products as a way of relating to one another, of defining but also differentiating oneself from others. In this way people bestow a social identity on themselves through conscious choices of products [16, 17], in contradistinction to Bourdieu's argument about people being born into and fostered to their habitus.

'Good' design

Does 'good' design exist? Objects are considered to have status and value when identified as being 'designed'. In this way design is, according to Crozier [11], given meaning as a lifestyle, something aesthetically pleasing or fashionable. In Sweden, the Swedish Society for Industrial Design and Gregor Paulsson [18] struck a blow for more attractive everyday goods during the first half of the previous century. This happened at the same time as a transformation of the core values in society. Rampell [19] shocked the Swedish design collective with her hard criticism of good Scandinavian design. She is especially critical of the design award Excellent Swedish Design and as well as Ask [5] argues for the modernist values underlying good design. Rampell [19] primarily objects to Swedish design closing the door to postmodernism, which is portrayed as a threat. Rampell [19] claims that postmodern design is still judged on the basis of the modernist rules for good taste.

According to Ahl and Olsson [9], discussions of taste are avoided in design circles. Instead, designers pretend that the issue is quality, that through measurement some things become better than others for people. Furthermore, Ahl and Olsson [9] suggest that taste encompasses gender, power, and ethnicity. In spite of this, designers choose to call taste 'form' rather than 'taste'. As a result, good taste becomes synonymous with good form language [9]. An understanding of good form is based on values such as balance and symmetry [11]. Hume [2] believes that in an aesthetic context people often reach agreement about general issues, such as the value of elegance, vividness, and simplicity. On the other hand, people find it difficult to agree on details, for instance the exact point in time when the quality of elegance comes into existence. In order to be competent in one's aesthetic taste, one must, according to Hume, possess sensitivity, i.e., the freedom of imagination. However, a free and flowing imagination cannot function alone. Instead, it must be put in relation to personal interpretations, experiences, and professional skill.

In the world of aesthetic taste, a number of variations and mutually contradictory taste preferences prevail [2], for instance the gap between creative artists and practising critics [2]. Because of this, we feel that the issue of good design becomes a non-issue. Good design is promoted by design theorists and design historians as something that is needed to consolidate the ideas expressed about design. Thus Plato's thoughts about the world of ideas being more beautiful than the world of the senses return once more. For the practitioner who creates design, the idea of good design is meaningless because

good design can, according to Pye [20], only be measured in relation to the intentions of the designer. A bad product is, according to Pye [20], one that does not correspond to what the designer intended. From this we claim that good design is so thoroughly merged with professional proficiency and the skills that are necessary for creating something, that, if the practitioner were to assess something as being a good design or not, he or she would simultaneously assess him- or herself as being competent or not for the task at hand. For instance, Norman [3] writes that simply making something pretty, cute, or fun is not accepted among designers, who want to be acknowledged by their colleagues as being creative, imaginative, and deep. The criteria upheld by an arbiter of taste in order to determine what is good design are obvious and self-evident elements of professional skill, and thus superfluous for the practitioner.

Bling as a concept and how design students view it

What is bling?

*Bling bling
Everytime I come around yo city
Bling bling
Pinky ring worth about fifty
Bling bling
Everytime I buy a new ride
Bling bling
Lorinsers on Yokahama tires
Bling bling*

The lyrics above are from the rap song ‘Can see my earrings from a mile, bling bling’, which was written in 1999 by the seventeen-year-old rap artist B.G. (Baby Gangsta), from New Orleans. At the time, B.G. didn’t know he had just coined a term that would spread from the ghetto to the mainstream. ‘I just wish that I’d trademarked it’, B.G. is supposed to have said at a later date, ‘so I’d never have to work again’ [21]. Originally, ‘bling’ is an onomatopoeic slang term from Jamaica that imitates the ‘sound’ light makes when it hits and is reflected by a diamond [22, 23]. The term has been adopted by American rap artists and is usually used regarding glittering jewellery that indicates wealth: showy diamond rings, large golden necklaces and accessories. ‘Bling’ is also used to denote a lifestyle where it is important to signal wealth in a straight-forward manner through ostentatious consumption [24]. The diamonds represent the ultimate prize, the height of success, the glittering finale [25].



Figure 1 – ‘Bling’ is associated with, among other things, expensive and bombastic jewellery and watches [34].

In 2002 ‘bling’ was included in the *OED* with the following definition: ‘Ostentatious, flashy; designating flamboyant jewellery or dress. Also: that glorifies conspicuous consumption; materialistic’. ‘Bling’ is both a noun and an adjective and is thus not only associated with objects but also with their use. According to Duffy [25], ‘bling’ also represents values that allude to criminality, hardness, or violence. Apart from the American rap artists that popularised the term in the late 1990s, there are other influential subgroups that today lay claim to the term ‘bling’. What these groups have in common is fast ‘new’ money. One of these subgroups consists of wives of football professionals [26]. They are economically independent and surrounded by wannabes who, in their turn, spend large sums of money in order to appear bling, despite limited economic opportunities.

How do design students view bling?

The above descriptions of what bling is represent how bling is presented in the media, perhaps especially via the Internet [27], [28]. But how is bling experienced and defined in general, by ordinary people? And how does their image of bling correspond with that found in the media? In one study [29], design students discussed bling in relation to design and current trends. Design students are interested in aesthetics, and consequently, in aspects of good design and good taste. Therefore they represent what the design collective at large may believe about bling well. In the study it transpired that the students’ spontaneous interpretations of bling corresponded with how media presents bling [29]. The students described bling using words like ‘earrings’, ‘dollar signs’, ‘glitter’, ‘diamonds’, ‘jewellery’, ‘Pimp my Ride’, ‘hip-hop’, ‘rap’, ‘necklace’, ‘Versace’, ‘USA’, ‘rims’. People they associated with bling were, among others, rap

artists like Snoop Dog, P. Diddy, Jay-Z, Daddy Yankee, and Milad. However, they also mentioned people like J. Lo, Paris Hilton, and French President Sarkozy. In the students' discussions it became clear that they agreed that bling as a phenomenon is firmly rooted in an aesthetic culture that is distant from their own, and thus hardly something they were inspired by as a design expression. In addition, it was evident that they dissociated themselves from the design expression of bling. Different opinions were passionately defended; some students claimed that one product was bling while others considered the same product to be an example of luxury, glamour, or kitsch. In the end, the students expressed a common insight: bling was a challenge for them to handle due to the inherent emotional resistance they felt [29].

What does bling *do*?

A bling product shouts out its message: bigger is better, more is better, glitzier is better [30]. Bling products have a style that communicates their cost or positioning in a clear and obvious way, e.g. by an overly explicit exposure of trademarks or logotypes. But bling also reinforces prejudice. The following blog post is an indication of this: 'It is just part of the process of ghetto culture, becoming wealthy and indulging in whatever obvious and tasteless that puts their new-found wealth on display' [31].

According to Christoforidou and Olander [29], it was not until the design students began discussing what bling does with and to its users (for instance by representing pride), rather than what bling is, that they could accept bling as a source of inspiration. We believe that what bling does occur on two different levels, an individual and a social one. To the individual user, the contribution of bling is increased pride; it enhances the user's personal identity but also his or her group affiliation. A bling product becomes thus a status symbol - an attribute with which to signal the achieved level of success. Bling creates emotional reactions in the observer, who repudiates and dismisses it as superficial and tasteless, or the opposite occurs, and bling creates admiration and envy. On the social level bling represents the user's climb up the social ladder, from ghettos and poverty to wealth and success. Bling signals revolt, the breaking of social codes, and an active choice of placing oneself outside of convention and tradition. To the observer, however, bling confirms existing prejudices, consolidates power structures that segregate social groups, and reinforces the associations between 'black' rap culture on the one hand and violence and crime on the other. Bling challenges normative values that are deeply rooted in society, e.g., good judgement and the prevailing view of good taste.

Like so many other things people choose to consume, bling sends out signals that manifest life-style and group affiliation [24, 30]. Bling signals that the user has succeeded in achieving high economic status, and thus has climbed the social ladder [24]. At the same time, from the perspective of Bourdieu's [12] ideas about class affiliation, bling communicates low cultural capital. However, we believe that the users of bling do not experience an inferiority complex because they do not possess high cultural capital. Such complexes are assumed to exist by the others, those who possess 'good' taste, those who know, who dismiss bling and its users as tasteless. Bling is neither subtle nor sophisticated; a high degree of cultural refinement is not required in order to decipher a bling product. For this reason, we argue that the message can be understood by everybody, both initiates and outside observers. In this lies a difference,

in that those of independent economic means traditionally do not willingly let in outsiders. Making the codes available and overly explicit so that everyone can understand them is not as mystifying, exclusive, and excluding, and thus becomes vulgar instead.

Bling reflected in the contradiction between ‘good’ taste and ‘good’ design

Brunius’s [2] text on aesthetic taste contributes to clarifying why people in design circles are upset by the bling phenomenon. As mentioned earlier, bling has a quantitative aspect: more is better,. One diamond is not bling, but an excessive number of diamonds in infinite repetition on a ring is. Brunius [2] writes that the enemy of beauty is the boredom caused by repetition. Does the multitude of diamonds neutralise the experience of the diamond’s beauty? Both Ask [5] and Rampell [19] believe that the prevailing view of good design is based on modernist criteria when evaluating products attributed to postmodernism. For this reason, such products appear to threaten good design. On the basis of this assumption we find it reasonable to consider bling as a postmodern phenomenon, and thus, from a modernist perspective, a threat to good taste. Perhaps that is why bling upsets so many people to such extent.

One additional demand that Hume [2] places on an arbiter of taste is freedom from prejudice. By showing good judgement it is possible to avoid prejudice. Good judgement is an important prerequisite for good taste. This requirement is extremely interesting when viewed in relation to the bling phenomenon because the evaluation of bling is strongly connected to the evaluation of African-American culture in the USA. Are the arbiters of taste capable of seeing beyond the prejudice associated with bling, seeing bling for what it is, and seeing through that which is first visible: a black rap artist from the ghetto who believes he is someone, a person who, without arguing for his own opinion or indicating some underlying conscious thought, shows himself off instead of being discreet and refined? The fact that bling is so provocative to the aesthetic elite of the Western world is probably due to the lack of an expectation of finding refined thought behind it, that it is a superficial exposure of status linked to appearance without any connection to Plato’s world of ideas.

What can we learn from the tension that bling produces?

According to Sandqvist [6], things that liberate us and set us free are beautiful. Bling liberates us from conventions and opens us up for creativity and a zest for life. Bling appeals to our emotions to a greater extent than does our reason. Bling has shown that good taste and good design are not synonymous. Good taste is premised on a subjective evaluation that is deeply rooted in inherited core values. Good design on the other hand, is a result of competence and professional skill. The way in which people measure or determine what is good design is only important to the critic, not to the practitioner. According to Swann [32], designers have always traditionally intended for their design solutions to contribute to what is positive and good for society. Not until the advent of postmodern philosophy did designers permit themselves to challenge what was considered good for the user [32]. In spite the fact that we today live in a postmodern society, the core values for good taste and good design lag behind and stubbornly keep

us confined in the norms of modernism. Bling as a phenomenon fits much better into the postmodern paradigm. Perhaps that is why the arbiters of taste and the design collective dislike bling so much. Whatever the case may be, bling serves as an excellent mirror with which to reflect and make visible discrepancies and blind spots in our aesthetic behaviour.

Our experiences in discussing bling in an academic context confirm ethnologist Eva Londos's statement [9] that discussions of taste often trigger subconscious values. Design researchers with whom we discussed this issue, for instance at the research seminar where it all began, brought to our attention the strength of the influence of the norms and values of the arbiters of taste on how we react emotionally to products. After all, political correctness was forgotten for a moment. Discussions on bling raise questions and elicit discomfort; they lead to debate and defence of the participants' own lifestyles [33]. Individuals feel ill at ease when they are in environments and contexts where their own values and lifestyles are questioned [35].

Taste is dangerous because it is a matter of moral, write Ahl and Olsson [9]; who is a good or a bad person, who is educated or uneducated, how a person should or should not be. Our experiences from bling discussions with both students and design researchers confirm Ahl's and Olsson's argument regarding morality, or rather a moment of lost morality. Designers could become better at utilizing people's aesthetic morality for something creative, regardless of whether the issue is bling or other phenomena that fall within the scope of conventions of taste.

Perhaps the design process can be used for testing ideas or design concepts in contrast to the cultures of taste that prevail in an ongoing design assignment? This could be done in order to understand how trends are created or to provide provocation in opposition to prevailing trends and values. Furthermore, on the level of design practice it is important to be able to see beyond what bling *is*, and to instead look at what a bling product *does* with and for its users. In such circumstances, bling may very well be an example of good design. Perhaps this is valid also for other product areas that feel aesthetically distant to the designer. If the designer refrains from looking at what the intended product is, and instead looks at what the product does, his or her creativity can be stimulated. Regardless, there is a multitude of products and situations that would make their users feel better were those products and situations capable of doing for them what bling does for its users, i.e., increase pride and coolness, enhance self-image, group affiliation, etc. Consider how boring most disability aids and some ecological products are compared to bling products. Whether bling can ever be considered being good taste is another issue, however.

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Acknowledgments

Our thanks goes to the students taking part in our Bling course for their willingness to share their views on design and bling.

RIP+MIX

Developing and evaluating a
new design method in
which the designer
becomes a DJ

djcad

Design
Research
Lab



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Abstract

This paper reports and reflects on a collaboration between T-Labs, Deutsche Telekom and a design research team at Duncan of Jordanstone College of Art & Design (DJCAD) at the University of Dundee that aimed to further develop and test Chow's Case Transfer approach [8] in a 'real-life' design context: the design of information and communication products and services for elderly people.

According to Lessig, ours is a "remix culture", with the increasing use of digital sampling technologies enabling content to be reappropriated, reconfigured and remade. This, he argues, is not piracy but a new cultural approach to creative production: the 21st century is the age of the mash up and the hacked technology. Boutelle contends that "web 2.0 is all about remixing, not about designing. The best metaphor for web 2.0 is the DJ, not the composer."

In 2008, Deutsche Telekom Laboratories commissioned a design research team at the University of Dundee to explore the application of the Case Transfer (CT) approach in a specific design context. CT represents an alternative to user-centred design, in which existing artefacts are used as sources of design knowledge. Transfer through abduction is proposed as a creative way to capitalize it [4, 6, 8]. The research question addressed is: how effective is Case Transfer in developing and projecting new designs? The project focussed on testing a method under development, and can be regarded as a form of prototype testing.

As the project developed, the team developed the realisation that they were acting as much as DJs as designers – ripping and sampling technologies, concepts and contexts, and remixing them in new ways. This Rip+Mix method has resulted in creative processes, insights and outcomes that are effective, productive, culturally relevant, and offer considerable scope for further development and application.

The paper describes the project, and justifies the advantages that it offers over other design approaches:

- Provides a method of making design knowledge visible and usable.
- Highly productive in terms of generating ideas.
- Counterpoints and complements user-centred design.
- Offers scope for the involvement of non-designers – because the initial stages do not assume prior design knowledge.
- Takes design away from the computer, emphasising physical recording, sketching and collaborative working.

The paper provides detail of the methods employed, evaluative methods and concludes by suggesting implications for educational and professional practices, together with future research issues.

Introduction

Rosan Chow and the Deutsche Telekom Laboratories (T-Labs) team have been investigating the concept of transferability and the Case Transfer approach since 2007. The investigation is based on and supported by a set of arguments that have been advanced over this time and documented through publication:

- The default design process which starts with studying users to find out their needs and wants is not the only approach to innovation. A design project might begin and focus on projecting new possible alternatives instead of analysing the user context [2, 5, 8].
- To aid projecting the new, we might not rely on establishing and following general principles because that will only lead to a variation of the past [3, 8].
- Existing artefacts are sources of design knowledge and it is proposed that transfer through abduction is a creative way to capitalise it [4, 6, 8].
- Three different types of transfer are proposed - Local, Regional and Long-Distance. It is assumed that in Local Transfer, knowledge is transferred within the same domain; in Regional, across similar domains; and in Long-Distance, across different domains [3, 6, 8].

Case Transfer is advanced as an approach for applying the design knowledge inherent in existing artefacts, products and services, and transferring them into a different context in order to create something new. As such, this represents an advance for the case study method, as applied to the problems and distinctive context of design.

The ‘case for cases’ has often been raised in design research, acknowledging that the case study is used as foundation for knowledge, theory and learning in fields such as law, medicine and management, and thus has a wider potential in design. Walker argued that in comparison with these other disciplines “we are light years behind in the construction of Case Studies and

their effective use in teaching and research” [12, p.33]. More recently, Breslin and Buchanan [1] have also argued that case studies could better support design in exploring the spaces between theory and practice. Their important contribution to this issue was acknowledged by Chow, but with an essential caveat: “although Breslin and Buchanan have helpfully reviewed existing practices of the Case Study method, they have overlooked and have failed to articulate a form of Case Study that is particular and significant for Design Research” [3]. This is not to deny the value of traditional forms of Case Study, which contribute to the analytical phase of design processes, but rather to propose the distinctive benefit of Case Transfer in supporting the projection of novel and appropriate concepts and solutions.

This paper does not make the epistemological argument for Case Transfer, which has been elaborated elsewhere [3], but rather reflects on its application in a ‘real life’ context from which conclusions can be drawn for research, professional design practices and education.

In 2008, with the intention to gain external knowledge and expertise Chow approached the design research team at the University of Dundee to further develop and test the Case Transfer approach in a specific design context. The team (White, Bruce and Press) developed this as a collaborative project with four postgraduate Master of Design students who pursued it alongside their other studies. It was important that the student team represented a wide range of design specialisms to fully explore how the method could be developed. With backgrounds in jewellery, interactive media, product design and service design, the students undertook the project over a six month period, supervised by the academic team in Dundee, and with regular meetings with Chow and her colleagues in both Dundee and Berlin.

The design task was to project information and communication products and services (ICPS) for elderly people. The research question was: how effective is Case Transfer in projecting these new designs? Given that Case Transfer is a method in development, the Dundee project should be regarded as a form of prototype testing. The team is using Case Transfer (as a prototype) for a specific design project, with their experiences and feedback forming the basis for reflection and refinement of Case Transfer. Below we describe the methods and processes undertaken, summarise the outcomes and reflections of each stage. Following this, we draw conclusions on its future development and application within design education.

Methods and Processes

Stage 1 Collect existing ICPS for elderly people

In the first stage, six weeks were spent on the project, with students devoting 1.5 days per week. The focus was on: (i) collecting existing ICPS examples, (ii) sorting the collection into groups, (iii) choosing an archetype from each group as representative, (iv) analysing (in words and in sketches) these ‘prototypes’ in terms of ‘form’ and ‘material’, (v) analyzing them also in terms of the context, function and purpose, and finally (vi) describing the design principles that underlie each ‘archetype’. Collecting the examples was undertaken through field research, and internet/literature review. Each student undertook ‘day in the life’ rapid ethnographic studies of individual elderly people as the key method of the field research, recording this using both photography and video.

The objective of this stage was to create a baseline of existing design for comparison with ideas developed in latter stages of the research. A further key objective was to develop robust

and appropriate methods for recording, storing and analysing the data collected. Given the need for the data to be accessed from both Dundee and Berlin, time was spent researching appropriate online visual databases. The eventual agreed solution combined physical and online methods using the innovation of knowledge swatches.

One of the key challenges for the designer is the ordering and synthesis of research into communicable and applicable forms. Research may encompass literature reviews, interviews, sketches, material tests, personas, scenarios, prototyping, testing and a range of other appropriate design methods. The relationship and hierarchy of information is dynamic and comes in and out of focus as projects form, change and develop. How can this information be catalogued, analysed, applied and communicated in a creative and dynamic way to diverse audiences?

Web sites and folders can be a useful method of collating and ordering information, but are temporally restrictive as only one page is in view in any level of detail at a time. White developed an alternative system for this project, a hybrid of the textile designers swatch and the paper prototype [11] – a flexible, visual system where a ‘card’ system of visuals, synopses, and artefacts can be created and reordered dynamically to create new insights and relationships, between text, image and re-arrayed to create new relationships or connect to new audiences. The distinctive nature of this method is to capture, synthesise and communicate theoretical and practical knowledge in a physical and visual way as opposed reductive, textual or artefact based methods.

Each stage of the project generated many *knowledge swatches* which could be presented and analysed visually in the *knowledge wall*, as shown in figure 1, but which were also scanned, archived on Basecamp and tagged appropriately for remote reviewing.



Figure 1 – The knowledge wall

In addition to the methods described above, the team also recorded their thoughts and reflections on each stage of the project as an important contribution to its subsequent evaluation. Some of the key reflections at this stage were:

- Using the archetype was an effective way to filter the *knowledge swatches*. The use of rapid ethnography methods, drawing on IDEO method cards improved our ability to gather and sort data.

- Analysing in words and sketches made the team aware of the components of a product and a service. This learning and understanding revealed its full value as we entered the second phase of the project, as did abstracting the design principles we learned.
- Photographs of products taken in context were very rich and powerful. Although the context could not be transferred, it enabled the team to view the swatches holistically. The knowledge swatch method was a form of visual referencing that enabled the team to be immersed in the design culture and use context.
- Team members went through periods of boredom and frustration that we were analysing and documenting, rather than “creating”.

Part of the frustration reported stemmed from the process and methods being largely alien to the conventions of design education that emphasise user research and ideation. Indeed, the project partners in Berlin had to repeatedly remind the Dundee team not to use the ‘proper’ methods of design research. This challenge to *designerly* ways of working was a constant throughout the project requiring, as explained below, a new and appropriate way of framing the project.

Stage 2 Collect existing ICPS for people who are similar to the elderly

Previous Case Transfer projects undertaken at T-Labs had highlighted Regional Transfer was the most productive means of transferring. Therefore the focus of stage 2 was to collect ICPS for people who were similar to the elderly using the same methods of analysis as described above. The key aims of the second stage were to: (i) collect ICPS for the homeless, churchgoers, children, taxi drivers and prisoners, (ii) choose products and services that are different from existing ICPS for the elderly, using the information produced in stage 1 as a baseline, (iii) analyse, in words and in sketches, these products and services in terms of ‘form’, ‘material’, ‘context’, ‘function’, ‘purpose’ and service design descriptors. These latter descriptors derive from Jonas et al [9] and comprise 1. category - type of service, 2. function - purpose of service, 3. stakeholders involved, 4. infrastructure / resources needed, 5. steps / components of service process, 6. medium of communication / channels, 7. type of interaction, 8. touch-points, tangible interactions and 9. unique characteristics. The selection of the groups to be researched arose from a brainstorming session held in Berlin with the research team and the T-Labs project partners. Selected groups were required to share certain qualities with elderly people; for example, taxi drivers because of the time spent in isolation and children because of their developing cognitive abilities.

As in Stage 1, the methods used to collect the ICPSs included internet and magazine research, quick-and-dirty user interviews and field observation. Knowledge Swatches were again employed as the analysis and archiving method.

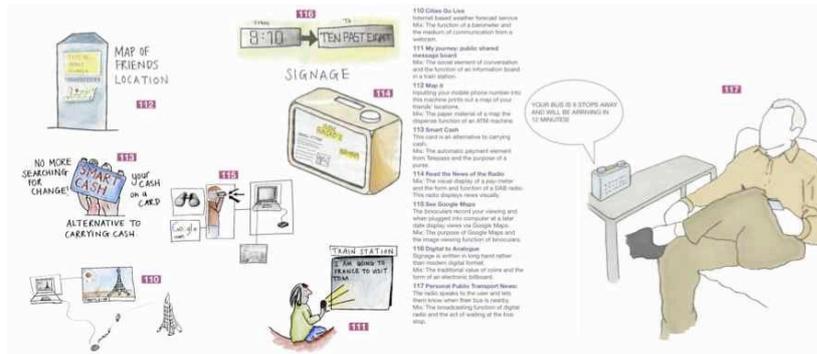


Figure 3 - Sample of transfer

Discussions between the student researchers, the academic leaders, and the Berlin partners at the start of Stage 3 highlighted the need for a culture shift in how the project was being approached: the team was encouraged to be mindful of being relaxed and of using the accumulated material in a free and imaginative way. A key consideration developed at this stage, was how the drawings were presented and who the intended audience was. Clarity and consistency was the key, with an emphasis on two issues: (i) explanation of the interaction: use illustrations of people where possible to explain how products and services are used; (ii) legibility of drawings: to be presented at a relatively small scale; team required to use chunky, clear drawing style and colour.

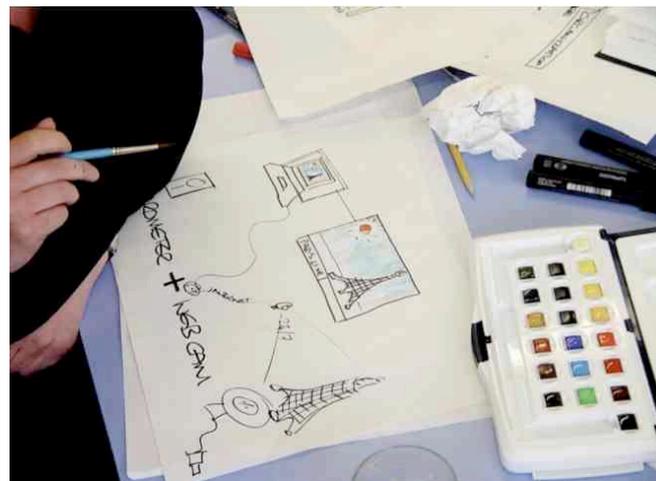


Figure 4 - Transfers in progress

As the student researcher log highlights, this stage represented a distinctive phase of the project: *“We learned a wholly new way of designing that was at first highly challenging, but ultimately very liberating. In short, we learned how to ‘let go and riff’. The method we were using challenged the accepted approach to design that we had been educated to follow and adopt. Rather than find a problem, research requirements and generate ideas, we were colliding ideas and possibilities, at times seemingly randomly. This led to some initial scepticism as to the value of what we were doing. However, as the process developed we realised that we were generating a large number of ideas in a short period of time using an intensive approach. This placed demands on us to sketch and visualise very quickly and intuitively. The collective nature of the group enabled ideas to be generated, discussed and refined at a rapid rate, seemingly raising our confidence to make judgements.”*

Reflections

“It is a truism that we live in a ‘remix culture.’ Today, many cultural and lifestyle arenas— music, fashion, design, art, web applications, user-created media, food—are governed by remixes, fusions, collages, or mash-ups. If postmodernism defined 1980s, remix definitely dominates 2000s, and it will probably continue to rule the next decade as well” - Manovich [10].

A challenge throughout the project - for the student researchers especially - was to develop a conceptualisation of the process that justified the methods in terms of creative design. At times there was the perception that Case Transfer represented a quest to develop a ‘scientific method’ for design concept development. While this was far from the intention, the emphasis on knowledge swatches, archetype analysis, service design descriptors, etc., tended to suggest a far more formalised approach to design than the students, or indeed their academic supervisors, were used to.

Allied to this was the realisation that the method runs counter to the way we teach design: you are really not supposed to design like this. The ‘orthodoxy’ of User Centred Design emphasises the requirement to place the needs of users at the centre of the process, to involve them where possible in the creative process (and certainly in the research process) and to establish the validity of design propositions on the basis of robust initial research and user evaluation. In contrast, the Case Transfer method involves users in a peripheral way, placing the design knowledge embedded in existing products at the centre of the process, and employing intuitive serendipitous thinking as a means of applying that knowledge to a new design context. As Stage 3 of the project got underway, the observation was made that the team were acting as much as DJs as they were designers: Case Transfer was a process of *rip and mix*.

In our remix culture, the DJ is a musical creator. Their act of creation is grounded in a painstaking acquisition of music, an intuitive feel of what tracks (or parts of tracks or sounds) go well with others, an equally intuitive and well attuned feel for the audience you are playing to, and a well developed craft of mixing. The Case Transfer method, as defined originally by Chow, reflects this same process of creation. By framing Case Transfer as DJing for the student researchers, this provided a confidence and challenge for the process. Stage 1 is thus titled *Rip 1*, Stage 2 is *Rip 2*, while Stage 3 is *Mix*.

Rip+Mix places the focus of the design process on existing design knowledge, objectified in the form of existing products and services. While we certainly need to understand the user, this is foregrounding knowledge that acts as an intuitive filter for the analysis and ideas generated later in the project. The expertise we are required to develop is an acute sense of judgement on what design knowledge is worth ‘ripping’ and what recontextualisation, reconfiguration or ‘mixing’ has relevance or potential. The liberation this provides us with is a valuing of the sensuous and creative qualities of design knowledge, and the confidence to use this in new and appropriate ways to develop new solutions. It places a new respect on that knowledge.

Conclusions and recommendations

Following the project described above, two members of the student team delivered a workshop on the Rip+Mix method to staff at Deutsche Telekom Laboratories in Berlin. The method has also been integrated within design teaching at the University of Dundee and applied to some student project work. From this experience, we can conclude that Rip+Mix has the following advantages and characteristics:

- **It provides a method of making design knowledge visible and usable:** breaking down products or services into their component descriptors ('ripping'), uncovers individual elements e.g. material, form, function etc. which can then mixed and transferred into new products and services. This could be described as 'conceptual reverse engineering'. The *knowledge swatch* technique offers a flexible and highly visual method of data capture and analysis.
- **Highly productive in terms of generating ideas:** once existing products and services have been gathered and described, new products and services can be generated extremely quickly. Ideas can be produced in a visual brainstorm, without filtering or rejection on practical grounds at this stage in the process. This process of 'enforced serendipity' - colliding concepts together - is informed by the understanding developed in Rip 1.
- **Counterpoints and complements User-Centred-Design:** The method does not attempt to gather user wants and needs, which speeds up the design process. However, end-users can and have been successfully involved in the Rip+Mix method for generating concepts, and can also be involved in the later co-design and evaluation stages. It can therefore be integrated to varying degrees into existing methods.
- **Offers scope for the involvement of non-designers – because the initial stages do not assume prior design knowledge.** The successful development of a design requires the input of a range of different stakeholders who have an active interest in the design outcome. Rip+Mix allows non-designers (e.g. marketing, finance, engineering professionals) to be involved in the front-end stages of the design process as opposed to only being brought in at later stages in their own area of expertise this encourages them to 'buy-in' to the design solution from the outset.
- **Takes design away from the computer, emphasising physical recording, sketching and collaborative working.** Sketching does not require specialist skills and allows ideas to be made tangible and shareable. This opens up the design space and invites others into a playful and free environment where not only are ideas generated and captured, but relationships built and maintained within a team. The very physicality and open collaborative nature of the Rip+Mix method provides other echoes of the DJ's relationship to the audience, in which the DJ's skills as a listener and observer of how people respond to their music, are as significant as their skills as an expert mixer.

In both professional (Deutsche Telekom Laboratories) and educational (University of Dundee) contexts, we have established a clear value for Rip+Mix as a design method. An important part of its value is providing a playful and open arena in which specialist and non-specialists can develop design concepts that can be subsequently evaluated through more conventional methods.

Further research can evaluate the relative effectiveness of different *ripping* methods, and explore alternative scenarios and methods for *mixing*. Meanwhile, we have perhaps begun to establish a case study method that is unique to and appropriate for the requirements of creative design.

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Acknowledgments

The authors wish to thank Rob Black, Lauren Currie, Gio Giove, Kate Pickering and Fan Xia for their hugely valued contributions to this project.

5 MAY
Thursday
2.30 pm

Education

PGCTALD Action Research Project Report

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SYNOPSIS

This paper is part of my action research report (2010) for the PGCTALD at Central Saint Martins College of Art and Design, The University of the Arts London. The action research involved identifying an area in my teaching practice that could be improved and inventing and applying an intervention to improve it. My challenge was running an elective unit to students from different disciplines ranging from Graphic Design, Interior design, Textile Design to Fine Art. The unit was long and thin with little contact teaching time and no real studio or workshop space available for the taught sessions. My report charts my intervention in the context of various academic theories.

CONTEXT

I have been teaching in HE now for over 13 years in different contexts from associate lecturer to pathway leader to academic leader. Alongside my pedagogic career I have successfully developed a career as a freelance designer and researcher. My practice is diverse ranging from graphic design for arts and cultural based commissions, self-published and self initiated projects to larger research projects that culminate in exhibitions and publications. I often work in collaboration with fine artists, writers, interior designers, graphic designers, filmmakers, curators and social entrepreneurs.

My academic experience is also varied. I have worked for many different Universities including UAL, University of The Creative arts Farnham, Middlesex, London Metropolitan University, I have lectured and presented papers at international conferences and been engaged in practice based and pedagogic based research. Having started out as a practitioner and associate lecturer I took on full time positions in education. In 2007 I decided to return to associate lecturing to dedicate time to my own practice and research. I was lucky enough to have many teaching offers alongside an

offer of an Honorary Visiting Research Fellow at London Metropolitan University.

I love the combination of teaching, research and practice and see each feed into each other. I found the PGCTALD a rewarding experience and challenging at times. It has made me look at my teaching and the wider debates in education in new ways. I scrutinized my own teaching practice and found areas to improve. I have learnt much from reading academic theories and linking them to my own practice, and through debate with my peers and tutors on the course. I found it difficult at first to apply the theories to my practice in a manageable way as I am always thinking big as opposed to small; I was reminded that this is not a PHD! An opportunity came up at Chelsea for me to identify a problem area and apply an intervention.

2009/2010 was the first time I had taught at Chelsea college of art and design. I had regular hours on the second year BA Hons graphic design communication course and in addition to this I was asked to lead an 'elective' unit for 10 weeks starting in January 2010. The elective unit consists of teaching a particular subject, in this case 'Contemporary Typography' to students from different degree courses and disciplines. From graphic design to textiles, interiors and fine art. This unit intrigued me, due to my own practice being multidisciplinary and due to my experience at London Metropolitan University as academic leader. At LMU I had successfully contributed to the writing and delivery of a multidisciplinary MA course (MA Design Suite) and I have first hand experience of teaching students from different design disciplines in collaborative working contexts. This type of multidisciplinary working is, in my experience, dynamic both in educational and industry contexts.

BACKGROUND

Leading the elective unit was an opportunity to apply a new intervention to improve the delivery of a previously problematic teaching scenario. No lecturers seemed to want to take it on! I discovered that for the previous 4 years 4 different individuals, who did not wish to deliver it the following academic year, had run it.

My first step was to identify each of the problems linked to the unit.

The unit is long and thin with limited contact teaching time of 3 hours per week for 8 weeks with 36 students. By talking to academic staff, I discovered there was a problem keeping students engaged and productive on this unit and a history of a high student drop out rate with many students failing the unit. The unit runs separately to the core BA

academic delivery. Some students and staff have seen it as secondary to their main studies, which it is not.

Communication with BA programmes is limited to a short intro talk from the electives co-ordinator. Staff on the different BA programmes are unaware of the actual delivery and student engagement beyond the unit descriptors. There was no documentation of student work or progress that fed back to the BA programmes beyond the marks and unit assessment feedback.

Students generate most of their work outside of the taught sessions and in the past keeping them engaged and motivated was a key issue.

They approach the unit from the context of their discipline, which is challenging in terms of making it relevant to each individual student. Some students (Graphic Design Communication) have more fundamental knowledge of typography than others. Students are approaching the elective from different contexts, with different abilities.

Quite often inappropriate spaces are booked for the electives and finding suitable spaces is problematic. All rooms are prioritised for BA delivery and the space allocation for the electives is secondary to this.

I decided to concentrate on the problems of student engagement and the fact that I would be teaching a subject to students from varying disciplines. On the BAGDC course I met Pete Maloney who has done extensive research into the use of blogs within his teaching. I approached him with the idea of introducing group blogs in the typography elective, produced by multidisciplinary groups of students. He was very positive and offered me advice in the early planning stages of my intervention. * This led to me focusing my research into a question to be answered.

* <http://www.chelsea.arts.ac.uk/17230.htm>

ACTION RESEARCH QUESTION

If I introduce Blogs as an assessable part of this elective unit (for interdisciplinary groups), will this encourage and enable students to form productive communities of practice outside of the taught sessions?

Despite the long list of problems, I was excited at the prospect of delivering a subject that I feel an affinity with in my own practice (contemporary typography – see

www.susannaedwards.com). I was also keen to facilitate multidisciplinary student groups to create a design laboratory where ideas and skills could be shared.

LITERATURE REVIEW

Action Research was a beneficial experience for me. I reviewed my approach to teaching honestly and openly. Through reading and discussing academic theories I identified a problem area in my own practice and invented a new way of tackling that problem. I monitored every stage of delivery and the effects it had upon the students and myself. I will not hesitate to carry on this form of enquiry and intervention in my future practice; it has deepened my awareness and broadened my repertoire.

After reading about '*communities of practice*', I began to attach critical theory to what had previously been intuitive decision making in my teaching and my practice. In the first instance through our course readings of an article by Smith (2003,2009) and then through Wenger (1998, 2006). Through my intervention I 'constructed' and encouraged communities of practice to form throughout the elective unit at Chelsea. This intervention in the form of group working and using web logs had a radical and positive effect on the performance of the students and the manageability of the unit.

As Wenger argues that there are 3 areas that are characteristic of a community of practice – **The domain** – an identity defined by a shared domain of interest – in this instance the theme of the elective 'contemporary typography.'

The Community – shared learning through discussion, sharing information and joint activities, in this instance this shared learning was achieved through the use of a web log.

The Practice – The members of each group 'community' developed a shared repertoire of stories, tools and approaches to problem solving, in the elective unit it is clear to see this in the final outcomes displayed on each groups blog.

Wenger talks about a shared competence that separates members from other people. In this instance the students were coming from different disciplines with varying knowledge and competence in the area of typographic design. It was by creating and forcing small communities to work together that the practice in each group developed. Wenger talks about a *living curriculum* where individuals who do not have the skills or competence-look and learn and have more simplistic participation before partaking fully in the practice. This was happening naturally within student groups through an organic exchange of knowledge and skills.

Through *participation* and *reification* (reflection, definition, redefinition as an ongoing

process through the web logs and crits) the students came up with their end piece of work. Relationships and trust were formed through *experiential learning* (learning by doing). Communities of practice were formed not only in the small working groups but also by the class of 36 students as a whole. There were several large group presentations and discussions where the ideas and work from the smaller groups were presented, reflected upon and discussed. The format of the web logs allowed for information to be accessed and shared by everyone, forming groups, networks and associations inside and outside of the taught sessions. At the end of the project there was a *tacit understanding* of the subject contemporary typography between group members that came about through shared learning experiences.

Brockbank and McGill (1998) talk about *deep and surface learning*. By using the web logs students were engaging in deep learning, they directed their own discourse and reflection and felt themselves to be the *agents of learning*. Brockbank and McGill (1998) also talk about *reflective dialogue* as a social approach to reflective practice. Looking specifically at the relationship between the learner, their peers and the tutor to study and analyse reflective activities. As Peter Maloney (2007) emphasises in his paper abstract '*There is a direct relationship between the nature of activity required for reflective dialogue and the intrinsic capabilities afforded by social networking software such as blogs.*' Peter Maloney also states that '*there is a growing body of research into the potential use of blogs and other social media as tools to learning and teaching in HE. Williams and Jacobs (2004) offer a comprehensive overview of blogs and blogging at Harvard Law School. There is little research at this time concerning their use as part of an integrated blended learning approach and little evaluative work of their potential in the field of art and design.*'

I feel strongly that this particular area of *blended* learning in the context of art and design education needs to be addressed as you can see from reading my conclusion to this Action Research Report.

Donald Schon looks closely at reflection in practice in his books *The Reflective Practitioner* (1983) and *Educating the Reflective Practitioner* (1987). He does look at the teaching of architectural design as a case study for teaching reflective practice. Schon talks about *reflect-in-action* and *reflect-on-action*. Both publications were written before the advent of the digital revolution. It was interesting for me to read them because the focus of reflection was paramount throughout my intervention. Students were encouraged to experiment in a hands on way as well as using new technologies, they were asked to *reflect-in-action* whilst collecting initial research and during experimentation. These were often judgements decisions and actions that students made spontaneously. Through the crit sessions and collating and writing about their work on the blogs they were encouraged to *reflect-on-action* by observing their actions and to make a description of

the tacit knowing implicit in them.

Schon states that '*students learn by doing and instructors function more as coaches than teachers.*' And that '*The student cannot be taught what he needs to know, but he can be coached: he has to see on his own behalf and in his own way the relations between means and methods employed and results achieved.*' The practicum that allowed this type of in depth learning was the web log in the context of my intervention. I provided a framework, a stepping block of initial information and a format to house their work and the students went far beyond this by devising their own methods of reasoning, constructing and testing new categories of understanding and strategies of action.

METHOD

After agreeing to run the Contemporary Typography Elective in December, the planned date for the first taught session was Monday 11th Jan 2010. Due to the electives fitting around other course timetables the sessions could only run at certain times, in 3-hour blocks per week. I had 30 hours so 10 weeks in total. The number of students signed up was 36. The allocated time of 30 hours was to be split into prep, delivery and assessment. I used 3 hours (1 session) for prep, 21 hours (7 sessions) for teaching and 6 hours (2 sessions) for assessment.

My key objectives were to get the students engaged inside the taught sessions and outside of the taught sessions, to decrease the drop out rate and to increase the standard of work achieved by the students. I had to think about how best to facilitate this.

Due to high student numbers, I decided to use a team working approach. Past experience proved that mixed working teams have the potential to share approaches, ideas and skills in innovatory and productive ways. There were more GDC students signed up to non-GDC. The other students were from BA textiles design, BA fine art and BA interior and spatial design. I created 8 groups of 4-5 students, randomly mixing the students. Each group had 3:1 or 4:1 GDC students to a student from another discipline.

My aim was to create mini design laboratories where students work in teams to create their work for the unit. I researched into the use of blogs within academic delivery. I could see that the use of blogs could be of great help in tackling some of the key problems in the delivery of this elective unit.

The assessment requirements included a 'student log or learning journal' alongside project outcomes and a written evaluation. I decided to make the blog a portfolio to

display all of the required work from the grouped students for assessment. Inspired by the staggered delivery of projects on the BA GDC 2nd year, I decided to split their project into 3 phases –

- RESEARCH
- CONCEPT DEVELOPMENT & EXPERIMENTATION
- FINAL PRODUCTION

These areas became the framework for the content of their group blogs. I asked Pete Maloney if he could be available in one of the earlier sessions on the module to run a blog master class. He agreed.

I then set up a blog myself. This would become a vehicle for students to access information about the module outside of the taught sessions. I used blogspot.com and found the whole process quite simple. Preparation included collating research linked to the subject of contemporary typography. This research included a brief history of typography and contemporary applications of typography using different media and sitting in different disciplines/ contexts. I set up a showcase of existing work and links to further research and put stage 1 of the project brief ‘research’ onto my blog.

<http://contemporarytypography-susanna.blogspot.com/>

I designed the delivery around the physical spaces available to me. There was, sadly, no room to build in any specific hands on studio work or workshops. I encouraged students to swap skills outside of taught sessions. I designated 2 weeks for research and critical analysis, 2 weeks for ideas development and experimentation, 2 weeks for final production and 1 week for final presentations leaving 2, 3-hour sessions for assessment.

Session 1 - a thorough briefing and show and tell session

Session 2 - first stage of research group presentations to whole class also a discussion on how to integrate skills as a group

Session 3 - final presentation of group research displayed on blogs with analysis and a blog master class, briefing of phase 2 of the brief ‘concept development and experimentation’

Session 4 - small group tutorials to discuss concepts and initial experimentations

Session 5 - small group tutorials to discuss final concept, roles and production schedule (deadline for proposals)

Session 6 - group presentations of final concepts to whole class

Session 7 - final presentations of blogs and final artwork

The brief remained open to each groups’ translation. After studying different applications

of contemporary typography, I asked them to generate their content (words) and decide upon the final format themselves. This allowed them to be creative, in control of their content and not restricted in their working process.

RESULTS & DISCUSSION

The level of engagement on this module was high. 34 Out of 36 students completed the unit with full attendance at every taught session with the exception of 2 students who dropped out due to illness and leaving the course. A marked improvement on previous years!

The blogs were an excellent tool for learning. Each group took pride in their blog and pulled together outside of the taught sessions to make their blog as good as it could be; they became competitive.

The students formed dynamic multidisciplinary working groups, (*communities of practice*,) and shared skills and knowledge to create exciting work.

They demonstrated deep reflection and had to consider the display of all aspects of their working processes; research, concept development, experimentation and final production. They summarised their reflection on each stage of the project with short, concise, analytical writing to accompany imagery. This went far deeper and was more refined than verbal discourse in class allows. It was done on both individual levels and in groups too. Regular discourse and integration was crucial for this to work, which it did, in every group. *Reflection in action* was evident whilst producing the work and *reflection on action* through the process of designing and writing their blogs.

From the student feedback it was clear that most benefited from multidisciplinary practice in groups, very positive use of blogs in terms of cohesion, reflection and an online source to be used outside of taught sessions and the way the project was phased with emphasis on each phase of delivery. Negative responses were few and linked to the constraints of studio space and contact teaching time, both areas that I had no control over.

The results of my intervention were captured using the following methods:

Actual blogs

<http://contemporarytypographygroup1.blogspot.com>

<http://contemporarytypographygroup2.blogspot.com>

<http://contemporarytypographygroup3.blogspot.com>
<http://contemporarytypographygroup4.blogspot.com>
<http://contemporarytypographygroup5.blogspot.com>
<http://contemporarytypographygroup6.blogspot.com>
<http://contemporarytypographygroup7.blogspot.com>
<http://contemporarytypographygroupeight.blogspot.com>

Staff were very positive about the work and progression from previous years. The highest mark was 80% and the lowest 61%. There were only 2 fails due to non-submission.

Extracts of Student feedback from the Unit feedback forms.

36 students attended the unit, 2 dropped out and I received 32 completed unit feedback forms.

Best 3 aspects of unit?

'Having the opportunity to collaborate with students from different disciplines and exploring and sharing knowledge.'

'Being taught how to use an online blogging system to aid research, experimentation and development along the entire length of the unit.'

'The research process: seeing everyone's research was really interesting and helpful.'

'Openness to new methods and forms of work.'

'Group presentations.'

'Good feedback from tutor.'

'Splitting the brief into 3 parts and spending considered time on each part led to a more interesting outcome.'

'Exploring typography in creative ways, seeing others works in class and on blogs, thinking about content and form.'

'I now have a better understanding of type and how it can be applied in different ways.'

'The blog allowed for a constant point of access to the work, so the group could store, reflect and gather work together in one place that we could all utilise.'

'I found the blog very useful and this surprised me. As a group we were able to communicate very easily, presenting ideas and critique and able to get feedback almost instantaneously.'

'Direction given by tutor acted as a good foundation for us to conduct independent research.'

What do you think could be improved?

Most comments linked to the actual teaching space, access to facilities/ workshops

'Meet for class more often.'

'Contact time with tutor/s should be increased and the opportunity to have workshops.'

'Visiting lecturers/ speakers/ studio visits.'

'Lack of studio space.'

'Meet more than the 3 hours per week with the class and tutor, plus smaller mini projects/ workshops running alongside the main project.'

'Space issues.'

Self-evaluation forms

34 forms received

Extracts:

'The times when we met as a group to experiment together were our strongest moments. We would work together to understand how to connect the text (typography) and the way we display it. We were all willing, excited and determined to produce work we were all happy with.'

'In my analysis of research I attempted not only to comment on the success or failure of work but the process used to create each one and the skills used by the practitioner themselves'.

'As a group we took pride in our commitment to the project brief, we set up various threads to exchange thoughts when we were not together and we met regularly and aided and taught one another at various points during the project'.

'Our blog was an invaluable resource for collaboration, reflection and progression. It enabled us to communicate, put forward ideas and to constructively critique each other's work.'

'By working with different talents and new people, it broadened my sense of professionalism.'

'I tend to look at my work and evaluate it in my head and then make a decision about it. This unit challenged me because I actually had to reflect on my work and leave a trace on the blog, I had to consider things more carefully.'

'It was through our reflection as a group which helped enormously in how we were going to approach the project. It helped identify our different approaches and start the project with everybody's skills in mind.'

'It gave me a wider understanding of typography, so many sources to look at and discuss. I learnt about the role that type can play in different contexts and disciplines, it helped me to approach using type in very different ways.'

'The blog was a big factor in how we worked and reflected on our work. It was useful as a group and individually. We could see where we started from and helped us to make choices as to where the project was heading. It felt like every time something was added to the blog it drove our personal and groups progress.'

Group evaluation on blogs

8 groups each with group evaluation on blog

CONCLUSION

This action research project enabled me to understand implement cycles of reflection and action, and then further reflection and action related to my own teaching practice. I will

definitely carry on with this process in the future. The project was a great success and the students and myself benefited from the experience. However, my reflection and intervention and further reflection have brought about some broader concerns.

The use of web logs as an assessable part of this teaching unit encouraged communities of practice to interact inside and outside of the studio environment. This is positive. My intervention came from problems such as: inadequate studio space and lack of teaching contact time which are negative. These are, unfortunately real issues in education that are, on the whole getting more severe. I want to make it very clear that the use of web logs and other virtual learning environments are only positive if they are anchored in the real world we live in. It is paramount that they exist hand in hand with physical, face-to-face learning and teaching experiences, in particular workshops, group discussions, critiques, face-to-face tutorials and presentations in physical spaces. **This type of intervention is not a replacement or alternative to studio based teaching.**

I received a phone call the person in charge of the future planning of elective units across all UAL colleges. He congratulated me on the success of my project and we discussed, in detail, the benefits of using web logs as an assessable part of the electives unit. With rises in student numbers and ever continuing cuts in budget for courses, my intervention appears to be an attractive and efficient way of dealing with the negatives. He admitted this in conversation about elective units. I fear that the success of this intervention will lead to a justification of such cuts in terms of managing students from a distance. I fear the future of e learning could overtake traditional studio based teaching. This would be to the detriment of the future of arts and design education.

There is a real concern that there are such continuing problems in further and higher education that need real solutions. From the many papers I read regarding the use of blogs and wikis in higher education, there was scant attention paid to the value of the physical taught environment and blended learning in terms of the balance between e learning and face to face studio based teaching time. E learning tools are an efficient and innovative platform for learning with many positive attributes, but they do not solve some of the bigger problems in education. Furthermore they should never be used as a sole means of communication, creation and action between staff, between staff and students and between students.

It is only by combining the rich heritage of face to face interaction and hands on working in physical environments with innovation in learning in virtual environments, that we as educators and managers can move forwards with integrity.

(TOTAL WORD COUNT 4,192)

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Learning beyond the comfort zone

helping students integrate design and strategic thinking

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Abstract

In 2009 we presented a paper at the EAD conference in Aberdeen, UK, that, recognising a growing impetus in supporting designers' input into business ventures, called for a collaborative design and business education providing a new platform of communication and expertise. A module from the BA (Hons) in Global Business and Design Management at Regent's College was used to explore this question. Two years on we have developed our initial premise into a more in-depth focus on the experiences and processes that our business students go through in order to explore new opportunities using design thinking. Business students often perceive this as making them very uncomfortable, however this is also the time where both strategic thinking and design thinking can come together to contribute to generation of new ideas.

The initial approach to the delivery of the module concentrated on providing students with a series of tools from both the business and design domains. However further investigation of the student learning experience showed that, to develop students 'creative confidence' (Kelly, 2010) it is important to focus much more on facilitating their journey and fostering their decision-making at those critical points within the zones of discomfort. Therefore, this paper considers how undergraduate business students can be better helped to create truly innovative and viable business opportunities in an era of multiplicity and open creativity.

The paper draws on roundtable sessions with design and business academic and professional community, interviews with students as well as experience gained from teaching the module in order to substantiate the analysis. The paper concludes with a consideration of the appropriateness of current teaching methods and the implications of providing students with a 'route map' to help them integrate, in a much more productive way, design and strategic thinking in order to respond to the ever changing user needs and business context.

Introduction

In 2009 we presented a paper at the EAD conference in Aberdeen, UK, that questioned whether within increasingly changing markets and the growing support for designers' input into business ventures, a collaborative design and business education could provide a new platform of communication and expertise. The case of the BA (Hons) in Global Business and Design Management – a degree pathway at Regent's College – was used to explore this question. Two years on we have developed our initial premise into a more in-depth focus on the experiences and processes that our business students go through in order to explore new opportunities using design thinking. Whilst Business students in particular often perceive this as making them very uncomfortable, it is the premise of this paper that through giving students an opportunity to experience 'common ground' learning environments where they can combine both creative and analytical thinking, they will be able to commit '... time and energy needed to explore new mysteries and fashion new heuristics' (Martin, 2009) in order to engage in the process of innovation. Therefore, this paper considers how undergraduate business students can be better helped to create truly innovative and viable business opportunities in an era of multiplicity and open creativity.

The paper draws on insights gained from an integration of teaching and research into delivery of the aforementioned module. The strength of this particular module delivery has always been the ability to generate a learning experience that inherently relied on the integration of design and strategic thinking. However this process has not been without its challenges, requiring development of teaching and a learning methodology that would help students to overcome them. Thus, this paper discusses an approach that has been developed to facilitate students learning in this module. It draws not only on the teaching environment, but also on the research conducted to support development of this approach.

Organised in three main substantive sections, the first is intended to provide a sense of the module as a course and as a research project. It alludes to some of our key insights which are then discussed in the second section focusing on the students' learning understood as a 'journey'. The third section then looks at a potential intervention that might support the module's aims before a conclusion in which further research themes are identified.

'Managing Strategic Design'; the module as a process of teaching, learning and research

Every spring, since 2008, students on BA (Hons) Global Management at Regent's College, London have an opportunity to undertake a final year elective entitled Managing Strategic Design. The primary purpose of creating this module was to give predominantly business students an opportunity to experience a process that can result in truly innovative business opportunities as well as gaining a broader understanding of the value of integrating design management within a business context.

The initial approach to the delivery of the module concentrated on providing students with a series of tools from both the business and design domains to help them in the process of developing such innovative business opportunities. However, reflecting the

development of the module and our research into its process, the nature of the curriculum shifted from a focus on content to a focus on process and content and, moreover, how to support students' process.

Module structure and curriculum

The module is structured around the development of an innovative business idea. Students are firstly given a brief and then required to develop a pitch for a business proposal. They are then required to think and work through this proposal from a design perspective, including the construction of physical mock-ups. The final stage then sees the development of a business model, which is not only appropriate to the novel pitch but also meets business criteria.

The first time we ran the module we were aware that we were asking an awful lot of students to do in a 12-week semester, but on reflection we realised that the challenge of the module was located elsewhere. In creating the module we planned out the key stages as well as the appropriate skills to help students along their way. However in terms of some of the tools (for instance Kim and Mauborgne's (2005) Blue Ocean techniques or aspects of Kim Warren's (2008) Strategy Dynamics approaches) it quickly became apparent that at times we were only slightly ahead of the students, and that we were in effect learning together as to how they might best be applied to the particular context of students' business ideas.

Each successive time we ran the module thereafter, the mix of design management students versus business students changed. This had implications in that design management students were far more comfortable going through a process without a clear idea of what the destination might look like, while business students tended to 'jump' to an often-superficial end point and then seek to post-rationalise any process to re-confirm this anchor. The more we reflected on these variances, the more we saw the scale of what we were asking students to accomplish in so short a time, and hence the need to help them on their journey. This got us into the habit of continually sensing and seeking to adapt to where the students were 'at'.

In 2009, after presenting the paper at the EAD conference in Scotland, it became obvious that the process of module delivery followed by reflection on the teaching practice aligns itself very well with research process and particularly Participatory Action Research (PAR). Thus, we developed a small, integrated research project around the module. The impact of the reiterative process of teaching followed by research followed by another round of teaching became the inherent nature of the module development and its delivery. It was also instrumental in shifting the emphasis for students from provision of tools to cope with the module challenge to a more holistic toolkit to develop a broader set of abilities.

Kim and Mauborgne (2005) introduced a range of practical tools and techniques, such as the Strategy Canvas to highlight what is important to current and potential customers; and the Four Actions Framework to help managers clarify such opportunities. Strategy Dynamics approaches (Warren, 2008) allows the mapping of the interaction of resources, both tangible such as customers and capacity, and intangible such as brands. The Applied Empathy Framework (Kenmeyer, 2008) engages '... customers through very thoughtful and intentional design that deeply considers the needs and desires of people—*independently* of the business and strategic goals that usually define the

products we design'. The use of these tools allows students to develop and test their innovative propositions and thus is critical to their journey in developing a response to the project brief. As mentioned above, however, as the module developed and our understanding of it and students' process evolved, we shifted from thinking about the curriculum as a set of tools to foregrounding a notion of the curriculum as a 'toolkit' to help students understand and support their own learning.

The curriculum is therefore informed by concepts such as the 'comfort zone' as a teaching and learning metaphor (Brown, 2008)¹, design thinking model (Brown, 2009), Blue Ocean thinking (Kim & Mauborgne, 2005), Strategic Management Dynamics (Warren, 2008), and Applied Empathy Framework (Knemeyer, 2008). Whilst students are progressing through the module, the curriculum offers a 'toolkit' that helps them to generate responses to the project brief.

Luckner and Nadler (1997) argue that '[t]hrough involvement in experiences that are beyond one's comfort zone, individuals are forced to move into an area that feels uncomfortable and unfamiliar – the groan zone. By overcoming these anxious feelings and thoughts of self-doubt while simultaneously sampling success, individuals move from the groan zone to the growth zone' (p. 20). Panicucci (2007) further elaborates '[e]xperience has shown that learning occurs when people are in their stretch zone. Intellectual development and personal growth do not occur if there is no disequilibrium in a person's current thinking or feeling' (p. 39). However, Brown (2008)¹ argues for the notion of comfort zone to represent a metaphor of '... how we might think about learning and growth' (p. 11). He maintains that it is through emotional safety, security and stability rather than emphasis on increasing risk students learn the most. Brown's (2008)¹ argument offers a very useful lens to consider the context, process, and students' learning experiences on our module, suggesting far more constructive approach to zones of discomfort.

Brown (2008)² defines design thinking as '... a discipline that uses the designer's sensibility and methods to match people's needs with what is technologically feasible and what a viable business strategy can convert into customer value and market opportunity' (p. 86). In particular, Brown's (2009) insistence on harmonious balance between desirability, feasibility, and validity is of interest to our teaching as it provides students with a solid framework to review and reflect upon their proposals.

Teaching and Researching the Module

As mentioned above, the analysis discussed in this paper is drawn from teaching observation as well as a research project following participatory action research methodology. Reason and Bradbury (2001) define this methodology as '... a participatory, democratic process concerned with developing practical knowing in the pursuit of worthwhile human purposes' (p. 1) It is a systematic approach that seeks knowledge for social action (Fals-Borda and Rahman, 1991). 'Action researchers reject the theory/practice divide and believe that applied research can both build theories and solve problems' (Brinberg and Hirschman, 1986). Ozanne and Saatcioglu (2008) argue that '... action research is demanding because researchers are expected to both develop knowledge and work toward social change'. It is an appropriate methodological choice as the research question focuses on both solving a practical problem in helping students understand the process in which they take part, in order to help them gain confidence whilst engaging in developing their innovative business proposals. However, it also

contributes to knowledge development around integration of design and strategic thinking into business education curriculum.

The research project pursues ‘... a spiral [of] self-contained cycles of planning, acting and observing, and reflecting’ (Kemmis & McTaggart, 2000, p. 595), which aligns with a participatory action research design. This research design was applied through reflection on module delivery leading to development of roundtable sessions delving into identified issues in teaching. The analysis and resulting insights then were fed back into the next round of teaching, followed by post-teaching reflection. This process started in Summer 2009 and will continue until Summer 2012.

Drawing on Kemmis & McTaggart’s (2000) characteristics of participatory action research, the suitability of this methodology stems from:

1. its participatory nature which examines participants knowledge and their interpretation of that knowledge.
2. its practicality and collaborative nature which insists on examination of social interactions
3. its criticality which allows participants to review critically what is being observed and through the process redefine its nature and its meaning resulting in change for the better
4. its recursive nature that insists on reflection in order to arrive at change and change in order to drive the reflection
5. its transformative nature that affects both theory and practice (Kemmis & McTaggart, 2000).

Following this methodology meant conscious questioning and reviewing of the curriculum delivery to develop ways in which design and strategic thinking can be integrated within business education. Part of this questioning process also meant identifying the nature of the relationship the two lecturers as well as the students have with the integration of design and strategy within business context, whilst taking part in the teaching and learning process.

Each iteration of the research reviewed the positioning of both lecturers within the context of their teaching as well as their role within the module delivery and the nature of students’ interaction in the learning process at both individual and group levels. The cyclical approach to the research process meant that each period of module delivery (Spring semesters) was followed by series of roundtable sessions investigating themes arising from the teaching (Autumn). The results of this process lead to insights discussed below.

Learning beyond the comfort zone

A journey

Whilst capturing the experiences our students gain in the module, we found that analogy of a journey seems most fitting in this context. It is helpful to imagine that students are the equivalent of settlers asked to undertake a journey that requires them to travel from 'New York' to 'California'. All they are given is the general direction and four points of reference. They are aware that this journey will be a challenge, but at the same time they cannot predict the precise nature of the experience nor what is awaiting them along the road they will travel. The only way to know is to undertake the journey. The following diagram demonstrates the above analogy as it applies to the context of the module.

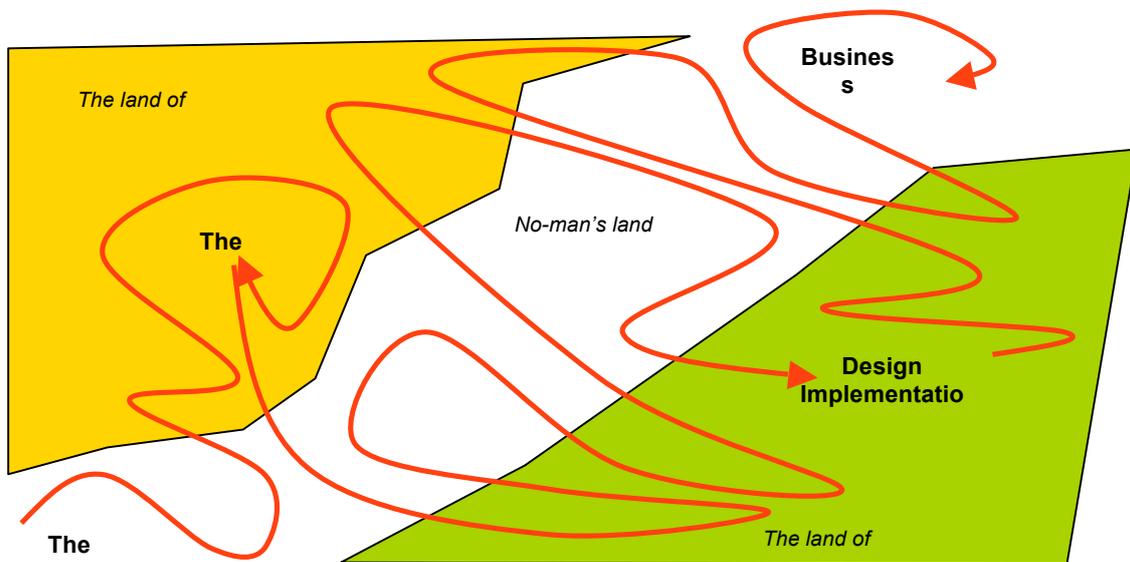


Figure 1 – A student journey during 'Managing Strategic Design' module.

Starting with the brief

Although students have received numerous briefs before, the challenge here lies in what appears to be a rather minimalist set of guidelines. The more prescriptive environment in some other modules can discourage students from taking full ownership of project brief, and developing confidence in their own interpretation. The particular difficulty in our context lies in the fact that students are from the start aware they have to develop something truly new and innovative. The students often see the perceived lack of constraints as a 'problem' as they have potentially so much 'space' to play with (compared to their normally more constrained briefs). This can lead them to jump to a particular solution as a way of reducing the uncertainty, and it can be very difficult to free them up from this initial 'anchoring'.

To the pitch

As the brief requires students to develop a pitch for their truly innovative business proposal, they almost immediately need to step out of their comfort zone. Hence, they often tend to settle for the first idea to deal with the uncertainty. Furthermore, at this

stage the notion of what is considered to be truly innovative is being explored. Often students rely on their own perceptions of what is new, thus attempt to bring already existing concepts with which they are personally familiar into what they believe is a new environment. The challenge is to push a lot further to identify truly new opportunities. At this stage students often find themselves in 'no-man's land', but as it is early in the project, this space is not seen as a creative opportunity but rather as a hindrance. At the point of presenting the proposals, it has been observed that students who have pushed their own boundaries and developed ideas beyond the familiar have a much better chance to succeed in the later stages. It is the students who best 'get under the skin' of potential customers who do best at this stage, and indeed the project as a whole.

Design implementation

The process of design implementation of the proposal often gives the project a second wind. As this stage is deeply rooted in creative processes, students are able to rethink their proposal from a different perspective and develop their ideas even further. As the outcomes are based on a process of developing a physical mock-up, this set of activities generates challenges of its own. Again those who 'dive' into the exercise with an open mind (linked to a deep understanding of the customers) tend to come up with better solutions. Students who feel that the first answer is not necessarily the right answer again tend to overcome the challenge of this stage much better.

This stage also provides students with a more flexible toolkit stemming from design disciplines to deal with the 'no-man's land'. Although this stage is not without its challenges, the fact that students are to engage in the given process in a creative manner often tends to meet their expectations where the notions of the unexpected and unfamiliar tend to be perceived as part of the development process. The experience of resolving the problem through practice is also gratifying and tends to revive the overall project.

And finally, the business model

The final stage of the brief requires students to develop a convincing business model that not only presents a truly innovative idea, but also meets business criteria. The challenge, here is not only to learn new software that allows such modelling, but to also demonstrate confidence in the proposal and ability to demonstrate confidence in making decisions around issues of business viability. Being able to see the brief and its outcome holistically against the context of the journey and the learning experience becomes the key to this stage.

Upon review of the first year of the research and teaching, observations were made as to how this project could be developed further by focusing on the development of a 'route map' to facilitate students' engagement with the project brief. In order to gain further insights a series of roundtable sessions with business community were held. These roundtable sessions with business, academics, business students, and business practitioners focused on exploring the journey the students undertook in order to generate truly innovative propositions. The sessions offered a reflective lens in engaging with the question whether some sort of a 'route map' would be an applicable tool to facilitate students' ability to utilise design and strategic thinking in order to develop truly innovative business opportunities.

A ‘Route map’?: understanding and facilitating the integration of design and strategic thinking

In 2010 Kelly argued that graduates are ‘... being asked to solve sticky, unstructured problems that don’t have simple answers. Most real-world problems are like that. Whether you’re trying to create a new product or service, or fix an old one, make something more sustainable, whatever – you have to have confidence in your ability to be creative and to routinely innovate.’ Thus, he maintained that in order to be able to engage and respond positively to this challenge, students need to obtain skills in demonstrating ‘creative confidence’ (Kelly, 2010). Students who undertake this module have a real opportunity to develop such confidence through integrating design and strategic thinking by undertaking a journey that challenges them to generate truly innovative business propositions. This experiential learning exercise, we have observed, seems to generate the right kind of mixture of experiences that build up in students a ‘creative confidence’ (Kelly, 2010).

As mentioned above, the initial approach to the delivery of the module concentrated on providing students with a series of tools from both the business and design domains to help them in the process of developing such innovative business opportunities. However further investigation of the student learning experience showed that to develop students ‘creative confidence’ (Kelly, 2010) it is important to focus much more on facilitating the journey and fostering of students decision-making at those critical points within the zones of discomfort. The key is to ensure that students develop trust in their own creative and analytical thinking and do not to rely on others to supply it. Thus, part of our own development as facilitators (rather than lecturers) for this module is to get better at diagnosing when students get ‘lost’ on the journey and customising interventions that would help them get back on their particular track. There is therefore potential in developing a ‘route map’ to help their decision-making process in this context based on students’ and our experience so far.

Conclusions and further research

Our research has evolved from its initial premise, and the iterations of research and teaching have been mutually supportive. The roundtable research has confirmed that we are attempting to really stretch students in creating truly innovative business ideas, that there is real merit in attempting this, and that this can be an uncomfortable journey for our students. Currently, we are seeking to help them learn through this discomfort by understanding more about their journey and how to customise interventions and their self-development to facilitate and support development of their particular business idea.

The reiterative process of teaching and research has indicated that a basis of the ‘route map’ has to focus on the decision-making process that is needed in order to engage with the project brief. Moreover, encouraging self-reflection is critical in effectively guiding students through the journey. Students who have gone through the module felt very strongly that it is through experience that they have gained their skills and confidence. Thus, we conclude that the value of introducing a ‘route map’ would stem not from being a prescriptive guide but, rather, from mapping out points of reflection to further foster this experiential learning. The skills gained by students following this approach should stand them in good stead as they enter the business world.

There are still areas of further research and development, for example, exploration of customer visualisation and processes of decision-making to see if insights from these areas can help students on their respective journeys. Secondly, one of the challenges of the module curriculum delivery was the need to develop a common ground between what students tended to conceptualise as two rather disparate ‘tribes’: that of design and business. Writers like Sanchez (2006) clearly indicated that designers need to be able to communicate with their clients in ways that can be identified as directly feeding into business goals. However, the teaching and learning experiences of delivering the module have illuminated that both ‘tribes’ need to be able to understand each other by developing a shared communication in order to engage in the process of developing truly innovative opportunities. Observation has also lead us to acknowledge the importance of integrating design and strategic thinking to help this process along. As students were asked to apply design thinking in moving potential customers up the ‘customer pipeline’, the initial set of roundtable sessions were organised around this central theme with educational context being the platform underpinning the discussions. The result of this process highlighted the differences in perceived positioning of design thinking and practice within the business organisation and its context. These differences were often aligned with the particular professional perspectives presented by the participant groups. The observed similarities and strong differences have impacted on our approach in helping students to find the common ground through application of design thinking in a business organisation.

Finally then, we have so far focused the roundtable sessions on specific sub-groups from either the Design or Business communities. We would like to explore the possibility of engaging in research with representatives of both ‘tribes’ to investigate responses from both ‘sides’ simultaneously regarding the issues that this paper has highlighted.

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e-Co-Textile Design: constructing a community of practice for textile design education.

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Abstract

This paper explores the potential of using co-design methods combined with web 2.0 to argue a new approach to textile design practice and education.

Over the last decade digital media has evolved and terms such as; pro-am, prosumer and prosumption are familiar phrases used to define professional amateurs and proactive consumers. The use of digital technology has become heavily embedded within our culture that we no longer focus on the technology but the innovation it enables: What does it do? How can we use it?

Tapscott (2008) states that for the youth culture growing up within this media age (Generation Y), technology is transparent, it's like the air. They don't talk about the technology but define it through use and experimentation. As consumers they want to be prosumers co-innovating products and services, they use digital media to edit, create and distribute their own content, they collaborate by constructing their own social networks and they innovate by becoming active participants within the design process.

A series of research questions will be explored through this paper such as: What would the role of the professional designer be in the future? Can co-design mediate practice between designers, consumers and pro-am's?

This paper will provide an insight into co-design methods by reviewed practice and application within a textile design context to argue that it has the potential to create new opportunity spaces for working and promote sustainable practice by provoking a series of research questions that can be expanded upon through further research.

Keywords: co-design, digital media, participation, reflection

1 Introduction

This paper considers a new role for textile design students and graduates that aims to enhance opportunities within their design landscape by exploring the method of co-design. This research will also explore how technology can be used to enable co-design. How can a textile designer integrate new technology within their practice to identify new opportunity spaces and methods of working? Can these new opportunities enable textile designers to co-design with one another and even beyond by working directly with the layperson (consumer)?

Sanders and Stappers (2008) define co-design as any act of collective creativity shared by two or more people. For them, co-design refers to the creativity of designers and people not trained in design working together in the design development process. This practice would change the role of the textile designer and require a range of new tools, methods and processes.

This paper will consider co-design from a research perspective drawing upon continuing doctoral research. Therefore exploring how designers can be taught to practice co-design within their design education by critically reflecting upon a practice-led research project (led by the author over a four week period) titled 'The Shared Scarf Project'. This project was designed and delivered to groups of textile design graduates and students (who can also be defined as Gen Y's) to explore co-design methods through practice.

The project was launched online on a blog that functioned as a dedicated shared workspace to enable a dialogue beyond the co-design workshops.

2 The Role of Digital Media

The advancement of digital media is influencing consumption through the democratisation of design and production. A new consumer demographic has emerged labeled Generation Y; they were born between 1977-97 and have grown up surrounded by digital media. As consumers they want to be prosumers co-innovating products and services, they use digital media to edit, create and distribute their own content, they collaborate by constructing their own social networks and they innovate by becoming active participants within the design process.

"Gen Y currently spend \$150 billion a year on consumer goods. That's five times more than their parents did at their age. They also influence another \$50 billion in purchases made by others... their profound influence in the market place is directly linked to their familiarity with digital media. 96% of Gen Y is active on at least one social networking site" Luxury Lab (2010)

Tapscott (2008) argues that for the first time in our history, this new youth culture has the power to change our media world. Gen Y don't take what they are given, they are active inventors, collaborators, organisers, readers, writers, authenticators, strategists. They don't just observe but also participate, they love to customise and personalise products and services.

A large quota of design students today can also be defined through the Gen Y demographic. The aim of the 'Shared Scarf Project' was to explore the participants familiarity with digital media through practice and conversation to capture qualitative data to review this transition from their perspective.

3 The Role of the Designer

If design is to embrace more collaborative models of working, what becomes the role of the professional designer? Von Busch (2010) claims that today, creativity and overview is reserved for designers, planners and experts. He argues that design has to be enabling rather than only solving immediate problems or shortsighted needs.

“By habit, we make user-friendly stuff – so simple that we never let users know how it works or what the true cost is. But we need to design agency and involvement. We need to design for inclusion, repair, co- innovation, and to involve many more stakeholders as agents and actors” von Busch (2010).

Fletcher (2008) positions the designer as a street level collaborative practical facilitator and teaser. She defines this role as creating the opportunity for people to work collaboratively, to orchestrate change. The work of Fuad-Luke (2009) can be positioned within similar territory through his promotion of what he labels as the ‘design activist’. He defines this role as a designer using the power of design for the greater good by becoming a catalyst; a facilitator, a creator and a co-author. This multidimensional role advocates participation and champions the power of design.

Fuad-Luke (ibid) claims that design is often executed by designers that are trained professionals who offer their expertise. Yet it is also engaged by designers who are unknown (anonymous, non-intentional) and who gain their expertise from outside the design professionals’ world. This broadens the design landscape by positioning the role of the hobbyist, amateur and what Leadbeater and Miller (2005) define as the Pro-Am within design territory. These individuals learn by doing, are often self-taught and extend their skill set by working within a community. This is where the professional role of the designer seems to become most relevant, in providing communicative tools and expertise as a negotiator in order to assist in what can potentially be great opportunities for learning.

The ‘Shared Scarf Project’ will explore how textile designers can adopt this approach by using digital media tools to work collaboratively within a community. However, to become social change agents through action with other designers and beyond, designers will require a range of tools and methods to enable them to facilitate and work together. They will also require a formula for reflection to measure the impact and significance of their actions.

4 The Rationale

The rationale of the ‘The Shared Scarf Project’ was to develop a range of tools that would enable the theory of democratising innovation to be further understood within the context of textile design. Von Hippel (2008) claims that when the high cost of prototyping can be diffused very widely, the result democratises the opportunity to create. This project therefore explored tools that were both accessible and affordable to use and identified that 70% of households within the UK now own a desktop computer and printer (Swaine and Rupert, 2009).

The development of desktop publishing media allows users to innovate at a satisfying and sophisticated level from home enabling them to upload, share and distribute their innovations within online communities. The concept of using the home desktop computer as a design tool within the textile design process was explored. When equipped with CAD software and a desktop printer, the computer could be used to design patterns that could be printed directly onto silk or cotton fabric using the printer. The design production process was tested and set up to enable all participants to print their final designs to produce a digitally printed scarf.

After identifying a production method, the design process was further considered to explore a range of digital media applications and tools to support the design process.

4.1 The Designers Toolkit

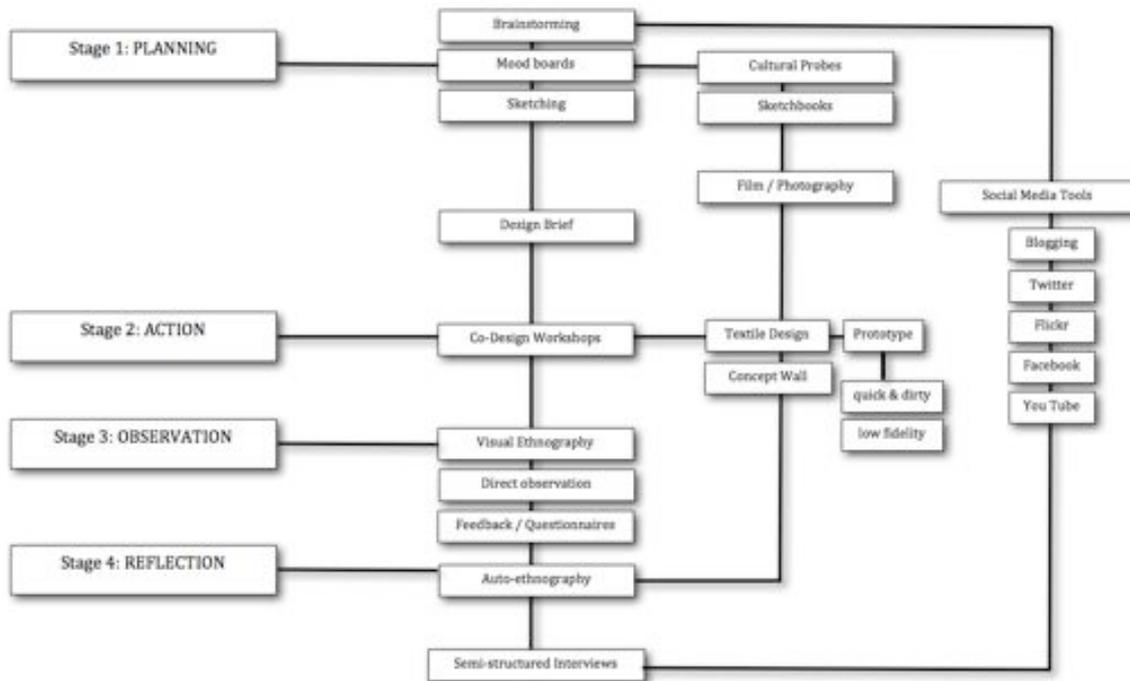


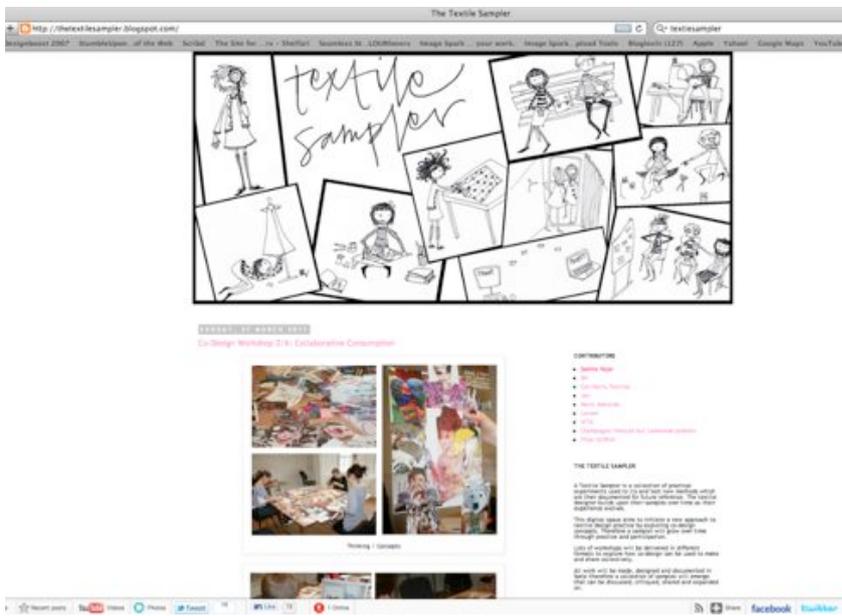
Figure 1 - The Textile Designers' Toolkit, Ballie (2011)

Figure 1 illustrates the textile designers' toolkit (sketched by author) a work in progress, which was used to support 'The Shared Scarf Project'. The toolkit divides the research into four stages: planning, action, observation and reflection. This was developed through literature review and follows an action research methodology. The methods and tools will be further defined by full exploration of this practice-led research project.

4.2 Creating a Shared Space

The research project was launched online using a blog to create a shared digital space. This dedicated environment served as a digital sketchbook documenting the projects research and development as it evolved. The blog was also interactive and to capture feedback from participants, different channels of communication were used such as: Facebook; YouTube, Flickr and Twitter. This provided a platform for the participants to ask questions, capture feedback and engage in dialogue with one another.

The aim was to create a shared space for the participants to access similar to a shared studio. Rheinfrank (2000) claims that design spaces are where designers take turns telling stories, making storyboards and building prototypes. Sometimes they take a prototype and create a storyboard around it; other times, they do a sketch that gets them building another model. It was crucial that this shared space could encourage conversations and collaboration facilitated by either prototypes, sketches and storyboards.



Figures 2 & 3 - The Shared Scarf Project Blog and Blog Statistics, Ballie (2011)

Further feedback and observations were contributed beyond ‘The Shared Scarf Project’ as people within an extended online community followed and commented on this digital space.

4.3 Weeks 1-2: Planning

This research project was launched online by publishing an open call for participation using the blog inviting textile design graduates and students to take part as co-researchers and collaborators. A group of ten applicants were selected and then divided into two groups: graduates and students.

The week ended with a design pitch to the participants (led by the author). This meeting introduced the project and outlined the rationale. The design methods and tools were explained to outline how the textile collection would be produced.

The participants were then invited to co-write a design brief and upload it to the blog. The design tools and process were already defined but the participants directed the theme. The premise of doing so was to encourage them to take ownership of the project and play an active role in defining the overall outcome, a collaborative collection of ten scarves.



Figure 4 - The Design and Design Probes, Ballie (2011)

The meeting closed by distributing a cultural probe (Gaver, 1999) containing a white sample scarf similar to what each participant would be designing a print for. The probe also contained a sketchbook, collage tools, pens, crayons, fabric swatches and a memory pen drive to archive images and samples digitally. A set of instructions defined a range of interactive tasks to encourage research, development and recording both online/offline.

4.5 Week 3: Action and Observation

All of the participants worked on their cultural probe kits independently but were encouraged to support one another online via the blog or meet up collectively.

4.5 (1) The Pilot Workshop

The graduate group was invited to a pilot co-design workshop prior to the main co-design event. This was arranged to test the design tools, methods and the overall experimental nature of the concept.

The pilot began by asking the participants to showcase their cultural probe kits. The research and experimentation developed through the cultural probe provided the participants with props to facilitate and sustain conversation. The concept wall method was applied using a dedicated workspace divided into four sections: project theme, materials, techniques and a sample section. This method was used to edit and refine concepts to produce a shared collection. This proved to be one of the most successful methods as it enabled all participants to visually document ideas as they emerged and evolved.



Figure 5 - The Pilot Co-design Workshop, Ballie (2011)

The design tools allowed both physical and digital prototypes to be produced using the ‘quick and dirty’ (IDEO, 2009) approach to encourage lots of variations and promote freedom and expression.

4.5 (2) The Main Workshop

The main co-design workshop scaled up the concept and invited both groups to participate in the same event but divided them into separate rooms. However, each group was filmed and a live stream was projected onto a wall in the opposite room. The participants could watch the other group and interact with them using twitter. This was done to test how this concept could be applied within a global context through the application of social media tools.



Figure 6 - The Main Co-design Workshop, Ballie (2011)

The graduate group put their experience from the pilot workshop to use and immediately set up a new concept wall and got to work producing prototypes. This benefited the student group as they could preview this action in tandem and they also got to work on their concept wall and prototypes. Both groups worked separately but the shared brief provided a synergy through their practice. The workshop ended with a digital showcase, allowing each group to make suggestions and capture feedback.

4.5 (3) Observation

The pilot and main co-design workshops were documented using film and photography. A colleague was invited to observe the main co-design workshop and offer feedback. But the recordings allowed the research to be reflected upon beyond the live events.

4.6 Week 4: Reflection

The research project ended with a period of reflection collecting feedback from the participant using two approaches a digital postcard followed by with a semi-structured interview. The participants were asked to send a digital postcard via the blog to reflect on their experience. They each made a collage from the pool of images documenting the project to represent their participation and final outcome, accompanied by some reflective text.

A series of auto-ethnographic texts were written by the facilitator (the author) throughout the research process. The origins of auto-ethnography arise from ethnography and the ways in which anthropologists wrote ethnographies' of their subjects. An auto-ethnography emerges from juxtaposition between the researchers own experience and outside influences, and the interaction between the two. Muncey (2010) claims that our personal worlds are complex and unique but share certain characteristics and this enables us to participate imaginatively in another person's world.

One participant from the graduate group stated that she disliked group work as a student but had missed the studio environment and working within a peer group after leaving education, she applied to participate to work in that setting again. Another from the graduate group enjoyed the opportunity to take lead within the project and felt she was a natural facilitator.

Participants were selected on the basis of their familiarity with digital media they performed better when uploading freely and independently in contrast to their response to set tasks and instructions. Some participants were apprehensive about uploading unfinished work during the design and development stages of the process. They were apprehensive about sharing their design techniques openly and freely.

All commented positively on the final outcome, they each left with a finished scarf. The feedback suggested the ability to take an idea from the concept stage through to a finish product was appealing and desirable for all participants.

4.7 Participant Engagement and Interaction

Elizabeth Sanders one of the advocates of co-design founded Make Tools an online resource that documents a range of practical methods to enable designers to work with the layperson to tackle a range of social and environmental issues. Sanders (2010) stresses that tools are only the tip of the iceberg. *“For tools to be effective, you will need several other layers. ‘Tools’ is only the first step in the co-creation process. Tools need to be applied via methods, which are often nested within more inclusive methodologies. The mindset with which the tools are applied is even more important than the methods or methodologies. In co-creation, you need to be working with the mindset that all people are creative and that they are able to produce creative things when given the tools and the stage on which to practice or perform.”*

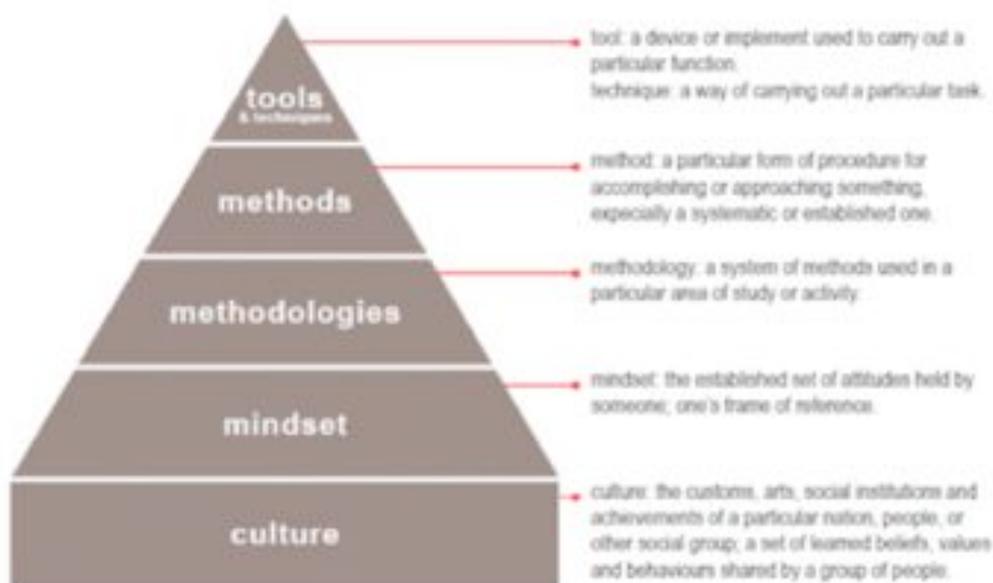


Figure 7 - Layers of Co-Creation, Sanders (2010)

Sanders (ibid) stressed that all people are creative and can participate in co-designing if they are provided with relevant tools and the settings for their use.

All of the participants within ‘The Shared Scarf Project’ were recruited from a textile design background and expressed a creative mindset prior to participating. This research dedicated a lot of time developing the toolbox (illustrated in figure 1) to support the participants within the textile design process. This was intended to provide a structure to the participants overall experience. However, this research found that the setting for the tools to be equally if not more important.

Planning the project over a four-week period of time enabled the participants to be gradually introduced to the concept and each other. They arrived at the main co-design event familiar with the project and had already built relationships with their peers. This strengthened the study and had a huge influence on the overall outcome.

This research project and continuing doctoral research focuses on participants from a Gen Y demographic an audience who are actively engaged in an emerging digital consumer culture. This practice-led research purposely selected participants who had their own blog to ensure they would feel confident interacting online. This attracted an extended audience as they posted about the project beyond the dedicated blog space.

Future research will bring the layperson into the process by creating an opportunity for them to co-design with textile design students, graduates and designers.

5 Conclusion

There are many debates in regards to copyright and intellectual property of concepts developed within user innovation communities. But, there is a struggle between the old model of copyrighted and protected ideas and new emerging models that are open, free and widely distributed. This calls for a more open approach to design that encourages the sharing of ideas, explaining the design process to enable people to replicate techniques, methods and production processes. Within the discipline of textile design, there is a need for there to be a rethink and the generation of a new approach to our current working ethos.

Economic changes bound up with globalisation are increasing pressures for people to re-think current models of design and production. There is huge potential for digital media and design to collaborate to construct new ways of working. But a re-think of the relationship between the designer and the consumer is required to consider how new technology can be used to enable the exchange of skills and knowledge to bring us into the future with consideration to the users needs and wants.

The act of participation was modeled to frame dialogue through interactive media, inviting each participant to respond and contribute to work as it spontaneously evolved. This created an inclusive and collaborative environment that welcomed the unexpected and the spontaneous thrill of the unplanned and unrehearsed creative relationship.

The practical work developed demonstrated how co-design practice could be utilised into paradigms of the future. This small practice-led research project illustrated how textile designers could mediate new forms of consumption by working directly alongside consumers.

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Acknowledgements

The author would like to express thanks to everyone who participated in 'The Shared Scarf Project': Bridget Harvey, Matilda Aspinall, Ffion Griffith, Sabiha Rajar, Vita Ivicic, Catherine Harris, Tytania Rose, Lauren Palmer, Freya Reed, and Maria Velasquez and a special thanks to Joy Nevada Hale for the illustrations.

Additional thanks to the Textile Futures Research Consultancy (TFRC), Neals Yard Remedies and Chelsea College of Art & Design for supporting the research presented in this paper.



EXPLORING LUXURY IN DESIGN: VIRTUAL LEARNING ENVIRONMENTS

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Abstract

This paper discusses a joint project with Coventry University (UK), Nanjing University of Science and Technology (China) and the University of Illinois (Urbana-Champaign). By using the Virtual Learning Environment (VLE) called Moodle, lecture, student designs and reference materials were made available amongst the participants. A group of Nanjing Industrial Design students participated in a 10-week remote design project that focused on the design of super-yachts. Their main challenge was not only to design the interior but also to explicitly introduce elements within the design that responded to “luxury” within the context of the Chinese culture. This project offered challenges time management issues as the course was taught over three time zones. As we need to think and design more globally, working across time zones will become even more commonplace for our designers in the future.

Functional needs tend to be easier to handle (e.g. height of user, ideal weight for product), yet the more successful projects tend to offer the user a blend of both utilitarian and less-tangible (supra-functional) needs. These supra-functional needs may include emotional, aspirational, cultural, social and spiritual. For a design student, being able to acknowledge and recognise the importance of needs beyond the functional, becomes a critical part of their designing process, as it will impact upon their effectiveness as professional design practitioners. The logistics of this project, the student design outcomes and the nuances associated with teaching such culturally based material are reviewed in this paper. The role of VLE within design education will be discussed as many educators are exploring the global campus which emerging technology is making possible.

Introduction

Boat design from an industrial design perspective is about understanding the needs of the user. It is in essence user-centred design with a high degree of aesthetic resolve, informed by engineering and ergonomics. It is important that a

designer can select a suitable platform for a design proposal and identify the operations of the user on that platform. Boat designers understand the different types of vessels and can engage in hull design and powering calculations to produce a design proposal with a high degree of technical specifications in accordance with regulatory standards. They work in design teams with naval architects who design and resolve structural details.

Industrial design involves defining and capturing opportunities that relate to the needs and desires of consumers. It is achieved through the harmonious and spirited integration of visual, functional and user elements within manufactured forms or systems. Students must examine the contemporary understanding of the term luxury within the context of boat design. In doing so they must research the trends in interior and exterior design aesthetics, to identify commonality and specifics of design language, across the full spectrum of boat design, from small craft with limited interior space to super yachts. An appreciation of pleasure and luxury is fast becoming of primary importance to both the consumer and the design industry alike. Consumers want design functionality and usability as well as products that produce a sense of luxury and pleasure. Luxury is intrinsic to the leisure boat market but contrast to the design of commercial vessels is driven more by functional requirements and cost, rather than aesthetics.

They must appreciate the relevance of ‘emotional design’ in respect to leisure boat design and the concept of luxury. The user-centred design approach adopted within Boat Ergonomics at Coventry University requires an understanding of user characteristics, expectations; desires and needs translated through sensitive and balanced design solutions. It recognises the need to go beyond usability in certain sectors and understand emotional and functional requirements. In their analysis students must examine how the concept of luxury informs the design process. In terms of mass production and branding, luxury has to be examined for a range of boat market sectors, from mass production through semi-custom to bespoke design, to enable the student to determine how contemporary branding, allows this spectrum of production levels to remain ‘luxurious’ to their respective customers [1].

Case Study

This project was initiated by one of the authors when he was a visiting lecturer to NUST introducing the design meaning of a super yacht from a user-centred design perspective. Students were engaged in a one-day creative exercise in a studio environment to help them develop confidence in the proportions of exterior form and the functionality of the interior space. They were then shown the fundamental principles of super yacht interior layout through reviewing a range of interior designs to identify their respective advantages and disadvantages for different end users. Then focusing on the design brief they were given, a user and operational perspective of a 70m super yacht. This involved identifying activities in specific areas of the vessel and discussing how the crewmembers interact with the guests, then reviewing GAs (General Arrangement) of a range of yacht interiors, and the activities associated with specific areas of the interiors. The students then discussed typical Chinese cultural activities that would be carried out on a yacht and user scenarios based

around these activities. Students identified a customer persona based on the socio-economic grouping of their perceived customer.

The students had to work in groups to develop exterior forms which they then selected the best attributes and then by agreement, developed a design direction, which they then re-explored as a creative exercise. They then developed individual GAs for their designs these were again combined by agreement within the group. This was a prelude to the 10-week interior design exercise to give the students an immersion in the concepts of super yacht design.

The second part of the project was focused on developing the interior by considering contemporary Chinese Luxury into the design process. This began with Internet research, students were given website addresses of super yacht designers for a benchmarking exercise, to help define a design specification. Benchmarking gave the students an informed starting point in the design process, which was followed by sketching and brainstorming, it resulted in refinement of the specification. The brainstorming activity was based around two critical questions, 'Who is your customer?' and, 'What is luxury?' The students worked in their groups in the creative forum that is European studio design practice, with a studio manager (lecturer) regularly moving between groups to discuss and technically resolve their creative proposals.

The NUST students had already designed a super yacht exterior and GA (General Arrangement) of the interior as a group. Some initial interior design has been carried out, and this project focused on developing a detailed interior design proposal through a focus on emotional design and luxury in the context of Chinese culture. Each group developed 3 personas as customers. A successful interior design should provide a positive experience for users; it will help to consider the function of each room from a User-Centred Design (UCD) perspective and to look at the flow of people through the interior. It is important that the guest and the crew have as little interaction as possible; guests should only see crew when they are serving them. Inspiration for contemporary Chinese luxury interiors can be drawn from an evaluation of recently constructed Chinese high-end hotels.

This project was supported using Coventry University's Virtual Learning Environment (VLE) called Moodle, lecture and reference material were made available. There were weekly lectures and project review meetings held with Sean McCartan (Coventry University) and Deana McDonagh (UIUC). Videoconferencing was carried out using Wimba, which is part of the Coventry University VLE system (refer to Table 1 and 2). The design process involved research to identify the Chinese luxury hotel interior design trends and the client personas, resulting in a series of mood boards. Sketching, rendering and Photoshop were used to communicate interior concept developments.

Week	Activity
1	Introduction to brief and emotional design (user profile templates)
2	Emotional mood boards and inspiration boards
3	Concept of luxury within Chinese culture (student presentation)
4	Concept generation (student presentation/design review) pen/pencil sketches
5	Concept selection (student presentation/design review)
6	Concept development (student presentation/design review)
7	Concept refinement (student presentation/design review)
8	Colour and materials selection (student presentation/design review)
9	CAD development (student presentation/design review)
10	Final group presentation (submit all course material electronically)

Table.1: Video Conferencing schedule

Week	Activity	Feedback using QQ and Flickr	Action
1	Each group member developed their own design ideas as side profile sketches	Feedback was given and the designs with the most interesting or resolved design directions were selected	Group members suggested design directions to each develop their own interpretation of the design direction in perspective for Week 2
2	Each group member developed their own design ideas as perspective sketches based on the suggested design direction	Feedback was given to each group member on their design	By listening to each others feedback and discussing their design ideas, each group selected the best design proposal by agreement
3	Each group member produced modified perspective sketches based on the agreed design proposal	Group members described how their modified design was different from the agreed design proposal. Feedback was given after each student presented their design	Group members provided with a PPT to help them describe their design form features in English. The best modified design were selected and used by all group members to develop 3 different GAs
4	Each group member developed 3 individual sets of GAs for the best modified design	Group members described the layout of their GAs. Feedback was given after each student presented their 3 GA proposals	Group members provided with a PPT to help them describe their GA features in English. Their best GA were selected. Using this they selected 2 rooms and draw them as colour perspective renders
5	Each group member selected 2 rooms from their best GA and draw them as colour perspective renders	Feedback was given to each group member on their interior design proposals and use of colour	Group members discussed and agreed best components of each members work, which were combined to form the final interior design GA
6	Each group combined the best components of each members interior design into the final design GA	Each group will describe the layout of their Final design GA. Feedback was given after each group presented their GA proposal	From the presented final design GA the group developed the interior by agreeing an equal work load for each group member

7	Using the final design GA the group developed an interior design by agreeing an equal work load for each group member	Feedback will be given after each group presents their interior design development	Each member developed perspective renders of the rooms in the final design GA they have been allocated. These were modified by group discussion/ agreement and feedback
8	Using the final design GA the group developed an interior design by agreeing an equal work load for each group member	Feedback was given after each group presented their interior design development	Each member developed perspective renders of the rooms in the final design GA they have been allocated. They were modified by group discussion/ agreement and feedback
9	Using the final design GA the group developed an interior design by agreeing an equal work load for each group member	Feedback was given after each group presented their interior design development	Each member developed perspective renders of the rooms in the final design GA they have been allocated. They were modified by group discussion/agreement and feedback
10	Final Design Presentation	Groups presented their final exterior and interior design proposal, feedback was given	Group members discussed the challenges and most enjoyable elements of the project

Table 1 - Detailed activity schedule

Students presented their group work as a PPT using Wimba. The students were sent a PPT by email explaining how to use Wimba. The final group PPT presentation had the following slides: (emotional) mood board; inspiration boards; user profile; concept of luxury; sketch work.

Brainstorming

Engaging the students in brainstorming gave them a platform for creativity and dialogue is stark contrast to their traditional learning experience. It helped them to focus as a group. This activity is critical as it allows the students to suspend reality and imagine everything is possible. It also provides the opportunity for the design teams to bond.

Luxury from a Chinese perspective and Emotional design

The students presented research which gave a significant insight into the fluid nature of luxury in China, the brainstorming activity and persona developing lend to an effective engagement in emotional design the students immersed themselves in the persona and identified a range of activities the perceived their persona to want to engage with. Later in this paper, students explain how they have communicated the sense of ‘luxury’ through their design concepts.

Beyond functionality

The ‘luxury persona’ led research informed the interior design execution leading to a strong contextual rationale for the design decisions and interior themes. These were effectively communicated in design reviews as a dialogic process,

which informed both parties, the student about the principles of interior design and the tutors about the concept of Chinese luxury.

Cross cultural

It was interesting to note that the important European and American goods were perceived to be luxury due to their rarity in terms of availability, this shows a stark contrast to the traditional influences of Chinese luxury such as red the colour of the Emperor the use of calligraphy as high culture luxury and the use of rose wood as an exotic material, used by the higher social classes.

Design and Cultural perspective of the Student

Moving students away from their traditional monologist engagement with design practice is both challenging and rewarding. The use of brain storming and group work as a primer to engage students in Socratic androgyny was an effective tool based on previous experience with some in the group. Those with previous experience of this teaching engagement acted as a catalyst to promote creativity and dialogical engagement with the group.

The contextualisation of super yachts and luxury was a pivotal aspect of student engagement, which enables them to develop a comprehension and a way into the holistic design problem, which they had never before encountered.

VLE engagement

On-line teaching and learning (also known as E-learning) offers educators and students multiple benefits [2], and acknowledge that blended learning services, along with message board forums, email and recorded video recordings are being increasingly utilised. E-learning offers opportunities and benefits but will not replace the role of the teaching, but to enrich and enhance the curriculum and how it is delivered.

The students were given a framework for engagement with the project to ensure that cultural and language barriers did not impede their engagement and motivation. This included sending the students a screen captured based presentation on the use of Wimba (video conferencing software) and examples of inspirational mood boards, emotional mood boards and user profiling templates.

There were 4 groups of 5 students, and the idea that they were forming a design consultancy with branding and logo gave them a positive focus on group work. The pragmatic approach to effective VC technology involved getting the students to introduce themselves and talk about their interests, promoting the role of the individual in the creative processes.

Brainstorming

The students were introduced to brainstorming through an introductory presentation. An example was submitted to the VLE for them to review. The critical question was what is luxury. An example of a brainstorm generated by one of the groups is shown in following Figure 1.

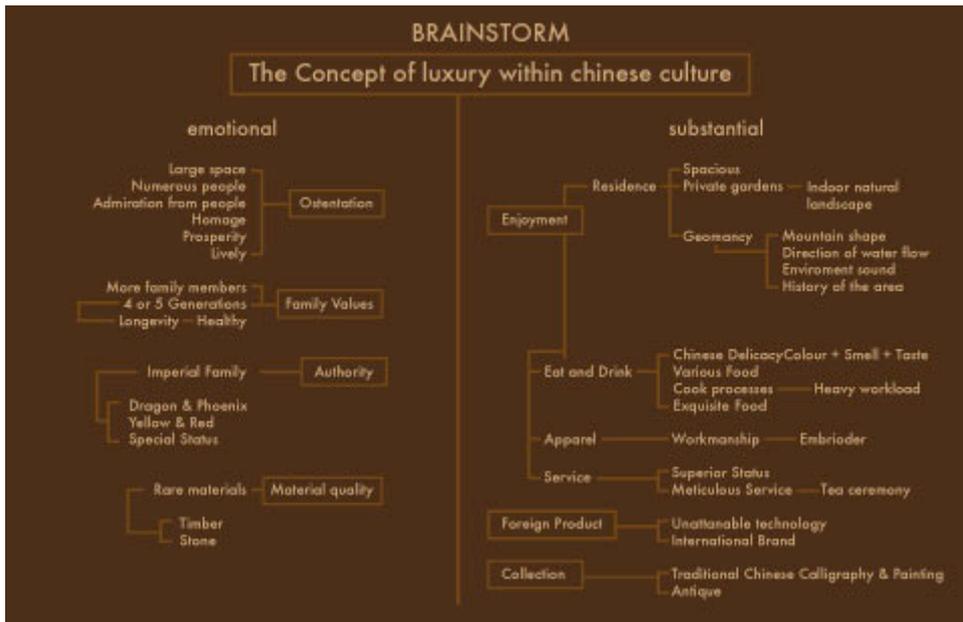


Figure 1: Brainstorm on the concept of luxury within Chinese culture

Inspiration Board

These are a collection of images that represent the products students would anticipate their user persona associates with or already owns. An example created by one of the student groups is shown in Figure 2. The following explanation from the students further explains the meaning behind the images (left to right, top level to bottom level).

1. An interior environment that combines Chinese tradition and modern style from Europe.
2. A nest of tea services. The teapot is made of purple clay and this kind of teapot is very rare and expensive in China
3. Expensive jewellery that is made of Jade, which is regarded as a symbol of a person's status in ancient China.
4. The wearing of an exquisite gown made of Nanjing brocade; this material is one of the most famous specialties in China.
5. A Chinese feast. Every dish should be attractive in all aspects of colour, smell and shape.
6. A fan made of rosewood. It implies noble and elegant.
7. A handsome sports car. In Chinese consciousness, housing and car are the two most important properties.
8. A park in the city of SuZhou. It was formerly one of the most famous private houses.
9. A luxury European wristwatch. Chinese people consider foreign brands as luxury possibly due to its high-tech or fine work.



Figure 2 - Example of an inspiration board produced by NUST students

Emotional Mood Board

These are a collection of abstract images that enable the designer to communicate emotions, feelings and aspirations. Mood boards are a collection of visual images (e.g. photographs, material samples) gathered together to represent an emotional response to a design brief [3, 4]. This technique enables designers to communicate and express themselves beyond linguistic restrictions. Designers may use this tool to communicate intangible and abstract emotions such as happiness, sadness and calm. Equally, this tool has been employed to enable users to communicate their emotional responses to products, task and their experience through abstract images. An example, created by one of the student groups, is shown in Figure 3. The following explanation of the images from the students provides insight into their meaning.

1. *A model for old Chinese house, which had a wide area. It gives us a feel of 'grand' and 'glory'.*
2. *A group of girders of Chinese architecture. The colour and pattern shows Chinese luxury.*
3. *The beautiful landscape of the province of YunNan. It also reflects the importance of agriculture in China.*
4. *Chinese calligraphy, which is treated as art treasure in China.*
5. *A painting of peony, which means 'wealthy' and 'leader' in China. The colour of gold also means 'luxury' in the Chinese culture.*
6. *Fruit called megranate, which indicates lots of offspring in Chinese culture. In ancient China a large family with numerous members represents 'flourishing'.*
7. *A colourful rose, which makes us think of love, rainbow and happiness.*
8. *Fancywork. Brede is a folk-art in China. Its exquisite workmanship shows luxury.*
9. *The pattern of a chinaware dish. This is a traditional pattern that always appeared on precious dishes and vases in China.*



Figure 3 - Example of emotional mood board produced by NUST students

Design concepts

Each group of students collectively used mood boards and personas to inform their individual design process for 2 specific areas, including design detail. The students explained the significance of colour and form, and the rationale for the design detail as follows:

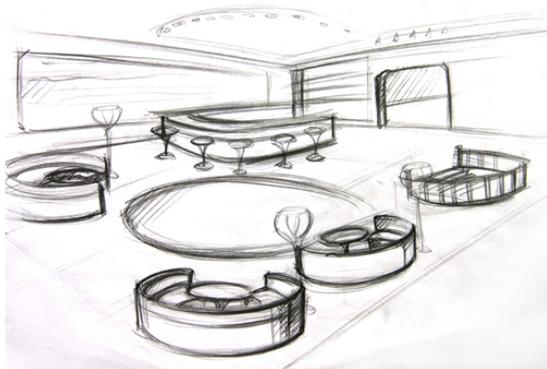


Figure 4 - Initial concept design work informed by emotional design

“This is my first concept of the Salon [Figure 4] of our super yacht. I made the shape ‘round’ as the basic element in my design, because ‘round’ is considered as the perfect shape and indicates the meaning of integrity, harmony and family in Chinese culture.”



Figure 5 - Developed concept design work informed by emotional design

“The main material of the room [Figure 5] is wood. Chinese people love furniture made of rare and expensive rosewood, and they love the primary texture of materials. That warm color may bring the feeling of nature, harmonious and family.”

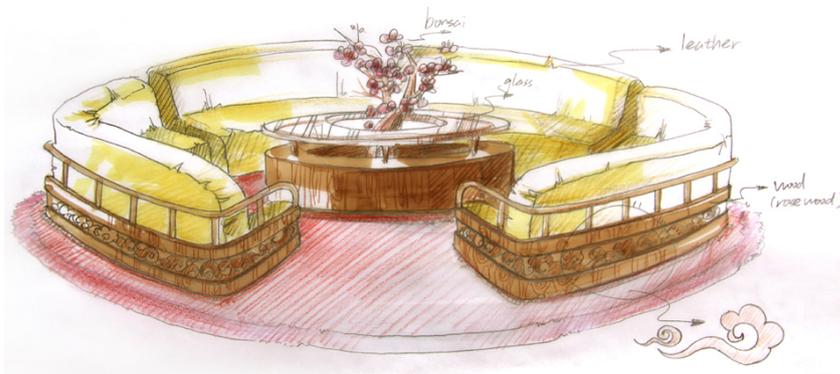


Figure 6 - Design detail of seating arrangement

“I consider the key point of the design of salon is the round sofa in the center area [Figure 6]. The sofa is made of wood and leather. The pattern carved on the wood part of the sofa is a cloud. This kind of cloud means happy and lucky in Chinese culture and it also appears in the design of the torch of Olympic games.”

“In the hole of the tea table [Figure 6] there is a bonsai of plum flower. Bonsai is a very old kind of art in China and the plum flower represents the high quality of the individual our culture.”

The design output shown here and the concepts presented by the other students demonstrated a significant engagement with emotional design supported by the framework, which enabled luxury to be elucidated visually in a cultural context,

as a tool to inform the interior design process for a specific persona. Given that the inspiration and mood boards were persona led.

Practical VLE Implementation

The students, at the start time of the videoconferences (VC) had expectations that the technology would readily operate. Due to the time difference between partners the meetings often left the students outside classroom hours operating at a time of high bandwidth demand in their accommodation. This resulted in poor sound quality and some students being unable to use their webcams. It had to be suggested to the students that they logon to the Wimba system early to ensure an efficient start to the meetings. Some students were turning up late due to Internet and computer issues. Given that we were operating in 3 time zones, once the students had confidence in dealing with the external tutors the meeting times were moved to 19:00 making the project less onerous on UIUC, but as this was an extra curricular activity, it did not pose a problem for the students.

Initially it was not clear why the students were not using their webcams for a more effective engagement in communications. After several attempts at reassuring them that they should, as we were all friends, it remained unclear. A student project coordinator was appointed to ensure that students were always present at the VC meetings given the significant contribution of the tutors. The student was selected as the most competent in English and was engaging in the project with a great enthusiasm. This person became a great cultural interpreter to the challenges of the project. When the tutors inquired in the weekly review at the end of each VC, they were informed that some of the students were having difficulties with the speed of the tutors' spoken English, and that two of the best English-speaking students were translating on QQ (Chinese version of SKYPE) to ensure all of the students could understand what was going on, given the technical design nature of the language used in the feedback. Hence the webcams were being used in QQ and could therefore not be used with Wimba. The opportunity to record on Wimba would give the students the confidence to practice their English as they could watch the recordings after the meeting to ensure that they elucidate the necessary information and adapted their listening skills to the tutors involved.

The use of QQ simultaneously with Wimba enhanced the students' ability to engage with the project in the short term, but it also detracted from the opportunity for them to further their English practice with design vocabulary, in future events this will be overcome by allowing students access to recordings of the sessions in Wimba. Thus the students will have the confidence to engage without translation support as they can repeatedly listen to the recordings to adapt to the spoken English style of the tutors involved and they can discuss the issues raised among themselves in detail to generate discussion topics for dialogue with tutors in subsequent video conferences.

A significant disadvantage of operating QQ simultaneously with Wimba was the absence of video imaging between tutors and students, which gives that degree of emotional depth through facial expression. Essentially the VLE meetings were telephone conferences with occasional videoconference engagement with a student representative from each group. This aspect has a cultural significance,

in that Chinese people tend to be shy until a relationship is established, at which point they become more open. This certainly was the case in this project, and it was evident from the final feedback discussion with them that they enjoyed the dialogic approach towards design teaching as it gave them the freedom to think in a much more creative manner than their traditional learning approach.

Discussion

The basis of this study is the opportunity for Chinese Industrial Design students to experience a contrasting learning model of European design learning, Socratic Androgyny supported by a VLE. Androgyny has been described as a learning approach that is centred on the art and science of helping adults to learn [5]. It engages the teacher and students in dialogue and confrontation, through which the student elucidates understanding. This dialogical approach has the potential to offer adult learners a greater degree of engagement with creativity.

The Socratic learning model is centred on systematic questioning and inductive thinking; it is a way to channel learners' thought processes and to embed understanding. This approach is often focused on managing a student's thought processes along predetermined paths through rigorous and logical dialogue in order to validate ideas [5], harnessing students' experience and existing knowledge to solve simple or complex problems and issues posed by questions that are set. Within a Socratic seminar, for example, students are required to act in a variety of thought-demanding ways to explain, evidence, generalise, apply concepts, analogise, and represent ideas in a new way [6].

To direct the student's thought process the context of a super yacht was explained through benchmarking of existing designs and interrogating the activities in the different areas of the interior through an analysis of the interior General Arrangement (GA). This User Centred Design context was informed by previous experience of the author with NUST students [7]. They were then introduced to emotional design user templates to profile the personas in terms of age interests products that they might own. In order to explore the cultural constructs of luxury in the design process the creativity tools of brainstorming; inspiration boards and emotional mood boards were used. These enabled the students to visually interrogate the cultural constructs and nuances of Luxury.

Brainstorming was used to answer the critical question of what is luxury. An example of a brainstorm generated by one of the groups is shown in Figure 1. This gave a direction of thought, which fed into the emotional design user templates. This was developed further through the collection of product images for an inspiration board. The next stage of development was the emotional mood board. These image based creative techniques enabled the students to communicate and express themselves beyond linguistic restrictions. The students responded very positively to these creative tools as a framework for a dialogic engagement in Socratic Androgyny, it enabled them to quickly develop confidence in the action based learning activity.

Luxury in a Cultural Context

The term luxury and the consumption of luxury goods involve purchasing a product that represents value both to the individual and their reference group. Therefore, in addition to the socially oriented luxury consumption and the human desire to impress others a personally oriented type of consumption should be considered in the creation of luxury products. This is facilitated through design methodologies such as emotional and empathic design. Referring to personal and interpersonal oriented perceptions of luxury, it is expected that different sets of consumers would have different perceptions of the luxury value for the same product, and that the overall luxury value of a product would integrate these perceptions from different perspectives. Thus, to explain consumers' behavior in relation to luxury products, apart from interpersonal aspects such as conspicuousness personal aspects such as hedonist and perfectionist motives as well as situational conditions (e.g., economic, societal, and political factors) have to be taken into consideration.

In a review of the existing literature on luxury, in comparison with personal aspects, social and interpersonal orientation dominates luxury-related research [8]. Considering the different aspects that constitute a customer's perception of and willingness to buy luxury products, it is important to combine a set of luxury value dimensions into one single framework, rather than treating each perceived value of luxury separately, as has been characteristic in the luxury research literature.

The question of what really adds luxury value in the consumer's perception was defined through the proposal of four latent luxury value dimensions:

Financial Dimension of Luxury Value Perception – The financial dimension addresses direct monetary aspects such as price, it refers to the value of the product and to what is given up or sacrificed to obtain a product.

Functional Dimension of Luxury Value Perception – The functional dimension of luxury refers to the core benefit and basic utilities that drive the consumer based luxury value such as the quality, uniqueness, usability, reliability, and durability of the product.

Individual Dimension of Luxury Value Perception – The individual dimension focuses a customer's personal orientation on luxury consumption and addresses personal matters such as materialism.

Social Dimension of Luxury Value Perception – The consumption of luxury goods appears to have a strong social function. Therefore, the social dimension refers to the perceived utility individuals acquire by consuming products or services recognized within their own social group(s) such as conspicuousness and prestige value, which may significantly affect the evaluation and the propensity to purchase or consume luxury products. [8]

These key dimensions of luxury value perception encompass the financial, functional, individual, and social aspects, are strongly correlated. This conceptual model [8] offers the basis of a framework for comparing luxury consumers across different cultures and national boundaries. There was a strong cultural heritage influence in the meaning of contemporary Chinese luxury, relating to the high social status of Chinese emperors, as identified by the

students in this study. Indicates a strong social dimension of luxury value perception in cultural prestige. It was interesting to note that foreign products such as European watches were perceived as luxurious due to their rarity and cost, lying in both the financial and functional dimensions of luxury value perception. In contrast to this a cross-cultural exploratory study of luxury perceptions in France, UK and Russia [9] have identified aesthetics, personal history and premium quality as the key luxury product dimensions for the cultures examined. These attributes are in the functional and individual dimensions of luxury value perception. This potentially indicates a significant cultural difference in luxury value perception between China and the grouping of France, UK and Russia.

Conclusion

The Chinese culture focused interpretation of luxury in the design process, identified a significant influence of cultural heritage relating to the high social status of Chinese emperors. This design project gave the Chinese Industrial Design students an engaging experience in Socratic Androgyny through research and creative practice in a context in which they were comfortable, namely their own culture. The framework for engaging in Socratic Androgyny proved to be effective, but it was felt that the contextualisation of the design brief was pivotal to the students motivation in engaging with it, in what has been referred to as '*the need to know*' [5].

The cultural contextualisation of the mood boards and the discussion on the concept of luxury yielded valuable insights for the tutors on the idiosyncrasies of luxury in the context of current Chinese social values, such as the importance of car and home as key symbolism of conspicuous consumption. More importantly the significance of cultural heritage relating to the Chinese emperors in terms of colour use, materials and, traditional crafts and art forms. The considerable differences in luxury value perception between China and the UK, has identified a need to develop further understanding of Chinese culture to inform more effective emotional design methodologies. The next stage in this process will be to use this project as a case study to inform the practices of European design students, supported by formative feedback from Chinese Industrial Design students and designers to culturally validate the design development process.

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Involvement

Co-Creation as Social Innovation:

Designing Carbon Reduction Strategies with Local Authorities and Community Groups.

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Abstract

This paper will reflect on an interdisciplinary, action research project in which we applied principles of co-creation to facilitate knowledge exchange between three diverse stakeholder groups: community groups, local authorities and academics from both social science and creative disciplines. Our goal was the development of a Community Engagement for Carbon Emission Reduction Strategy for Fife Council. We also prototyped this strategy in a local community and began to disseminate our findings across other local authorities. We ask here what are the prerequisites for a successful co-creation project, how does it start and what new lessons have we learnt in this project? It was concluded that longstanding prior relationships and trust building facilitated project initiation, but that an external catalyst was required to trigger action. Lessons learned include the importance of having a range of different participatory methodologies (in this case a team-authored scoping study, seminars, placements, a steering group and a strategy development forum) to stimulate networking and discussion, to generate a shared understanding and to enable agreed conceptual areas, strategic goals and specific action points to emerge from the process of co-creation.

Defining terms

The term *co-creation* here we understand as the process of creative collaboration between service (and product) providers and their customers, in which the latter become part of an '*enhanced social and cultural fabric*' (Prahalad and Ramaswamy, 2000), which dissolves the boundaries between producer and consumer. When we use the word *co-design* we follow Sanders and Simmons (2009) who views it as applying collective creativity to a design process. Thus co-design is a problem solving practice within the larger context of co-creation.

Design thinking we understand as a non-linear mode of thinking which allows for a certain amount of open-endedness and fuzziness at the start, the lateral and the unexpected; more specifically design thinking is: human-centred, research based, contextual, collaborative, multidisciplinary, iterative and involves early prototyping.

Community resilience is understood to mean the ability for a community to withstand shocks (Hopkins, 2008). A resilient community is one that takes intentional action to enhance the personal and collective capacity to respond to and influence the course of social, economic and environmental change.

Introduction

The current economic downturn is generally understood as having been caused by a 'credit crunch' and a period of 'creative destruction' (Schumpeter, 1975) after which economic growth will soon return. Many assume that the current economic crisis is making way for a new cycle of prosperity and material wealth, or that capitalism can be adjusted to acknowledge environmental limits (Porritt, 2005), but it is clear to many that we are reaching the limits of growth (Meadows et al, 2005) and that we need a new paradigm by which to live (Jackson, 2009). We are now being forced to reconsider the ways in which we inhabit this planet, including how we pursue our individual wellbeing, structure our economies and what it is that public money provides for us. In this era of public spending cuts we are likely to lose services we have come to value, or at least we will lose some of the capacity of local authorities to deliver them. However, in this environment we are also able to identify increased opportunities for social innovation and the emergence of new social forms such as local social enterprises (in particular those related to the production of energy) and Collaborative Services. In Collaborative services the users are also participants and play an active role in the design, production and the provision of services - many of which have environmental benefits (Jégou & Manzini, 2008). Co-designing services and service delivery involving both the service providers and the service users, or indeed merging the two, is an important step in addressing the changes required in the economic forms, physical infrastructures and social behaviours, that might address mitigation against, as well as adaptation to, the impacts of the unfolding environmental crisis. Climate change presents an immediate challenge, with potential for significant sea level rise, extreme weather events, biodiversity loss, changes on food supply and the creation of climate change refugees (IPPC 4th Report 2007).

Currently, in responses to climate change, top down regulatory limits, financial incentives and infrastructural constraints fail to synergise with grassroots activism. At the level of policy making the response to climate change is primarily framed in terms of carbon reduction targets. However, this is a limited angle of approach; the issue is much more complex and multi dimensional. A low carbon economy involves dramatic changes in infrastructure as well as changes in social behaviour and both are intimately entwined. Merely imposing carbon reduction policies upon an unwilling population is likely to yield resistance rather than success. The key here is to bring stakeholders together and to co-develop strategies that response to and catalyse community action on sustainability. This way it is not policy change, but social change that will drive the infrastructural changes required.

In this paper we focus on the conditions required to initiate such collaborative projects. We reflect on an interdisciplinary, action research project in which we applied principles of co-creation to facilitate knowledge exchange between diverse stakeholder groups: local authorities, community groups, organisations and academics from both social science and creative disciplines. Our goal in this project was the development of a Community Engagement for Carbon Emission Reduction (CECER) strategy for Fife Council. We also prototyped this strategy in a local community and began to disseminate our findings across other local authorities.

We need to develop mechanisms to partner different actors in the creative and collaborative development of sustainability solutions to wicked problems, and to develop the new social capital that is required. It is in this area of co-creation for social innovation that this research project makes a contribution.

Objectives and methodological approach

We ask the following research questions:

- What are the pre-requisites for a successful co-creation or co-design project?
- When and how does co-creation start?
- What lessons have we learnt about co-creation in this project?

Our first objective in this paper is thus to examine what pre-requisites led to the initiation of our project to co-create a strategy for community engagement for carbon emission reduction. (Before initiation this ‘strategy’ was loosely understood with no structure, acronym or ‘branding’.) Our second objective is to explore what led to the initiation of this project. Our third objective is to reflect on the lessons learnt, particularly with regard to creating an environment conducive to co-creation projects of this nature. Finally, we will comment on the potential for co-design and co-creation processes to help us meet the sustainability challenges faced by our society and planet.

Project structure

The project was a research study in a programme called Engaging Scottish Local Authorities Programme, which was funded jointly by the UK’s Economic and Social Research Council (ESRC), Scottish Funding Council (SFC) and Local Authorities and Research Councils’ Initiative (LARCI) with at least 20% required funding coming directly from local authority partners. In our one year pilot study (*Enhancing local authorities’ community engagement: co-designing and prototyping strategies for carbon emission reductions*) we co-designed a Community Engagement for Carbon Emission Reduction (CECER) Strategy for Fife Council (a leading local authority in sustainability thinking) and began to disseminate findings across other local authorities. Within our project methodology we took as our case study Fife region (a rural district - with mixed urban development - North of Edinburgh, Scotland, measuring 1,322 sq km with approx 330 000 inhabitants). The study was prototyped in a marginalised area in Fife: Levenmouth.

We ‘academics’ were a sustainability scientist with a background in biology and community based natural resource management in the Global South; a designer with both practical and academic design experience and deep personal engagement with a community initiative that had emerged in response to sustainability challenges (the authors to this paper); two anthropologists with experiences both in the Global North and South, one a strong activist and one embedded more firmly within academia; and an ecological economist. Our main contacts in the local authority were the Sustainability Team Leader, with a Community Development Officer and an environmental group officer co-opted onto our Steering Group. A member of an organisation responsible for enhancing local government sustainability through a national network also sat on the Steering Group. Community contacts started with personal contacts and followed a ‘snowball’ technique, enhanced by broad advertising across appropriate networks for specific events.

The nature of this project was dictated partly by the research council’s call for proposals, such that it included a scoping study, seminars, capacity building, placements and an impact generating activity, which in our case was the development of the strategy. The scoping study was the production over time, in a participatory manner, of a 73 page interdisciplinary academic document that informed our conceptual thinking around the project. It served to generate academic discussion and inform our shared theories and our planning on practical actions. However, it was considered to be of limited use by our project partners, who wished to see more action based outcomes. The seminars on Food, Transport, Energy and Community attracted approximately 40-50 participants each, drawn from local authorities (primarily in the case study area), communities and other relevant organisations. The seminars included introductory talks from the project team, followed by presentations from relevant local authority and community representatives and then opportunities for collaborative discussion, as detailed below. Two capacity building workshops were held, with the aims of enhancing understanding of contested concepts and strategic goals and to establish an arena of shared values, rather than to impart specific skills. Local authority staff were unwilling to spend long periods of time away from their heavy workloads, and so a series of shorter periods of ‘shadowing’ days across project participants was established.

Project research approach

As well as the case study, an ethnographic approach was taken by holding initial interviews with key individuals and following these with conversation-based activities. This ethnographic approach is grounded in an awareness of the variation existing between different people’s values, social circumstances and actions. It allowed us to recognise and respect the variety of communities and community responses that existed (Carrithers, 2005). We thus attempted to avoid a form of participation in the project that would merely legitimise top down processes (e.g. Cooke and Kothari, 2001), instead trying to support participants’ autonomy (e.g. Rahnema, 2005).

In order to facilitate Design Thinking (e.g. Brown, 2008) as well as in order to create a collaborative working environment, we choose a conferencing method known as Open Space Technology (Owen et al., 2008), which we adopted as a co-design tool for collaborative sessions within the seminars. Open Space Technology was developed by Owen as a method of self-organising and facilitating dialogue within groups, in tune with principles of chaos and complexity theory. Successful Open Space sessions have been held with over 2000 participants, whereas a minimum might be about 12. In our

case the groups of ca. 40 participants were thus ideal. Open Space Technology enables participants to set their own agenda and distribute themselves according to their own interests, thus providing the stimulus to actively participate in discussions. Unlike in the traditional model of conferencing Open Space Technology takes away the notion of an expert addressing an audience, and as such unleashes a collective approach to problem solving. Open Space Technology also works on a level of social transformation in that it can bring together highly diverse people around a (passionately) shared objective.



Figure 1 - Co-designing: interdisciplinary meetings between academic, community representatives and local authority stakeholders at Elmwood College, Cupar, Fife, UK, Summer of 2010. (Image © Hamid van Koten)

Project outcomes

The results and impacts from the project fell into three broad categories.

Firstly, the project altered local authority strategic direction: in the Directorate of Housing and Communities and within the Directorate of Environment and Services there is now an explicit recognition of the benefits of environmental considerations and need for community engagement respectively. More specifically, the CECER Strategy identified six conceptual strategic areas, with strategic goals and action points under each area allocated to departments across the LA. This strategy focused on six key areas:

- (1) Developing alternative delivery mechanisms to enable community action
- (2) Building community resilience

- (3) Creating infrastructure and processes
- (4) Supporting marginalised communities
- (5) Exploring how the financial climate offers an opportunity for different ways of thinking and an internal realignment of resources and
- (6) Learning from the local authority itself as a community of interest.

Secondly, we undertook action research in which networking, discussions and interviews led to real and immediate changes in community and local authority action. Much of the networking occurred through the mixed group seminars on Food, Transport, Energy and Community, out of which a mentoring system has started to emerge between established community initiatives in more affluent areas and emerging initiatives in deprived areas - a significant result in terms of social innovation and the building of social capital.

Finally, the project has impacted on our academic understanding of ‘community’, community engagement and resilience, and the function of local government and multi-level responses to climate change.

If we are to surmise an overall strategic insight from our research - as precarious as this might be – it would seem that Local Authorities will need to shift from being a service provider to becoming a community enabler; in particular with regards to rebuilding community resilience characteristics, such as: local energy independence, food and transport security, as well as social resilience. Rebuilding community resilience can only be accomplished collaboratively. This will require a significant change in culture from Local Authorities, as well as a significant amount of social transformation within from the communities.

Prerequisites for co-creation projects

We have outline above how a creative and collaborative approach has demonstrated impact with regards to social change, social innovation and the building of social capital. What then were the pre-requisites for initiating this co-creation project? On reflection we now see several pre-requisites that were not apparent before beginning the project.

Firstly, the underlying problem that provoked the development of the project was a sustainability challenge that presented as a ‘wicked problem’. Due to their complexity and multi-dimensionality problems such as climate change, are often described as wicked or even super wicked problems (Bernstein et al, 2007). Even simply describing the problem is not possible in a definitive way, unless we adopt a particular (stakeholder) perspective, which might well contradict that of another - but no less valid - one. It seems the best we can do is to formulate these problems in a dynamic fashion through interdisciplinary and cross-disciplinary approaches and multiple stakeholder engagement, resulting in the adoption of a meta-perspective - a position that many designers will recognise. The pre-existence of this sort of problem and its requirement to formulate a joint definition of the terms are prerequisites for co-creation.

Secondly, the previous experience(s) of the participants, especially the research team and the Steering group, was another essential pre-requisite. Those of us who had

worked in the Global South, for example, were accustomed to an applied form of academia which is provoked there by the immediate and serious challenges facing societies with high levels of poverty undergoing rapid change and often without strong state governance. Likewise experience from practice enabled an empathy with the local authorities, the practitioners, as well as the community members - who wished to see actual change as a result of their involvement in community initiatives. 'We academics' demonstrated multiple identities. Hence we were able to shift between 'academics as designers'; 'academics as activists'; even 'activists as managers'. This ability to deeply understand the position of other stakeholders in the project enabled us to empathise with them and acknowledge their views in the co-design of the strategy.

Thirdly existing relationships and the social capital they represent were key to the project success. At an institutional level, the University of St Andrews, and to a lesser extent the University of Dundee, have long standing partnerships with Fife Council, all exhibiting good reputational status. At a personal level, White had sat on a regional partnership committee run by Fife Council for two years prior to project talks beginning, whereas for several years van Koten has been a director of a community interest company, which aims to rebuild community resilience. This provided not only immediate contacts and entry points for partnership, but also the existence of prior trust between key individuals in the project. Thus key partners were willing to work together creatively. For all of us, this was a new form of partnership, bounded by new rules of engagement, yet willingness to partner together was paramount. This willingness was, however, made practically applicable through the existence of shared values; those of us initiating this project felt passionately about responding to climate change and the power offered by community action. Likewise we had mutual specific interests; the local authorities had a new statutory requirement to address community engagement as part of their climate change public duties. We academics were expected to gain grant funding, produce papers on interesting work and, increasingly in UK, demonstrate impact of research work. We thus had circumstances conducive to the initiation of a co-creation project that would enhance and unleash the potential of the collective social capital of the project partners.

These findings support Sanders and Simons (2009), who propose: '...social value co-creation is most likely to occur in the very early front end in the pre-design portion of the design process'.

Triggers to begin co-creation projects

When and how does co-creation start? Interestingly, we can now see the beginning of this process occurring prior to recognition of the fact that we could all apply for funding together. There is a sense that the building of relationships and trust, supported by long term partnership working on a committee but reinforced by occasional chance meetings of different individuals, initiated a gradual development of the process rather than an abrupt start point. The 'when' co-creation starts is thus difficult to define, and we propose a gradual build-up of pre-existing conditions which acts as tinder for the spark that will ignite the process. In this sense the process of co-creation starts before the participants are even aware of it.

How is the co-creation process sparked? In this case, the trigger was an external catalyst. One of the authors did not know the other applicant academics nor the local authority partner, yet commenced discussions in response to the funding call.

Availability of resources, in this case a special form of partnership grant, was also critical. This funding was available from a pilot programme established specifically to encourage Higher Education Institutions to engage with local authorities and the challenges facing local government, but also to allow them to establish better relationships with each other. This kind of far sighted intervention will be required to stimulate many more co-creation projects such as this one.

Co-design lessons learnt from this co-creation project

Certainly in this case we learnt that spending the time in advance identifying the relevant stakeholders proved key to successful co-design outcomes. Building relationships and trust is critical to the process. Equally our methodological approach was essential to facilitating a productive co-design process. The participatory approaches allowed for the development of a shared vision - whereas the diversity of the participants brought a wealth of knowledge and views, which initially appeared to hamper progress, but which - when captured in the participatory approach - provided richness and context to the outcomes. In addition, the project governance structure, with a stakeholder representative steering group, endorsed the co-design process bringing about a collaborative mindset at all levels of the project.

Specific co-design methods and co-design toolkits, such as those developed by e.g. Sanders (2008), were considered but decided against, as the unfamiliarity of the participants with these tools would likely to have interfered with the dialogue, but, more importantly, toolkits such as these can become very directive in the problem solving activity. These tools work well in development settings in which non-designers can go in 'cold' as participants, bringing valuable end-user knowledge. Here they are guided along the development process by an 'expert' (such a designer), looking for feedback on e.g. human interface, form, colour, materials or spatial layout. However these designer 'scaffolding' - as Sanders sometimes calls these tools a setting - work well for finding specific solutions to fairly well defined problems, but - as we discussed earlier - due to their 'wicked' nature this could never be the case here.

The ethnographic methodology formed an essential part of the collaborative process. Not only did this approach allow us to identify and invite those that could contribute best, it also provided a way of 'priming' the different participants for the interactive seminar sessions that were to follow. The individual stakeholders brought with them important social capital consisting of pre-existing professional, as well as personal social networks - this allowed for a ready-made foundation allowing important knowledge exchange to be fostered.

Open Space Technology has proven to be very effective at engaging the participants in a mode of lateral thinking and co-creation. What it has not done is deliver distinct, precise and clearly defined solutions or practical outcomes that will solve, for example, global climate change. However, in our case the use of this method demonstrated the benefits of collaborative working and need for knowledge exchange between the different groups and as such a distinct move to opening up routes for further collaboration in the future. This represents the possibility for institutional change for local councils to move from being a top down service provider to an enabler of community action and similar forms of social innovation.

Co-creation project or mindset?

Throughout this paper we have referred largely to co-creation as collaborative mode of working within our project, and discussed conditions conducive to this. However, one can also understand co-creation as being a broader approach, which is not a characteristic to be allocated, or not, to a project, but rather is a mindset to open up shared visioning and action. In this sense, Sanders (2009) remarks that “*It takes many years for the mindset and practices of co-creation between companies and people to permeate and change an organization*”. The true success of our project will be assessed by how we have begun a wider change within the local authority and across partnership working to use the benefits of shared collaborative processes such as co-creation.

Conclusion

From our research it has become evident that methods and mindsets for co-creation can play an important part in achieving knowledge exchange between apparently disparate parties such as councils and community groups; and that an approach of co-creation can bring about social transformation. However to do this effectively, our project shows, that a pre-design phase is critical in assessing and harnessing pre-existing social capital. Equally the project has demonstrated that a catalyst is required to unleash the potential of the social capital. Approaches such as co-design and co-creation appear crucial for the design-based interventions, which we require in addressing complex problems such as climate change and broader issues of sustainability and community resilience. Solutions identified in these areas are often of a socio-technological nature and require both an element of social change and a change of material infrastructure. In this context design activity exist in the dynamic between social organization, cultural discourse, practical ingenuity, and resource constraints - and has shifted away from the aesthetic towards the social end of its spectrum. Co-creation and co-design here are means for enabling a systems approach to problem solving, supporting community activism, and catalyzing social transformation – and designers in this respect appear to have the relevant skill sets to act as catalytic social entrepreneurs.

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Acknowledgments

This research paper is derived from a completed partnership project between the University of Dundee, the University of St Andrews and Fife Council - and was funded by the UK Economic and Social Research Council, the Local Authorities Research Council, the Scottish Funding Council and Fife Council to a total value of £100 000.



Designing Transformations

Curriculum Innovation through the Learning Community

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Abstract: Over the next decade, the most vibrant educational innovations will take place outside traditional learning institutions. This paper considers a model where 'Space' serves as a catalyst, in the first instance, for as an inclusive educational engagement model and career skills tool to achieve "Schools of Excellence"(SoE). The premise for the project is that applied creativity can offer a unique and fresh perspective for enhancing modes of education and for building partnerships in the learning community.

Designing Transformations proposes catalysts and communities as a compliment to Scotland's newly implemented Curriculum for Excellence* (CfE). For over 50 years including some form of Space education in school curriculum has been an established approach for inspiring young minds to study the sciences and pursue science-based careers. Space-related learning activities typically attract the 'best and the brightest' young minds, but the context of Space is broad and all young minds need the confidence and ability to make choices that will best serve them in the future. How can a model develop other 'hooks' that will serve as catalysts to inclusive educational engagement? How do 'Iconic Partners' such as NASA fit into the learning community? How can we broaden the learning community to achieve "Schools of Excellence"? The paper presents a case study for Schools of Excellence, which uses design methodology to convey an educational experience. The application of various methodologies will be discussed, including design research methods to gather information, influences, and elicit insights and design visualisation to present the findings. Design thinking will be presented as central to idea generation, to inform the underlying framework, to build relationships with partners, and as the bridge between expressive arts and technology. *Lastly*, design interventions will be presented, such as the use of low fidelity human space- simulators as a means for engaging young students (ages 10-13) and as an ideal platform for widening the scope of the interrelated disciplines. Space was the first case - what's next?

* *Curriculum for Excellence (CfE) is a new approach to the curriculum, with its emphasis on outcomes rather than inputs.*

I. INTRODUCTION

I.1 Background

Over the next decade, the most vibrant educational innovations will take place outside traditional learning institutions. How can we create ways of working together to enrich the learning community? How can we create new ways of getting young people hooked into learning at all stages of their journey? The Designing Transformations Project proposes answers to these questions and then takes the first step to proposing a new Schools of Excellence (SoE) model and evaluating a pilot SoE programme.

Design thinking can be applied across the spectrum of innovation. The starting position is the premise that applied creativity offers new ways of working together to broaden learning communities and new modes of educational engagement. This premise is well substantiated by the examples of design-informed public services through collaboration as outlined by leaders in the field: Design Council [1,2] and IDEO [3]. John Thackara [4], a noted expert in design thinking and co-creation, has written of how co-design methodologies have created opportunities leading to innovation and change to public services, ‘...telling people what to do seldom works. A more promising approach is to start with existing grassroots activity and then to create frameworks that enable these actions to develop.’[†] This approach is highly evident in Stanford University’s K12 project [5], which laid the framework for design thinking as a valuable and appropriate approach for exploring and reconsidering ways to learn and ways to enhance learning.

The driving force behind the DT-SoE project was the new Scottish Agency, Skills Development Scotland (SDS), which represents a merging of Careers Scotland, LearnDirect Scotland and sections of Scottish Enterprise. SDS invited the Robert Gordon University/Gray’s School of Art to review the existing SoE model. Fundamental to the development of a new model was the objective to increase the capacity for partnership working and to make industry and iconic partners much more accessible to the needs of a wider body of students.

In this instance, the starting point for the new SoE model would be a reconsideration of the existing Scottish Space School (SSS), a programme in operation for over 10 years, highly regarded for its involvement of iconic partners (primarily NASA) and serving as an early example of a School of Excellence [6]. It is open to all Secondary 4 – Secondary 5 (Ages 14-16) pupils in Scotland and provides Science Technology Engineering and Math (STEM) related inspiration and motivation as pupils progress through the latter years of schooling and into further education. A recent evaluation of the programme indicated that the prime focus of the programme has been at a stage when pupils have made their career choices and many are already focussed on STEM subjects and careers [7]. It has been recommended that the selection of young people to engage requires transformation, and that Primary 7 – Secondary 3 (ages 10-13) is the optimum target group with an opportunity into creative ways to engage these ages.

Along with a shift to a younger target group, the main partner SDS, were seeking fresh thinking around an existing model of using inspirational/iconic partners as a hook for young people to consider careers in STEM they might not otherwise have considered, by bringing together stakeholders and practitioners from outwith the STEM community and from within. If a new model for Schools of Excellence is to be sustainable, it is important that partnerships are an

[†] Doors of Perception web log, (doorsofperception.com) which originated in 2001 is a central forum for international public service and grassroots projects.

area of focus from the outset – hence the direction that the DT-SoE project took through various design-led consultative events and collaborative working sessions.

While many innovative learning and careers projects are ultimately driven and reliant on the vision, the application of design methodology to a service such as Education benefits most from critical evaluation of opportunities for new career routes, new partnerships, and new modes of engagement. Central to this process is the need to ground and launch the process in a manner reflective of Scotland's new Curriculum for Excellence (CfE) specifically, Building the Curriculum 4 (BTC4): Skills for learning, skills for life and skills for work [8].

I.II Curriculum for Excellence (CfE)

Introduced in 2009, this is Scotland's new curriculum, which aims to achieve transformation in education in Scotland by providing a coherent, more flexible and enriched curriculum from ages 3 to 18[‡]. The project aimed to design new approaches to widening the inclusion of STEM related subjects and career routes; further and higher education, industry and education partnerships, and interventions into career management skills. Building the Curriculum 4 (BTC4) asserts that skills should be developed across all curriculum areas, thus supporting interdisciplinary studies and in all the contexts and settings where young people are learning. It provides flexibility in how learning opportunities are delivered: *'opportunities to develop skills may be offered in different ways appropriate to learners' needs, whether through active learning, interdisciplinary tasks or the experience of learning in practical contexts'* [8].

I.III Research Objectives

1. To propose, capture and codify the design process used during the development of a new model for Schools of Excellence.
2. To explore the societal, cultural and environmental contexts of a single theme, in the first instance: Space, as they relate to the world of learning, life, and work.
3. To trial the new SoE model via a school-based pilot activity in June 2010

II. PROCESS

In speaking to businesses and public services, it helps to talk about 'Design' in the broadest terms. For this project, that means the creation and execution of a plan or the very nature of a new creation such as a model for new ways of working together to achieve the goals within a new curriculum. The process should really be about good design, i.e. design that is appropriate to the purpose, which in this context involves talk about curriculum, career routes and strategies for skills provision, industry sectors, and partnership working. Seen from that point of view, the route is really about designing or redesigning learning communities.

The timeline for the project was 9-months (November 2009 – June 2010). The series of design-led activities included partner events and working sessions.

[‡] The curriculum includes the totality of experiences planned for children and young people through their education. The purpose of the Curriculum is encapsulated in the four capacities: to enable each child or young person to be a successful learner, a confident individual, a responsible citizen and an effective contributor.

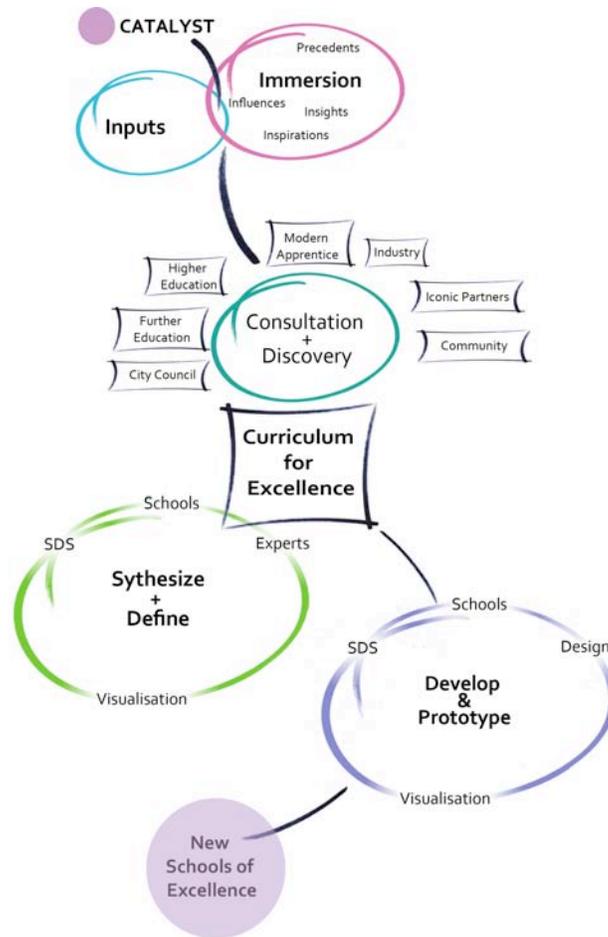


Fig. 1 - Project schematic showing the stages of Partner contributions and the process of collaborative activities undertaken to generate the new SoE model and pilot programme (Image credit N. Crossan).

The range of methodologies adapted and applied in the early stages included ethnography (cultural probes) and design visualisation to communicate and synthesise the findings (Fig. 1). Design thinking was central to generate ideas, to inform the underlying framework, and to build relationships with partners. Design prototyping from the pilot programme used low fidelity human space-simulation activities as a means for engaging young students (ages 10-13) and as an ideal platform for widening the scope of the interrelated disciplines and engaging the learning community.

II.I Visualisation – ‘Project Space’

A large-scale mind map was developed to capture and convey themes arising out of output from the cultural probe pack distributed to a select group of young adults participating in the 2009 Scottish Space School, and ideas from contributing Schools and Partners. The map helped to exhibit relationships between the various space-related influences and insights and it served as a functional framework for documenting partner contributions and process. Figure 2 depicts a section of the map conveying the ideas generated by cross-curricular themes.

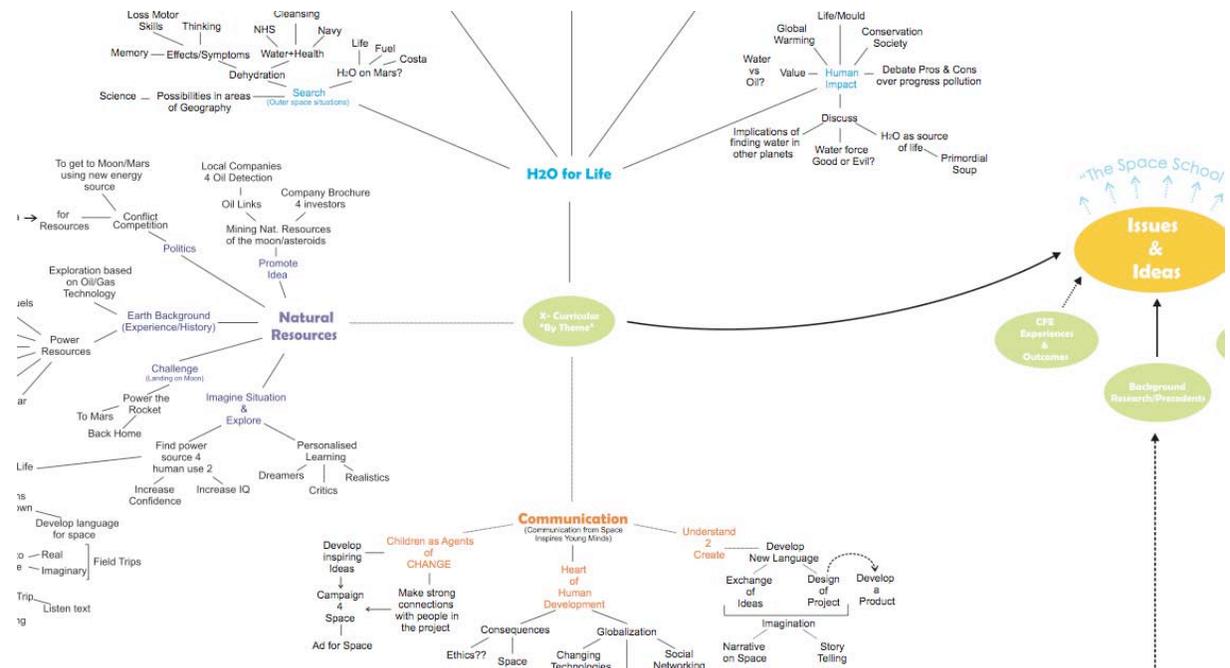


Fig. 2 – ‘A section view of ‘Project Space’: a large-scale mind map used to visualise and synthesise partner contributions and programme development (Image credit N. Lozano).

II.II Consultative events

The first consultative event was a visioning and transformation workshop: Schools (World of Learning) offering tasks to facilitate reflection on personal learning journeys and elicit **insights, inspirations and influences** in the context of Space. A total of 24 participants attended from a broad complement of learning partners and contributing institutions (Pilot School, Higher Education (HE) Institutions, Careers Advisory, Local Council, and Skills Development Scotland Strategic Programmers). Two intensive working group sessions focused on scoping and mapping ideas linked to three key themes (Water for life, Energy and Natural Resources, and Communication).

The second consultative event focussed on Partnerships using themes: **Expertise, Industries and Modes of Engagement**. It set out to answer the question – “How can we broker broad-themed hooks such as ‘Space’ for other Schools of Excellence?” A total of 20 participants attended and represented the range of Partners: Schools, HE (representing Art, Design and Media, Computers, Engineering, Bioengineering, Architecture, and Communications), Industry, Local Council, and Community. The event format included two independent tasks and two group-based tasks. Image-based IDEO-style cards were used to prompt and facilitate reflection on personal strengths and expertise and to elicit insights into the concepts of **Transformation, Aspiration and Success**. Once in groups, pairs of industry sectors were mapped according to big challenges and big opportunities (Fig. 3) followed by a brainstorming session into new modes of engagement. Figure 4 displays an example of a ‘Launch Point’ for generating new innovations through partnerships involving Creative Industries that work with Small Medium Enterprises (SME) such as c4di, Higher Education Institutions (HE), Colleges (FE), and Schools, using Scotland’s cutting-edge digital technologies (FabLab, Three-dimensional Printers, etc.).

LIFE SCIENCES FOOD&DRINK		LIFE SCIENCES FOOD&DRINK	
CHALLENGES	SOLUTIONS	CHALLENGES	SOLUTIONS
AGING POPULATION	HEALTHY EATING EDUCATION	HEALTHY FOOD - NUTRIENT-RICH BUT CHEAP	GENETIC MODIFICATION / NEW FARMING
ETHICS OF PRACTICE		RE-EDUCATION - EATING	SCHOOL LINKS WITH LOCAL BUSINESSES
LEGISLATION - NATIONAL AND GLOBAL	SEEK SOLUTION IN OTHER SECTOR	GENETIC MODIFICATION - PERCEPTION	
COMPETITION FOR SCOTLAND	SEEK SOLUTION IN TOURISM SECTOR	EXPORTING / GROW-YOUR-OWN	EXPORTING / GROW-YOUR-OWN
COST TO CONSUMER	DISTRIBUTION CHANNELS	NEW 'GROWING' STRUCTURE	SEEK SOLUTION IN OTHER SECTOR
INTELLECTUAL PROPERTY	SEEK SOLUTION IN OTHER SECTOR	PROVIDING FOR THE HOME POPULATION	LINKS WITH LOCAL BUSINESSES
COMMERCIALISATION OF KNOWLEDGE	SEEK SOLUTION IN FINANCIAL SECTOR	FOOD AND DRINK WASTE STREAMS	LINKS WITH BUSINESSES & COMMUNITY
HE & INDUSTRY - ETHICS OF PARTNERSHIP		RECYCLED WASTE POVERTY	
PUBLIC PERCEPTION	SCHOOL LINKS	FOOD PRODUCTION	SEEK SOLUTION IN OTHER SECTOR
		DIET / NUTRITION	SCHOOL LINKS WITH LOCAL BUSINESSES

Fig. 3 - Sample output from the Industry Pairings (Image credit N. Donald).

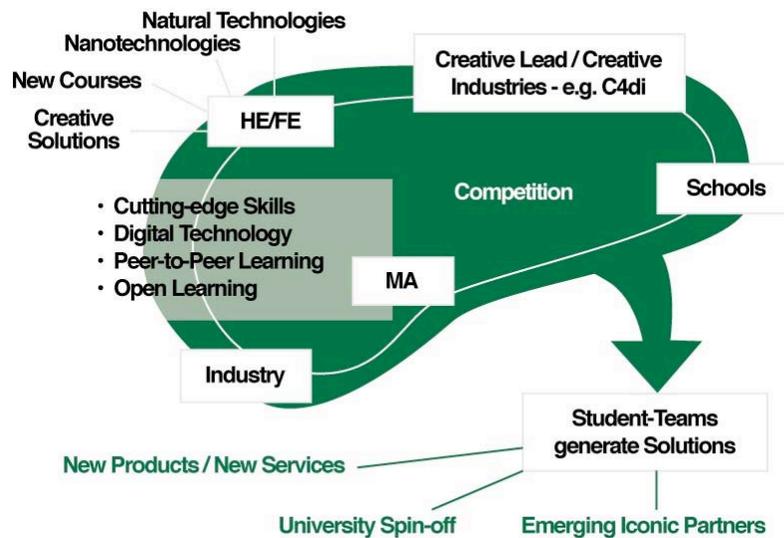


Fig. 4 - A sample “Launch Point” or mode of engagement output arising out of the second consultative event (Image credit N. Donald).

III. PROTOTYPE MODEL

III.I SoE (a New Model for SoE)

Designing Transformations led to a new model for a learning journey, as shown in Figure 5, where Schools of Excellence arise out of an educational framework that uses broad themes, catalysts, or ‘hooks’ such as Space, to engage students. A SoE can also be linked to an iconic partner, such as NASA, Apple, Design Council, etc. so that at their foundation there is a model for partnership working. This model has been shown to inspire young learners to strive for

personal excellence and build strengths key to their own success, to engage with a learning community (Industry, Further Education (FE), HE, etc.), and to heed influencing moments as the defining **Launch Points** in their learning experience (Fig. 5). Influencing moments are those lasting, impressionable moments that gel ideas, people, and knowledge in such a way as to strengthen our connection and influence our thinking. These experiences are characterised by their ‘difference’ in relation to their usual surroundings or context.

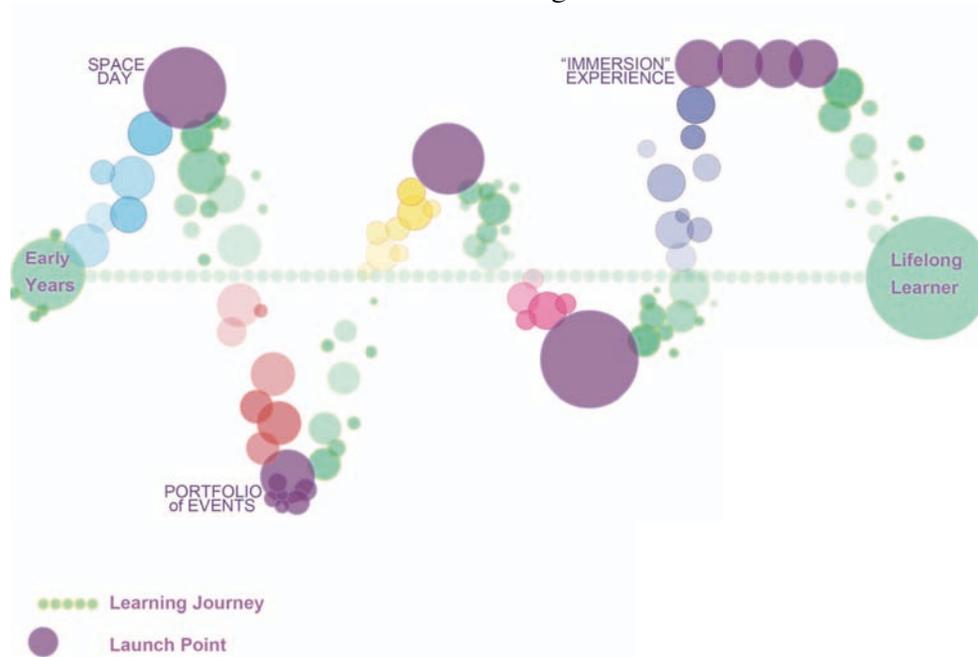


Fig. 5 - A conceptual SoE Learning Journey from Early Years to Lifelong Learner.

The lower aspect of Figure 5 conveys the ‘differences’ in interventions by the size & arrangement of launch points. For example in the context of the pilot programme; Torry Academy ‘Space Day’, the event was characterised by the thematic approach to the day, the shared delivery between staff of the School and individuals from other agencies, and the presence and accessibility for students of a key iconic partner. In this case NASA was the key iconic partner, and the individual player within this was the ‘Astronaut’. Also shown are a ‘portfolio of events’ and an ‘immersion’ experience.

A **Learning journey** is a continuous experience from early years to young adult and beyond – with encounters, experiences, and influencing moments along the way that guide and influence a young person’s decision making about who they are, what they wish to be, and how they plan to achieve.

Each influencing moment along the journey is a potential catalyst to an opportunity to step out of the regular school day and engage in a learning experience. **Launch points** offer spin-offs into other directions – e.g. parallel to learning journey (world of work, life and learning- imagine each as a journey – crossing over at certain times) and the end point being a young adult with an inherently flexible and collective lifelong learning journey. **Career agility. Learning agility. Lifelong confidence.**

Catalysts and communities: The starting point for the model is a ‘catalyst’ (Fig. 6) and/or inputs; which may be a reconsideration of an existing curriculum programme, a topical theme (e.g. Fashion, Music, Sport, Space, Film, etc.), industry-sector finance opportunities, or new

educational strategies such as CfE, or any other single or combined element. In the proposed model, CfE enabled ‘joined-up thinking’ – both across curriculum areas and across the learning ‘time span’. The mapping activity facilitates creativity in the development stage of the model by avoiding the direct correlation of activity to skill, thereby enabling the development of big ideas across the learning stages.

The catalyst theme for testing the SoE model at this point in time has been Space (Fig. 6), however the model allows for the development of multiple catalysts that can come out of consultation with partners. Indeed the model sees the role of a National Careers body such as Skills Development Scotland as a strategic interventionist bringing together key partners from industry and education to engage in workshop activity and to explore opportunities to influence the development and delivery of learning communities

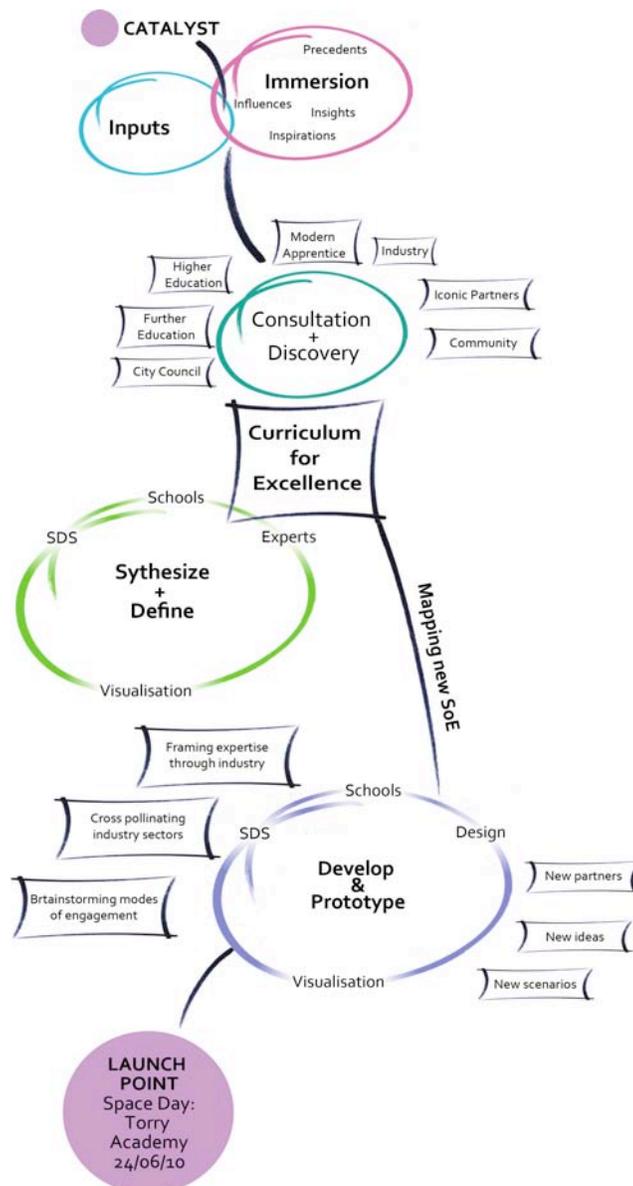


Fig. 6 - Proposed Schools of Excellence model to enhance the delivery of curriculum through catalysts and learning communities.

The output for the SoE pilot resulted in a single one- day programme of activities. This was not connected to a series or a portfolio of events but the SoE model would enable other modes of engagement and patterns of activity to be developed as working groups see fit. In this respect, the pilot ‘launch point’ was a singular ‘launch point’; the development of a series of ‘launch points’ to take a young person through a period of their academic career would constitute an ideal for the SoE model, whereby partnership working becomes a fundamental part of delivery of the curriculum. In this respect the curriculum becomes ‘networked’ and connected over a far longer time span building long-term relationships with industry and other agencies.

III.III Pilot - Theme: Space. Project Space Day 2010

The pilot project acknowledged and embraced the premise that some of the key skills for the 21st-century are investigation, responsibility, and the ability to synthesise experiences. Building on this and based on a proposed model that is cross-curricular in nature, the Space Day 2010 programme conveyed a selection of experiences designed to explore the societal, cultural and environmental contexts of space as they relate to the world of learning and the world of work, thus moving the curriculum from isolated to engaged.

III.I Demographics

The SoE project was based in Aberdeen, a city of approximately 200,000 in Northeast Scotland. The local city council chose Torry Academy as the location for the pilot programme, a school within a regeneration zone with a high degree of international students and higher than average levels of poverty, unemployment and deprivation. Over the past five years – the demographics from the Government of Scotland’s 2008-09 School Leavers Destination Report [9] revealed that school leavers from Torry Academy have remained in the community or Aberdeen area, either going on to Further Education (FE) (e.g. local College) or directly into employment (e.g. industry based training with modern apprentices). Statistics drawn from the 2008-09 report indicate that of the 81 school leavers in 2008, only 18.5% went on to Higher Education, which was almost half as many as the average nationally in Scotland (34.9%). Torry Academy had a higher unemployment rate (25.9%) as compared to Aberdeen city (12.6%) and across Scotland (11.5%).

III.II Design Intervention - Simulation

Simulation is used in many training applications: technology, healthcare, safety, social services, and in education, among others. Facilities that simulate human space missions, or aspects thereof, are referred to as simulators, with early examples including the Skylab Mobile Laboratory (SML) while more recent examples include virtual simulators like the Interactive Mars Habitat [10]. Simulators are sometimes described in terms of their ‘fidelity’ or their ability to simulate or produce an experience, with those that produce likely performance or behaviours termed "high-fidelity" as opposed to "low-fidelity" simulations producing only some basic signs of possible performance, but the distinction of fidelity is mainly dependent on the context of a given scenario.

With the opportunities afforded by CfE, and the premise that opportunities should be open to all children/young people, the SoE pilot endeavoured to democratise discrete aspects of a space exploration experience and in doing so it aimed to provide a range of inclusive educational activities accessible to all abilities. Contextually, the pilot programme pursued the concept of low fidelity space simulations, but practically, it offered aspects of ‘hacked’ space experiences for the purpose of inspiration, engagement and education. The ‘hacker’ aspect is key to the programme’s sustainability as the use of off-the-shelf and existing resources, and the ability to

mock-up activities within different school environments, is what enables the programme to be accessible and adaptable, and tailored to a given school's objectives and learning community.

In its final programmatic form, the SoE pilot used the theme of Space as an educational engagement model and career skills tool to engage young students of all abilities. Staging the activities via a collapsed curriculum day for 200+ Primary-7 and Secondary-1 (10-13 year olds) students provided further opportunity to offer an inclusive, engaging experience at an influencing time in a pupil's life: transition from primary to secondary school. It served as an example of a broadened learning community enabling innovative collaboration between Gray's School of Art, Robert Gordon University, Skills Development Scotland, Torry Academy and Associated Primary School Groups, industry Representatives, SHMU/Community Radio, the City of Aberdeen, the Scottish Space School, and expert guests from NASA.

The programme represents one iteration of the potential for the theme of Space as a 'hook' to engage and inspire young adults through a set of cross-curricular activities using simulation, group discussion, individual reflection and question-time with a panel of experts. The programme achieved strong cross-curricular representation with all ideas generated mapped to at least four curricular areas (Literacy, Numeracy, Health and Well-Being, Sciences) and many mapped to more than four areas (Art, Design & Technologies (EXA), English (ENG), Modern Languages, and Religious and Moral Education (RME)).

III.III Pilot Programme

A: Living in Space: three-part activity.

A1. Doorways in Space – Explores the shapes, sizes, and cultural associations of doorways in various contexts (residential, commercial, emergency) various environments, including Space. The Space Day activity saw over 200 pupils trialing different shapes of doorways in a highly energetic setting (Fig. 7a,b), including a task offering simulated weightlessness through a team-based physical activity.

A2. Alien Dining – Exploring language, culture, and space food and a simulation of what it would be like to share an intercultural, multilingual meal aboard the International Space Station (ISS).

A3. Stories of Water – A discussion-based activity that presents a mode for exploring our perceptions of the sources of the water we drink using stories and sensory stimuli (taste, smell, colour and clarity).



Fig. 7 - Doorways in Space achieved with basic gymnasium equipment and trialed with large class groups.

B: Remote Explorer: A set of three activities to convey the challenges of human versus robotic exploration using a low-cost customisable kit (under £10). Activities progressively exposed students to the areas of communication, design, maintenance and operations in remote exploration (referencing various local sub-sea industries and a local marine museum).

C: Space | Time Capsule. An opportunity to reflect on what is important to a pupil now and to help them frame and visualise their future life and career (2010 and 2020). Students were encouraged to augment the capsules templates (Fig. 8a) with drawings, text, graffiti, or any other meaningful images along with a photo of themselves. Capsules were constructed and then assembled for a common display in the School at the end of Space Day (Fig. 8b). Over 200 capsules were put in dry storage at Torry Academy to be retrieved and shared with the pupils in 2-3 years when they make subject and career choices.

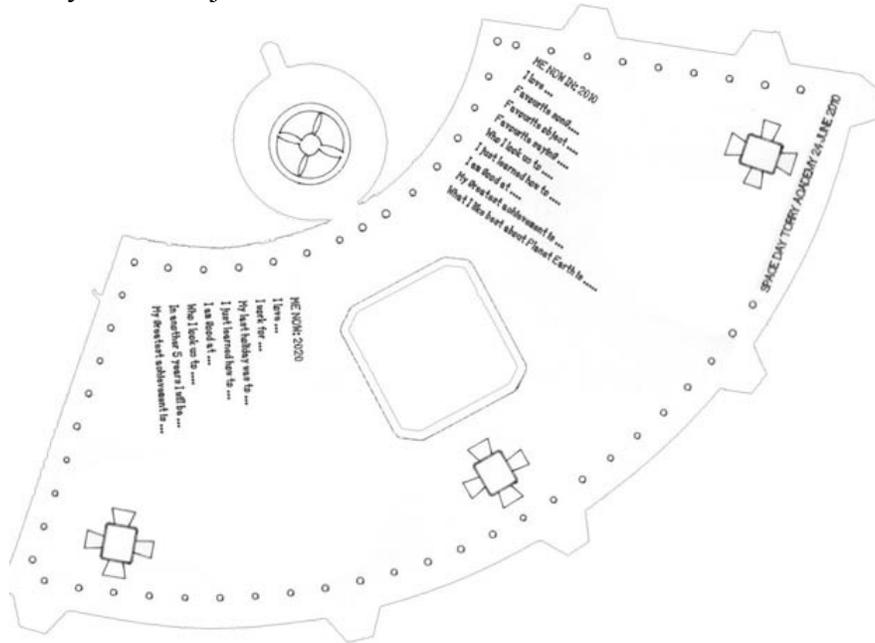


Fig. 8a: Space | Time Capsule template.



Fig. 8b: Space | Time Capsule – A reflective and hands-on making activity.

D: “A Pocketful of Questions”: The final session of the day was a Question and Answer session with a panel of Experts from a range of industries, including Space, Geology, Energy/Oil Sector, Design and Media. Pupils were encouraged to write down questions throughout the day to ask during this Panel-formatted session. Each Expert was provided with a ‘Billboard’ offering background career information along with ‘Sparks’ (initial questions).

III.IV Evaluation

As a pilot activity, evaluation was considered and while actions were undertaken, the main focus of it was to assess the degree of engagement, impact, and feedback on the sustainability of the programme. Within days of the event, a questionnaire was distributed to all participating students and Partners in addition to a series of follow-up interviews held with a representative of each of the key Partners (Pilot School, Higher Education, and Skills Development Scotland). Feedback from pupils, activity leaders and teaching staff was overwhelmingly positive while also being constructive for informing future Space Day events. The sustainable nature of the activities developed for the event were also considered a success as the pilot school have reportedly already adopted some of the activities, have broadened their learning community to include local industry and an Iconic partner and have integrated the CfE-mapped resources into their 2010-11 curriculum

CONCLUSIONS

All young minds need the confidence and ability to make learning and career choices that will best serve them in the world of work. What lies behind the ability to make choices is the broadening and enrichment of the learning journey and the learning community. The Designing Transformations Project has taken the first step to using applied creativity to generate answers to some early questions and to evaluating a case study: the Schools of Excellence (SoE) Project

Design research methods used throughout the project provided robust evidence – at insight, ideas generation, relationships, cross-curricular synthesis and solutions – and opened up the obvious links between art, technology and science.

How can we create ways of working together to enrich the learning community? The project allowed fresh thinking around an existing model of using inspirational/iconic partners as a hook for young people to consider careers in STEM which they might not otherwise have considered, by bringing together stakeholders and practitioners from outwith the STEM community and from within. This allowed for a creative synthesis of ideas and approaches. From the perspective of the lead agency SDS, Launch points, industry pairings, and mind map visualisation were considered some of the most important influences and outcomes of the whole project, and have been identified as those that will inform their approach to tools, approaches and partnership work for the key industries and beyond.

How can we create new ways of getting young people hooked into learning at all stages of their journey? The new SoE model seeks new ways to inspire all young learners to strive for excellence and build strengths key to their own success; engage with a broad learning community (Industry, Community, Further Education (FE), Higher Education (HE), etc.); and heed influencing moments as the defining launch points in their personal learning journey.

From the perspective of the Lead agency, Skills Development Scotland, some of the key Innovations arising from the project included;

- Partners who inspire don't need to be world-renowned/global or indeed on the other side of the world.
- Intervention in the curriculum should be at a younger age, not when pupils have already chosen their career path.
- The methodologies around the consultative workshops proved to be a stimulating and successful experience and informed the SoE blueprint enormously.

- Ideas around partnership, strategic intervention to bring this together, launch points, collapsed curriculum, whole school activity, all become sustainable and transferable
- There is an opportunity for an agency such as SDS to be instrumental in the brokering of a compliment of partners, with local partners then central to the learning community for curriculum development and implementation.

As this pilot was a singular ‘launch point’, the development of a series of ‘launch points’ to take a student through a period of their academic career would constitute an ideal for the SoE model whereby partnership working becomes a fundamental part of delivery of the curriculum. In this respect the next step is the development of further SoE ‘launch points’ to support a learning journey that is ‘networked’ and connected over a far longer time span building long-term relationships with industry and other agencies.

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Acknowledgments. This project was made possibly with a funding grant from Skills Development Scotland (SDS). Manuscript preparation was aided by the efforts of N. Lozano, N. Crossan and N. Donald for the visualisations and D.S. Prockter for proof reading. This project was not the result of one project team, but of engagement between various talented and energetic partners; Skills Development Scotland, Torry Academy, Scottish Space School, Aberdeen City Council, Visiting UK Space Educators, SHMU Community Radio, Local Industries, and The Robert Gordon University/Gray’s School of Art.



Open Archipelago

Designing isles of knowledge in the web 2.0 era

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Abstract

Libraries are the traditional depot of culture and knowledge. The concept of digital libraries (D-Lib) emerged consistently with the growth of the web society and the broader diffusion of ICT systems and services. This idea empowers both the aspects of traditional editorial products and the way of conceiving digital education: on the one hand it implies a transformation in the cultural heritage of libraries, increasing the presence of digital contents; on the other hand it shifts the habitual approach to knowledge by offering a more sustainable distribution, a fastest access and a different user-centered concept to better satisfy the needs of the people.

Considering this scenario the paper would present the project Open Archipelago (OA) as a final delivery of a set of research activities oriented to offer an open source framework to innovate some aspects of fruition, distribution and management of editorial contents in libraries and in academic environments.

The project offers to the users a different cognitive approach to a wide variety of electronic materials and a more sustainable way to distribute, share and organize knowledge especially in the public spaces of libraries, research centers and universities.

Open Archipelago is based on a open source central system to index and to catalogue (and to store, in particular cases) Open Access materials, like digital versions of magazines, papers, books, etc. Connected to this main platform there are different end-user platforms called “islands” (clustered platforms as “islands” that creates the “archipelago”), in which such materials can be distributed through different typologies of devices (iPads, e-book readers, multimedia cards, USB keys, etc.) or consulted directly “on screen” (multimedia tactile screen) and partially printed according to the policies of the materials and of the hosting institution.

The main idea behind this kind of network is to create an “archipelago” of platforms (kiosks with different features) to put each user in a participative, interactive and immersive environment based on digital contents and to empower the heritage of the

knowledge encouraging the institutions to adopt and to distribute Open Access products with web 2.0 frameworks.

Such configuration allows also to design specific guidelines in order to offer a low-cost, sustainable, scalable and modular solution to implement a system based on new low-consumption devices, on online-trusted Open Access resources and on self-automated settings of distribution based on web 2.0 platforms.

The research focus started analyzing the issues related to the different approaches between digital natives and digital migrant in specific environments which offer editorial contents. One of the main topics that emerged was how to re-modulate the social inclusion for both these categories in the academic context giving a powerful and affordable solution in the hand of the institution. After a grounded analysis based on virtual ethnography research and on-field surveys and interviews, emerged mostly the aspect to reframe the practices to approach resources, not only in relation to the actual systems which offer the main index or/and an overall resume, but to access directly the whole content in few steps.

The answer to these feedbacks, taking also into account the need not to overlap with the best practices in the international context, was to design a framework oriented towards a methodological and structural innovation in the field of D-Lib cultural heritage based on well-profiled Open Access resources.

Introduction

Open Archipelago (OA) is a cooperative project in collaboration of two research institutes (Università degli Studi of Milano and IN3 – Internet Interdisciplinary Institute of Universitat Oberta de Catalunya). It is a framework prototype to collect and distribute Open Access¹ materials in a web 2.0² perspective. The project started in 2010 and it is still in development, although some deliveries and the very first applications of the framework permit to offer practical outcomes for the scientific community.

The core idea of OA is a central system to index and to catalogue (and to store in particular cases) Open Access materials, like digital version of magazines, papers, books, etc. Connected to this main platform are different end-user platforms called “islands” (clustered platforms as “islands” that creates the “archipelago”), in which such materials can be distributed through different typologies of devices (iPads, e-book readers, multimedia cards, USB keys, etc.) or consulted directly *on screen* (multimedia tactile screen) and partially printed according to the policies of the materials and of the hosting institution. In this sense, the name “Open Archipelago” defines the growing decentralized network that could be considered as an archipelago of platforms (kiosks

¹ Open Access refers to unrestricted online access to articles published in academic journals. Open access products are mostly in digital format, online, free of charge, and free of most copyright and licensing restrictions.

² In this sense Web 2.0 perspective means to provide the user with more user-interface, software and storage facilities, all through web browser. This has been called also “Network as platform” computing (O'Reilly, Tim, *What Is Web 2.0. Design Patterns and Business Models for the Next Generation of Software*, 2005, September 30th, URL: <http://oreilly.com/web2/archive/what-is-web-20.html>, last accessed 2011, January 10th)

with different features) and which is able to put each user in a participative, interactive and immersive environment based on open digital contents. Furthermore, the aim of OA is also to enrich the heritage of the knowledge encouraging academic institutions to adopt and to distribute Open Access products following the social and connective dimension of the web 2.0.

Present scenario

Libraries are the traditional depot of culture and knowledge. The concept of digital libraries³ emerged consistently with the growth of the web society and the broader diffusion of ICT systems and services. This idea enriched both the aspects of traditional editorial products and the way of conceiving digital education: on the one hand it implies a transformation in the cultural heritage of libraries, increasing the presence of digital contents; on the other hand it shifts the habitual approach to knowledge by offering a more sustainable distribution, a fastest access and a different user-centered concept⁴ to better satisfy the needs of the people.

In a moment in which university courses adopt a digital curricula of studies the libraries need to appropriate a new role as institutions oriented to support also in this direction both learning and research. This process is actually so very effective in public libraries as in academic libraries, where the digital heritage started growing some years before. On the other hand, during the same years, editors changed to digital process of publishing and many scientific publications switched to digital format with electronic version of journals. This change was the main reason of the birth of the Open Access movement and of its resulting system of publishing⁵.

The number of journals obtained a remarkable growth and many institutional repositories of research products were opened in several universities.

Considering the Italian scenario for example, the Telethon⁶ project, a fund raising program to help research on genetic diseases, adopted the Open Access policy to diffuse and communicate the research deliveries.

Today Open Access Journals are often defined as journals that use a funding model that does not charge readers or their institutions for access: from the Budapest Open Access Initiative⁷ definition of “Open Access” users have the right to “read, download, copy, distribute, print, search, or link to the full texts of these articles”. Existing Open Access

³ Digital libraries (D-Lib) are libraries in which collections are stored in digital formats and accessible by media devices (computer, portable readers, etc.). The digital contents may be stored locally, or accessed remotely.

⁴ Comeaux, David J. *Usability Studies and User-Centered Design in Digital Libraries*, Journal of Web Librarianship 2, no. 2 (2008): 457.

⁵ For a more exhaustive perspective on the Open Access initiative: Hall, Gary, *Digitize This Book!: The Politics of New Media, or Why We Need Open Access Now*, Univ Of Minnesota Press, 2008.

⁶ Telethon Italy is an Italian NPO organization which goal is the aim of funding research on muscular dystrophies and genetic diseases. Telethon considers supporting unrestricted access to the published output of research a fundamental part of its mission. For this purpose Telethon has joined in 2010 the UK PubMed Central (UKPMC), a free-to-access digital archive of peer-reviewed biomedical and life sciences research.

⁷ The Budapest Open Access Initiative arises from a meeting convened in Budapest by the Open Society Institute (OSI) on December 1-2, 2001. The purpose of the meeting was to accelerate progress in the international effort to make research articles in all academic fields freely available on the internet. What emerged from the meeting was at once a statement of principle, a statement of strategy, and a statement of commitment (Budapest Open Access initiative, URL: <http://www.soros.org/openaccess/index.shtml>; last accessed: 2011, January 7th).

Journals directories, like DOAJ, consider this definition as mandatory for a journal to be included in the directory.

According to this idea, Open Archipelago could be understood also as the final delivery of a set of research activities oriented to offer an open source framework to innovate some aspects of fruition, distribution and management of editorial contents in libraries and in academic environments.

In order to reach this objective, OA project during its development challenged with some particular issues connected to the social and the institutional limits of Open Access initiative. One critical element in this view is that the Open Access products are not well known in “soft sciences” environment. If benefits of Open Access are evident even for the Humanities, the Open Access model is historically less known by researchers. In order to reach the necessary critical mass to consolidate the Open Access model in this disciplines would be necessary a reframed path for an immediate approach to the products. Libraries could be the very promoter able to respond to this goal of meta-dissemination: they have ever had cultural heritage goals, and a user-centered perspective. In this sense Open Archipelago would try to become a supporting tool to help to broadly diffuse the open-culture model, as seen in Open Source model for software or in cultural contents for licenses.

On another front, the growth of e-ink technologies with e-book reader devices has allowed to think a different way to deliver “paperless” digital contents.

Considering OA as a framework to distribute open contents on these mobile and portable devices, we must distinguish between lean back reading and lean forward reading⁸. The first model is entertainment reading while the second one is more aligned to study or work purposes. Today e-book readers are mostly used as only lean back reading devices. To be useful for research and study purposes e-book readers need to have a wider diffusion in public spaces and improved accessibility features (technical, like a bigger dimension of the reading surface and a more scalable reading software – compatible with the most diffused formats – and commercial, like a more affordable price and a broader public diffusion).

Considering these aspects, the adoption and the diffusion of this new devices that OA project offers to the final users (student, researcher, professors, etc.) and to the platform managers (librarians and researchers as well) is a first step towards an overall framework able to cross-distribute in many ways digital contents and to encourage the adoption of a new reading style.

Approaching best practices

In this scenario, there are many best cases that have adopted technologies and models aligned to the aims of Open Archipelago project. The existence of overlapping technologies and similar objectives shows that the goals of OA are widely considered in different scenarios and the same OA can be partially designed by a mash up of existent experiences.

Among the different case analysed the most interesting practices for the OA development could be considered the following:

MedialibraryOnLine: an italian case. Horizons Unlimited (Bologna) has developed MedialibraryOnLine (ML), a platform aimed to share digital resources between

⁸ Roncaglia, Gino, *La quarta rivoluzione. Sei lezioni sul futuro del libro*, Bari, Laterza, 2010.

different institutions, especially public libraries. Public libraries, after a subscription and with an annual fee, can access a lot of digital resources. They can also buy collections of resources and offer directly to their users by ML platform. In this way ML can be seen as a model of remote digital lending. However one of the limit noticed in ML is that Open Access documents or Public Domain books, like the resources delivered by Project Gutenberg or Italian LiberLiber, can be downloaded only on subscription. This project is not oriented to index research documents. ML makes it possible to use an advanced search form that sends a single query at a time to other search engines like Google Books, Google Scholar or DOAJ, but it does not index directly Open Access resources.

PLEIADI Project: a second Italian institutional initiative. Pleiadi (Portale per la Letteratura scientifica Elettronica Italiana su Archivi aperti e Depositi Istituzionali) is a project developed by Italian CILEA and CASPUR. It offers as a service the centralized access to the scientific literature archived in Open Access Institutional archives of Italian universities and in other Italian research centres. Pleiadi works as a service provider to collect and to index the metadata from Open Access Italian archives. In this way Pleiadi allows a simultaneous search from a single web interface over all indexed archives. Pleiadi covers only institutional archives: many digital resources published in Open Access journals are not collected.

DOAJ: a directory of journals. DOAJ (Directory of Open Access Journals) is a directory that provides access to referred Open Access Journals. The directory aims to be comprehensive and covers all Open Access scientific and scholarly journals that use an appropriate quality control system, and it will not be limited to particular language or subject area. The aim of the DOAJ is to increase the visibility and the diffusion of Open Access scientific and scholarly journals.

Since DOAJ indexes only free, full text, referred scientific and scholarly journals, there are a lot of resources that have not been indexed because of a “lower” level of accuracy.

OpenDOAR: a directory of Open Access repositories. OpenDOAR is a reliable source of academic Open Access repositories. OpenDOAR has been identified as a key resource for the Open Access community⁹. The OpenDOAR in-depth approach to repository does not rely on automated analysis and gives a quality-controlled list of repositories. It appears to be for repositories the counterpart of DOAJ for Journals. Both have a stakeholders’ communities that contribute to the growth of Directories.

RePEc (Research Papers in Economics): a volunteer-driven initiative. RePEc aims creating a public-access database that promotes scholarly communication and at enhancing the dissemination of research in economics disciplines. The heart of the project is a decentralized database of working papers, journal articles and software components. All RePEc material is freely available. The participation in RePEc as a provider only involves the time of volunteers to prepare and to maintain metadata describing publications of institutional repository. But RePEc does not contain full-text journal articles. RePEc services provide links to many full-text articles, but a personal or institutional subscription is needed to follow these links.

⁹ Oliver, Kathleen B. and Swain, Robert, *Directories of Institutional Repositories: Research Results & Recommendations*, 72nd IFLA General Conference, May 2006, URL: http://archive.ifla.org/IV/ifla72/papers/151-Oliver_Swain-en.pdf (last accessed: 2011, January 7th)

OpenAIRE: a system for research. OpenAIRE (Open Access Infrastructure for Research in Europe) provides a network of open repositories providing free online access to knowledge produced by scientists receiving grants from the Seventh Framework programme (FP7) and European Research Council (ERC). This is the limit of OpenAIRE: a meta engine with a domain limited to FP7 and ERC researches.

Considering these initiatives among the others, it was possible to define specific guidelines and to adopt some of the models analysed to design the core project of OA. The aim was to define which were the best solutions to browse repositories, which were the most used tools to collect and distribute resources and to embed, when possible, the technologies used in other platforms in order to produce a sort of meta-repository for Open Access products.

The Open Archipelago initiative

Open Archipelago started in 2010 as a research initiative to innovate the traditional practices of distribution and collection of academic materials. The project focus moved from the idea to offer a parallel answer to research communities' needs, not only offering another tool for libraries, but primarily an opportunity to broadly open knowledge in institutional situations where exists a considerable gap between digital and traditional resources.

The whole initiative, supported by an international team of researchers, has several aims, but the research focus was specially oriented to: facilitating and empowering the approach to the librarian heritage adopting an Open Access policy; decreasing the digital divide inside the academic institution by the introduction of resourceful system able to be easily used by digital natives and easily approached by digital migrants; allowing a sustainable access to the information, taking particular care of usability, low-consumption and saving policies promoted in the SDIs European Union indicators¹⁰; promoting an innovative and immersive approach to the cultural heritage, mashing-up previous technologies, in a web 2.0 vision.

Concept

The OA concept is based on two levels: the first one consists on a basic research to provide a framework capable to adopt, to share and to deliver collections of scientific Open Access resources; the second level consists in an applied research to propose a multi-platforms solution (the "Islands") to manage these resources. The model that emerges is an open access network architecture which could manage resources as a traditional repository as well as a meta-crawler indexing system. The framework is based on a semantic hybrid database¹¹ and on a

¹⁰ The Sustainable Development Indicators (SDIs) are parameters used to monitor the EU Sustainable Development Strategy in a report published by Eurostat every two years.

¹¹ The concept of hybrid database is based on a bottom-up approach to define the relations and the tags shared between the different resources by the final users (Ciastellardi, Matteo; Cruciani, Andrea; Miranda de Almeida, Cristina and de Kerckhove, Derrick, *The space between. Designing bottom-up knowledge in an interconnected society*, in Aa. Vv., Design Connexity Proceedings, Aberdeen, EAD Publishing, 2009, attached).

collection of resources that could be consulted, downloaded and tagged. The process follows the following steps (fig. 1):

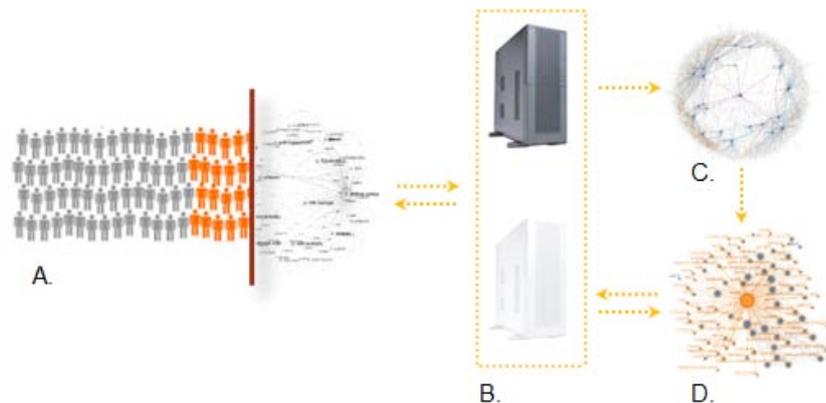


Fig. 1 – Information process

- A. Part of the people in a traditional library access to the core application (web-based) and start crawling the resources, according to their needs and to the suggestions visually offered after every research.
- B. The core system (web based) elaborates the queries and:
 - B.1. it answers as a traditional database offering the most coherent information;
 - B.2. it offers semantic driven answers, suggesting pertinent contents based on overlapping areas of interest, defined by the resources' tags and relations;
 - B.3. it stores the queries analyzing the tags, the path of each research and the users' choices.
- C. The database process the queries and it grows during the users' researches, adding new tags and reframing the existing classification.
- D. The hybrid engine permits to have a dynamical map of the resources that change partially after each research, considering the communities those are using the system (in a local or in a networked distribution) and the distribution settings.

The hybrid core is a database powered by a metacrawler. This configuration allows to store resources and to index contents from different outside repositories, like DOAJ. This approach permits to have a clustered system for information retrieval, that means more resources with less expenses (time, human costs, database complexity, etc.) and with an automatic update sustained by the connection of different self-fed repositories.

Once resources are indexed, it is possible to distribute them in several ways (fig. 2).



Fig. 4 – An “isle” with two devices remotely connected to transfer Open Access resources.

There are two kinds of “isles” platforms in the OA project:

- a) The SEELE platform: main kiosk.
SEELE (Smart Electronic Environment for Learning Experiences) is a kiosk with a wide interactive full touch monitor to offer a reading experience directly on the screen. It simulates the book-format adopting a digital variant of the text, with pages to browse and to flip through with fingers.
- b) The PEOPLE platform: satellite kiosk.
PEOPLE (Paperless Electronic Open Public Library Environment) is a kiosk optimized for Open Access materials delivery. It has a smaller screen than the SEELE version but with all the connections with the external devices to transfer directly all the resources offered.

In both platforms users can download the digital resources in many different ways. It is possible to download files simply “drag’n’dropping” with a finger the cover of the resource on an available device. There are so many possibilities as many devices are connected to the kiosk, from traditional USB keys or SD cards, to more advanced tablets (like iPad) or ebook readers.

When users find resources they can also acquire the QRcodes related to them: this way proceeding they do not download the contents, but only a link as a bookmark. In a second moment they will be able to manage this bookmark on their personal computer or on their mobile devices to download the resource connected to the QRcode.

Development notes

In order to accomplish to the mashing-up approach, which aim is to connect together, re-apply and empower previous existing (and broadly diffused) technologies, the OA project has moved from the best practices to isolate and to

define some particular open source technologies and some model to diffuse and distribute contents.

The research has analyzed the relation between the best cases previously indicated, scheduling the different layers that constitute these initiatives, and classifying the main features oriented toward a sustainable and innovative framework. As a second step the research has shifted to a deeper level of analysis, in order to better understand the missteps and the blindspots related to the different approach between digital natives and digital migrants in specific environments which offers editorial contents.

The deliveries of this processes have permitted to design a preliminary framework of intervention and different guidelines on how to apply the OA model to different environments. The whole analysis was based on a virtual-ethnographic approach to understand which is the behavior of the people during the use of digital contents, especially in the four moments of:

- a) Information retrieval
- b) Information browsing
- c) Information management
- d) Information distribution

The evaluation of all the behavioral aspects before and after the use of the technological platforms has been investigated by traditional surveys and with the application of a RPA (Replication Protocol Analysis)¹² to collect much information as possible in terms of feedbacks and motivational factors.

One of the main issue emerged has been how to re-modulate the social inclusion of the two principal categories of users: digital natives and digital migrants. The OA project has reframed some synesthetic strategies¹³ in order to develop informative system for unpaired people (audiovisual and tactile approach) and to offer a more reliable environment for both the users' categories. It also moved from some basic principles of ergonomics in design¹⁴ to encourage the use of the platform with everyday's life objects.

After grounded analysis based on virtual ethnography research and on-field surveys and interviews, emerged mostly the aspect to reframe the practices to approach resources, not only in relation to the actual systems which offer the main index or/and an overall resume, but to access directly to the whole contents in few steps.

Technical aspects

OA needs housing on server Linux (LAMP), BSD or Unix-like with this features: PHP 4.2.X or higher with functionality MySql, XML and Zlib; MySQL database 3.23.X or higher, 500 MB minimum space, minimum 5 db; Apache web server 1:13:19 or higher; PERL; htaccess configuration.

¹² Galle, Per and Kovács, László Béla, *Replication protocol analysis: a method for the study of real-world design thinking*, Design Studies 17, no. 2 (April 1996): 181-200.

¹³ Anceschi, Giovanni and Riccò, Dina, *Research of Communication Design: a synesthetic approach*, in Proceedings of the «Design plus Research» international conference, Politecnico of Milano, May 18-20, 2000 (pp. 1-7 attached).

¹⁴ The strategies mostly arise from Cooke, Nancy J. and Salas, Eduardo, *Best of Human Factors: Thirty Classic Contributions to Human Factors/Ergonomics Science and Engineering*, Human Factors & Ergonomics Society, USA, 2008.

The housing should also include a minimum amount of web space of 5 Tb and no limit or a minimum bandwidth guaranteed daily, with possibility to extend it according to future needs of the system.

All the kiosks can incorporate a free WiFi Hot Spot. There are network/WiFi policies that limit the navigation to the Open Access resources.

Conclusions

OA Projects is a young framework of activities with several aims. As any project with a multi-purpose direction, OA presented some positive deliveries but also blindspots and missteps to correct.

The very first deliveries, related to the pilot experiment in Milano, are the partial change of the traditional librarian environment (by the introduction of the “islands” platforms) and the correlated change of users’ behavior interacting with new tools to discover information related to their own researches. This result allowed to change partially the perspective of the library as simple repository of resources, introducing the idea of a more flexible and helpful user centered environment. Traditionally the library was approached with a clear idea of the contents, authors and resources needed. Researchers were able to deepen their analysis using the resources (books, catalogues journals and so on). Now they have one chance more by the semantic connective interface.

In the early stage the main trouble expected, the “technological gap” using new devices and kiosks, has not been a real issue: the easily approach to the resources and the intuitive interface allow a friendly approach to the overall framework.

Considering the blindspots, the project is now trying to deal with the issue related to the education of librarians as manager of the system. Archipelago is considered a set of parallel activities that challenge with the traditional approach to libraries. This causes a complicate first impact for the librarians: they have to take care of another technology with another dimension of use. Fortunately after the first steps the platforms are mainly self feeded by users and could be self feeded also in terms of updating by the connection to the database of the different repositories.

The experience of Archipelago is only at the beginning, but the possibilities are many and completely oriented toward a scenario of open knowledge and sustainable connective growth.

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Non-traditional Design for Homeless people

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Abstract

This article discusses the non-traditional role design has the potential to assume when addressing communities such as homeless people, who can be understood as constituting “non-consuming” targets. The main background to be employed in this reflection relies on the results of a survey carried out during a six years period by one of the authors. He has worked as a volunteer in a nongovernmental organization, living among São Paulo downtown homeless people, interviewing and photographing them, gathering information to reflect on the homeless communities living conditions.

Consisting in the initial efforts of the investigation for a PhD thesis, this paper is also a reflection about homeless communities in São Paulo (Brazil) from the perspective of one author who is a photographer and his supervisor who relies on practice-based research theoretical background. The context in which this discussion takes place is the following: on the one hand, in the last ten years homeless population in São Paulo grew 57%, now reaching 13.666 individuals (among them, 51,8% sleep in public shelters and 48,2% sleep over the streets), on the other hand, the public shelters in São Paulo are presently closing in alarming numbers, what seems to corroborate Fry's claiming that what is very apparent is that all nations are currently totally ill-equipped to deal with the

scale of the problem. In addition, this problem seems to have not been adequately identified, thus what has to be planned and designed has not yet been contemplated.¹ In addition, as a matter of fact, a large number of homeless people prefer to live in the streets, in their great majority in order to avoid the shelter's oppressive rules and environment.

As Krzysztof Wodiczko says, "*the nomadic homeless people we all observe and encounter on the streets have been compelled to develop a series of strategies for self-sufficiency under constantly changing -and always threatening – circumstances. Problems of garnering food, keeping warm, remaining safe from personal harm and relatively undisturbed during sleep all present challenges that are never perfectly resolved*"². These social demands are very different from the traditionally created in cultural environments, to which homeless people do not belong. Designers usually are not concerned with communities that inhabit these fringes of society. As Tony Fry puts it, it is necessary to redesign what has already been designed as a singular act of 'remaking otherwise' or as a plural activity of bricolage.

It is assumed here that practitioners that come from outside design area often see excluded communities as a theme of concern. Drawing on one of the authors experience in practice base research this paper also approaches aspects such as the reuse of discarded objects which, according with Cecilia Loschiavo Santos perspective, is essential for these populations survival. The informal design swifts nothing into human survival strategies and can legitimate the existence of those who choose to live on the streets or at least improve their daily lives. Could the immediate needs of homeless ever be fulfilled in a public shelter or in a permanent housing?

Introduction

"What are our cities? Are they environments that are trying to say something to us? Are they environments in which we communicate with each other? Or are they perhaps the environments of things that we don't see, of silences, of the voices which we don't, or would rather not, hear. The places of all of those back alleys where perhaps the real public space is, where the experiences of which we should be speaking, where voices that we should be listening to, are hidden in the shadows of monuments and memorials."

Krzysztof Wodiczko

This article proposes a reflection on how the homeless get hold of discarded items and transform them for their use and survival. This concern arises from the experience of one of the authors who, over six years, has worked as a volunteer in a non-governmental organization. Living, interviewing and photographing, he has collected information about what might reflect the conditions of their lives. The context in which this

discussion takes place is as follows: on one hand the past ten years the population of homeless people has grown 75%, reaching now somewhere around 13,700 individuals (51.8% of whom slept in shelters and 48.2% sleep on streets)³, on the other hand, the shelters in Sao Paulo are closing their doors at an alarming rate⁴. The complexity of the situation is even higher; many homeless people prefer to live on the street in order to avoid the rigid rules of the shelters. In addition, a significant portion of the homeless comes from the least urbanized regions in Brazil, finding in the city of Sao Paulo a hostile and incomprehensible environment.

Keeping this in view, the considerations developed in this article derive essentially from the position taken by Tony Fry, for whom nations are ill equipped to deal with the issue of homeless people, since, according to the author, what must be planned and designed for these populations has not yet received due attention.

It is important to note how homeless people appropriate for their use the everyday objects, transforming these materials - through an activity that we may call bricolage - in useful objects to maintain their lives. Given this perspective, we position the concept of sustainability in the relationship between environmental problems, poverty, and design. According to Fry⁵, in order to survive, a sustainable human being depends on the following factors:

- 1. Resources derived from the natural environment (clean air, clean water, fertile soil and biodiversity);*
- 2. Artificial environment (we depend on the artificial world as if it were natural to take shelter, transportation, clothing, economical means of maintenance etc.).*
- 3. Reciprocity (social affairs, the community).*

In Sao Paulo, the homeless are bound to be self-sufficient by the lack of city infrastructure to meet this kind of population. In this context, the observation of the artifacts of selective recycling is critical to understand how homeless people develop systems of camouflage and survival. The discarded objects that are found in the garbage and the streets of Sao Paulo are reused by homeless people, through the manipulation of objects of plastic and cardboard. These materials are re-translated in various ways such as repositories, sheets, containers for protection and storage⁶.

Continuing with Fry, it should also be borne in mind that the scenarios point to a future in which, due to economic problems, political or social or even natural disasters resulting in ecological imbalances, *hundreds of millions of people will lose their homes and will be unable to be accommodated by the housing supply of the planet*⁷. As the author observes, the ecological needs of life on this planet frankly clash of economic and cultural practices of many of its inhabitants. In other words, the "needs" of the poor are not the "needs of the rich." In that situation, it may start to make sense to learn about

the "neonomatic" life and transportable structures, "designed" and created by homeless people.

Loschiavo, for example, believes that the material culture of the street population is an area of academic research. It is what might be called a sociology of design and of materials, from the perspective of the consumption and the consumers and the needs of exhumation of mass industrial products. This is a new and interdisciplinary area, which will certainly make possible new insights into the joints of the axes of time and space in contemporary urban culture. The author goes on to consider that *"the concept of wrapped culture refers to practices that homeless people develop in a reconceptualization and reuse of discarded materials, especially packaging. Finally considering that a significant aspect to consider is that design and spontaneous informal recycling bring the presence of otherness in the public space and constitute in powerful elements that embody a radical alternative practice of design and cultural resistance."*⁸

With this in mind, we developed below the idea that the opposition to "to transit and to walk" reflects to some extent, different paradigms of presence and ownership of public space.

TO TRANSIT AND TO WALK: PARADIGMS OF DIFFERENT POPULATIONS

In this part of the article we identify two paradigms of experiencing the city of São Paulo space that, in many ways, identify two distinct populations. The so-called "included population" circulates throughout the city using public or private transportation. The excluded population - specifically that of homeless people - walks and, in walking, not just experience the city space differently, but also establish, with the city's universe of everyday life objects, a very peculiar relationship. If the population that "transits" through São Paulo in means of transport to some extent coincides with the population of "consumers," those to whom it's only possible to "walk" in the city constitute a population of non-consumers.

A part of the "included population" transits in private cars that functions as a sort of shield from the external environment. Similarly to the image Bachelard builds about the poetic space that the house represents, *"we'll see the imagination to build 'walls' with shadows impalpable, comfort yourself with illusions of protection"*⁹, we can say that the feeling of protection and isolation through the car windows inhibit contact with the city. Another part of the population moves into overcrowded buses and trains, cars or subways underground, unable to see the stress of *rush*.

The perception of "time in excess" that the advent of the motor and the technology is allied to idleness: *"Everything is machine and intimate life flees from all sides"*¹⁰. The lack of movement does not affect only the body but also the thought. Daily life presses

and oppresses. According to Michel de Certeau¹¹ the daily life organization is put into effect in two ways: on the behavior of the garment, greetings or codes of courtesy and on our pace of walk that avoids or values certain public spaces. People use the avenues and streets of Sao Paulo, in most cases, inside vehicles, "*the streets are like tubes where the men are sucked*"¹². It is possible to perceive that public space is reduced along roads that look like clogged arteries that do flow to nowhere.

Homeless people are rarely found using public transport, for they do not behave, bear clothing or exhibit hygiene determined by the included portion of society. This is substantiated by the lack of money or the repression and prohibition for employees and drivers. So the only alternative left for them is to walk. Many walk all day and enjoy all the features that streets and avenues offer. The bond that the homeless person has with the public space is permanent. Walking is essential for this population survival.

*"There's a man walking reverie, a reverie of the way."*¹³

What is considered "the problem" of the major cities homeless people is common sense: the absence of a home. The lack of resources for living in a private house, and the refusal to attend a "hot bed"¹ in public houses - in the name of freedom to come and go and of the individualism - leads these groups of excluded people to establish residence in urban facilities that function as passages to the socially included. The first feature that have been noticed when talking and socializing with people living in the streets is the option of being free, to be able to walk, day or night, and not to follow the rules and schedules for certain public houses. Walking through the streets of Sao Paulo, these socially excluded people develop inventive ways of living, leading a lifestyle that we could call sustainable, if we are to agree with Snow and Anderson: "*the behaviors of the homeless should be seen mainly as an adaptation to environmental needs.*"¹⁴ "

Maybe we could say that the appropriation of space by homeless people has the character of privatization of public circulation and leisure spaces for survival, which can be understood as an act of symbolical retranslations of bridges, gardens and conservatories. These informal *habitats* reveal an urban societies social environmental and behavioral problem. An area of resistance is created by homeless people in central roads giving access to markets and its remains, shops and consumers that throw away leftover cardboard, wood, among other types of packaging.

The refusal of public bodies to accept the condition of homelessness is visible in the hygienists actions in the city center, including the destruction of the makeshift dwellings and the removal of the belongings of homeless people, by inspectors of the metropolitan civil guard - the notorious "Rapa" men - and the placement of anti-beggar benches and barriers. Given the anonymity and stealth tactics deployed by homeless people, we have adopted as a reflection basis the concept of subculture created by Snow and Anderson,

¹ See chart on appendix 1, about the reasons why homeless people don't want to sleep in public shelters.

which *connotes a very distinctive mélange of behaviors, artifacts, and cognitive elements that together characterize the lifestyle of a group of individuals, and distinguish it from other groups or clusters within the larger society.*¹⁵ "

In that spirit, Krzysztof Wodiczko, protests against the redrawing of the city parks of New York that aims to increase surveillance and that makes it easier to remove the homeless. Wodiczko considers such interventions as an institutional ignorance due to the fact that the destruction and renewal of neighborhoods leaves no migration options to the excluded people. The marginalization suffered by the homeless population is directly linked to the included communities refusal to recognize them as urban citizens. In this perspective, homeless people are reduced to static objects. The included society allows this population to survive and lose their lives without the slightest assistance, like discarded objects that have no more utility¹⁶ . From the excluded people perspective, some prefer to be, or become visible to the society while others opt for invisibility, as discussed below.

VISIBILITY AND INVISIBILITY OF HOMELESS PEOPLE

The homeless in São Paulo have higher visibility in the streets of the historic city center and along the connection routes to the expanded center¹⁷ . How Escorel¹⁸ notes in his research with the homeless people in Rio de Janeiro, their presence increases *"with the limitation of space, with the numerical magnitude and the group settling tendencies."* Loschiavo also examines the visibility of the homeless habitats, who *"bear the image and stigma of their marginalization, which make them extremely visible and significant."*¹⁹

The number of tools for survival is one factor that makes them more visible. The more objects have the homeless, the slower and more selective is his/her walk. The object that has become a mainstay among the homeless in Sao Paulo is the vehicle to collect recyclable material. On one side is the greater visibility when traveling on streets and avenues, but in return these vehicles serve as home, disguising their drivers during the night.

The visual perception that society has towards homeless people varies with the mobility and how one moves in town. Walking in the streets, we experience their presence when beggars divert our attention and interrupt our walk, or when we nearly bump into bodies lying on the floor. These types of homeless people become undesirable in a society based on models of success, by incarnation the *"image of the exclusion by the careless dress and lack of physical (and mental) hygiene"*²⁰.

People moving in cars have a misperception about who are and the way the homeless people live. Stopped at traffic lights, drivers are accosted by begging children or people with physical disabilities. There are also addicts who seek fast and easy money to indulge their vices. The physical bodies inertia and the property of a car leap in front of

the eyes of these professional beggars. Many spend the day on the downtown streets, begging, and return to their homes in the suburbs with the collected gains. Among the drivers of vehicles there is a feeling that every homeless person is a beggar, drugged or crippled.

Notwithstanding, residents living on the street resources have a sense of dignity and do not exhibit characteristics of *"beggars or vagabonds."* These people create and invent ways of taking care of personal hygiene of food and money through the reuse of resources that the city discards. They prefer to walk in places of difficult access due to the fragile and precarious situation in which they find themselves. These residents dig holes in spans of viaduct and cower in corners, *"cower belongs to the phenomenology of the verb to live. Only dwells with intensity the one who knew to cower"*²¹. Reusing plastic and cardboard as physical and thermal insulation, while lying on the asphalt, they claim their space in the urban community through the objects.

WODICZKO DESIGN EXPERIENCE

Born in 1943 in Poland, graduated in industrial design at the Academy of Fine Arts in Warsaw in 1968, Wodiczko immigrated to Canada in 1977 and in 1983 went to the United States, where he started teaching at the MIT. He is known for developing projects in two parts, which he calls instrumentations and projections. In both cases he employs design as an intervention tool in the public space *"as a supplement to the urban environment, already saturated with meaning, in order to cure the numbness that threatens the health of democratic progress and inserting other people's voices that are silenced and marginalized."*²²

Wodiczko interferes in the public space exposing the problems of the homeless people through the *Homeless Projections* (Figure 1). Projecting images of the homeless in monuments and memorials, the designer brings back to life statues from public parks with the proposal to awaken people that travel in these places. Thus the projection gives the opportunity to give voice to the silenced and visibility to the excluded, a possible via for discussion toward the political, cultural, and social inclusion within the public space.

The *Homeless Vehicle* object (Figure 2 and 3) designed by Wodiczko takes into account responses to the needs of the homeless as: dormitory (providing shelter and protection); health (mental and physical), food (food and water storage) and mobility (utensils carried in the everyday life and recycled objects to generate income). The vehicle reveals the concerns of Wodiczko regarding the strategies developed by the homeless in threatening environments such as public streets. The designer asks if the homeless people really want to have a fixed habitation, occupying the shelters. The vehicle seeks to legitimize the situation of those who choose the nomadic life on the street, within the urban community.

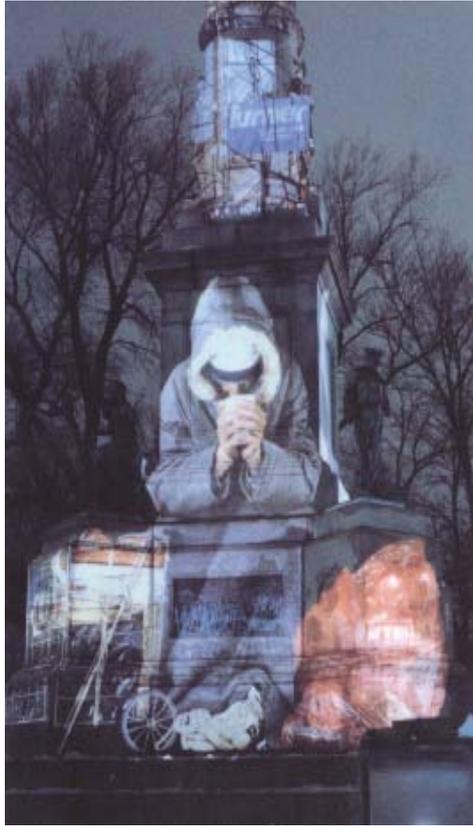


Figure 1 - The Homeless Projection, 1986.



Figure 2 - Homeless Vehicle Project, 1988.

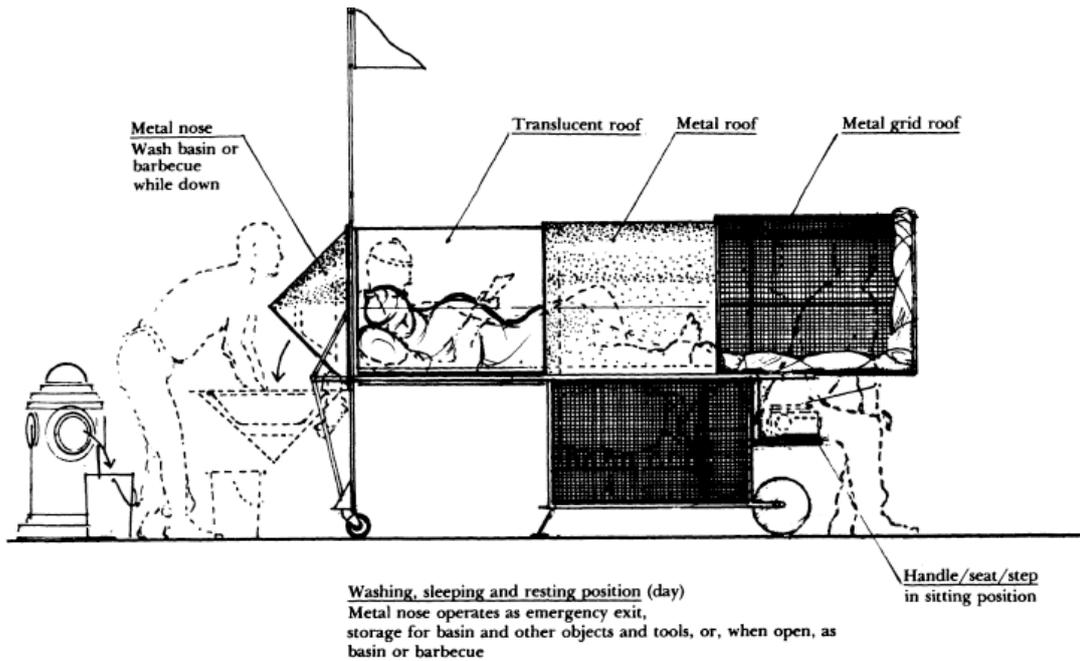


Figure 3 - Design: Krzysztof Wodiczko, 1988.

The designer's project, however, goes far beyond the conceptual point of view, being possible to suggest that Wodiczko responds to Fry concerns, exposed earlier in this article, referring to the following topics:

- 1.)The nations are ill-equipped to deal with the issue of homeless people, and what should be planned and designed for these populations has not yet received due attention.
- 2.)The need for an action of re-thinking what has already been thought - an action that would be a singular act of "re-do otherwise" or a plural act of *bricolage*.
- 3.)The relevance of taking into account the experience and what has been thought by the street residents through an informal design, using recycled objects to have in the street, a more sustainable life.

FINAL CONSIDERATIONS

In seeking to reflect on how the homeless get hold of discarded items and transform them for their use and survival, we adopt the view of Tony Fry, who suggests a fresh perspective: the recognition of these populations as legitimate communities in the urban scene. In fact, if Loschiavo recognizes what she calls "wrapped culture" a tendency for the separation and alienation of the homeless, which shall be assumed as being apart from urban life, Wodiczko essays, with their experimental objects and projections, possibilities of a counter movement, of the insertion of the homeless and marginalized

communities as visible beings and urban participants in the choreography.

Still from this speculation emerge possibilities to be explored carefully. Wouldn't the homeless people personify, with their nomadic lifestyle knowledge, a kind of sustainability paradigm, regarding the selection, manipulation and transformation of discarded objects into useful tools for their survival? Tony Fry seems to believe so by pointing to forecasts according to which urban life will include increasing numbers of homeless people. In this scenario, Wodiczko design experiences, more than idealistic speculations, can be seen as part of a process that begins a systematic and appropriate search in thinking about solutions instead of starting from the premise of eliminating homeless people. The search for valid ways of understanding them as one more piece in the intricate cast that makes up the dynamic of city life.

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¹² PICARD, Max, apud: Bachelard, op. cit, p. 45.

¹³ BACHELARD, Gaston: 1993. A Poética do Espaço. São Paulo, Martins Fontes, p. 30.

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¹⁶ In Sao Paulo we verify the same politics in the reformulation in Sé square and in the so called "cracolândia" demolition.

¹⁷ The central area (expanded center), ranges from the Tietê River bank in the northern region of the city, to the neighbourhoods of Paraíso and Cambuci, in the southern region. In the southwest it reaches the Pinheiros river, including the Jardins neighbourhoods and Alto de Pinheiros. In the West it extends the neighbourhoods of Água Branca and Perdizes and, in the East, Belenzinho.

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Designing Out Stigma

a new approach to designing for human diversity

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Abstract

This paper sets out to present and discuss the “Designing Out Stigma” research project which focused on understanding stigma associated with products and on the repercussions of their use on the building of self-image.

This project set out from a theoretical framework whose main goal is the development of environments, products and services that promote social inclusion for everyone, no matter what their abilities. The project’s principles are as follows: people with disabilities have the right to participate socially on an equal opportunity basis, and it is society’s role, in general, and companies’, in particular, to ensure products and services exist that guarantee that participation; the existence of products that respond to the basic survival and mobility needs will not by itself guarantee the conditions required for effective participation in social life; products developed for elderly and people with disabilities must take into account the integration expectations of the people that use them; the stigma that is associated to disability cannot be solved by hiding it; hiding is based on the preconceived idea that a stigmatized person cannot be integrated in any way, thereby forever prolonging the stigma; the current ageing demographics in all societies across the globe calls for greater participation of the elderly and disabled people, not only as a basic citizenship right, but also as an economic and social sustainability need.

Introduction

It is an unmistakable fact that objects hold an important role in the construction of identity, acting as markers of a certain lifestyle. In this process of symbolic construction, to own a certain object entails more often than not a high social status. However, some objects can also carry with them stigma: owning them brings about a discrediting effect in the building of the owner’s identity.

For people with disabilities the use of objects employed to mitigate their impairment (such as a wheelchair or a walking aid) often acts as a symbol of stigma and reinforces prejudices towards the people who use them.

From Universal Design to Non-stigmatizing products

Contemporary democratic societies are built on the acknowledgment of the individual rights laid down in the Universal Declaration of Human Rights in 1948. Access to education, culture and leisure are considered a right of every human being. However, on a daily basis, persons with disabilities face social and physical barriers, such as attitudinal prejudice related to their disability, inaccessibility of buildings and other architectural infrastructure, as well as inaccessibility of products, information and communication tools.

The ageing of the world population leads us to believe that in 2050 34.5% of Europe's population will be over 60 years old or more, which means something like 230 million people [1], This ageing process will give rise to a steady increase in the percentage of disabled persons.

By acknowledging the role that products and environments play on social participation, Ronald Mace created in 1985 the concept of universal design [2] in order to describe a design approach that entails social justice and equity. It would be further developed as the design of products and environments that are usable by the largest number of people regardless of their age or ability [3].

A number of important authors [4] [5] [6] have shown, ever since, that the concept of equity in products and environments does not necessary lead to solutions designed to serve everyone. Today, this issue has been re-focused on the inclusiveness of these solutions, which is the core of the Inclusive Design concept.

Despite this theoretical evolution, the strategy of designing products that can be used by the largest number of people regardless of their ability continues to be championed, through the example of good practices as the main strategy for developing inclusive objects. At the heart of this strategy is the aim of eliminating the products' stigmatizing effect by dissociating them from the idea of disability - If everyone can use them, there is no stigma attached.

But we must bear in mind that this dissociating strategy is in fact a covering strategy, which leads to the perpetuation of stigma [7].

Despite the immediate efficiency that covering or hiding the disability can have to avoid stigma, it usually leads to a growing number of further concealments, which mean that the person will be under permanent stress. Covering cannot be seen as absolute either, because not everyone can conceal their disability.

From our perspective, the strategy of designing products that can be used by the largest number of people is only a partial solution for the stigma associated with objects designed for people with disabilities.

We must understand how the stigma arises from an object's usage, and find ways to compensate for it without the need to hide a person's disability. Such a solution is the only one which brings to bears the goal of real social integration, in which people can reveal their physical characteristics without stigma

Stigmatizing objects

If we are to understand the mechanisms that transform a particular object into a stigmatizing one, we must first analyze the nature of stigma itself as a social phenomenon. According to Goffman [8], we may speak of stigma when any person is considered diminished or inapt in relation to a full social acceptance due to some of her or his attributes.

In the case of people with disabilities the stigmatizing attributes are often emphasized by the use of objects that bring about the stereotypes associated to the lifestyle of its users. Thus, whether we are referring to the stigmatizing attribute itself – such as a physical impairment – or an associated object – say, a wheelchair – they both become symbols of the stigma, which, as one perceives them, trigger a specific set of preconceived ideas about the social role of that particular individual.

Often the presence of the stigmatizing object is enough to place a person in a certain category: using a wheelchair is enough for the user to be characterized as a motor impaired person, even if he isn't disabled at all.

However, assistive technology can be stigmatizing in one kind of environment and considered “normal” in another. This happens because our perception of stigma is based on stereotypes of what's “common” in a given situation.

Most of the assistive technology identified as stigmatizing by their users in social interaction situations were designed for hospital contexts and are adjusted to the formal codes of such environments. The stigmatizing effect of these products is linked to the growing integration of people with disabilities in different social contexts, such as work, education or leisure environments.

When people with disabilities became socially integrated, they start dealing directly with the products' meaning and develop problems, such as feelings of embarrassment or shame.

All objects have meaning and we are conscious of it: that is the reason why we are so careful when we buy clothes, cars, or furniture for our homes - we expect that the people with whom we have relationships create an image of ourselves that is compatible with our true identity. When using a stigmatizing object a person has no control whatsoever over their projected identity.

A person cannot choose to use a wheelchair, he or she must use it due to his or her physical condition. This assumption leads to the fact that assistive technology is designed with little attention to options that the user could choose between. Indeed, the object's characteristics seem to address, directly and unquestioningly, only the user's ergonomic needs.

This design process, mainly centered on ergonomic issues, empathizes the disability and hides the individual history and preferences of each person, the most important aspects of expressing identity.

By designing products with no cultural value, assistive technology leads to the situation where its usage becomes a symbol of fragility and disease, with negative repercussions on both emotional well-being and the full social integration of their users.

Designing out Stigma

When we examine the state of the art, we clearly find that the development of non-stigmatizing products will contribute to the social inclusion of persons with disabilities. But despite the fact that the stigmatizing dimension of products is often mentioned in existing studies, most of the time the reference is indirect.

This research aims to contribute further to the study of the state of the art and reveal the mechanisms that shape non-stigmatizing objects.

So far the research has developed a method for evaluating existing mobility assistive technology, in order to systematize guidelines that lead to a more consistent approach to the design of non-stigmatizing solutions.

Mobility assistive technology was chosen because the specific product's stigmatizing character cannot be hidden and leads to an explicit conflict between the obliterating mechanisms of the stigma and the existing prejudices.

The examples presented below are part of a survey that aimed to find existing non-stigmatizing mobility assistive technology, in order to understand and illustrate the principles of non-stigmatizing product development.



Figure 1 (left) - Oscar Pistorius is a South African Paralympics' runner. He's the first person with a disability to be allowed to compete in the regular Olympic Games. He runs with the aid of Cheetah Flex-Foot carbon fiber transtibial artificial limbs by Ossur.

Figure 2 (right) - Still from the documentary "Murderball", by Dana Adam Shapiro and Henry-Alex Rubin, a film about tough, highly competitive quadriplegic rugby players. The dirty, smashed look of the aluminum coating signals the falls and bumps throughout the matches, which then underline the physical endurance of the players.



Figure 3 (left) - The Speedster is an agile, smooth, flashy, and very fast electric wheelchair. This chair has a list of features never before available in a standard electric chair package, such as custom 21" wheels and high torque motors.



Figure 4 (right) - Child walker designed under a research project at the Pontifical Catholic University and the Centro de Vida Independente of Rio de Janeiro. Made from materials such as bamboo, painted wood and colorful plastic, this walker almost became a toy.



Figure 5 (left) - Still from the movie "Planet Terror" by Robert Rodriguez, showing us a feminine action hero who has a machinegun in place of her right leg. In the movie this amputee girl is a sensual, "perfect weapon".



Figure 6 (right) - The flames on Dr House's cane, a character from the well-known TV show produced by FOX Broadcasting Company, led towards the shattering of the stigmatized image of what a cane should look like.



Figure 7 (left) - The CadWeazle wheelchair, designed for beaches and off-road terrain, has four EuroTrax balloon wheels which prevent it from getting stuck in any soft ground.

Figure 8 (right) - Luca “Lazylegz” Patuelli was born with a congenital condition called arthrogryposis and expresses his passion for dance and movement through breaking. He uses the LiteStix titanium custom forearm crutches, which are extra strong and light.

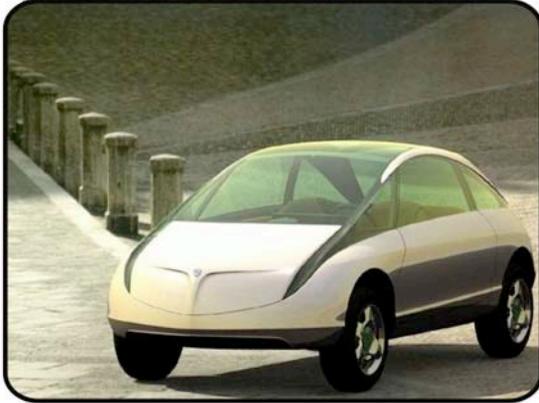


Figure 9 (left) - The Lancia Nea is a concept car developed to include the needs of older drivers that looks like a small sporty car.

Figure 10 (right) - Tank Chair is an off-road wheelchair that can go anywhere outdoors. It overcomes streams, mud, snow, sand, and gravel, allowing disabled persons to get back to nature, and it can also climb up and down stairs.

All the examples presented above have something in common - a break which brings prejudices into question. The development of non-stigmatizing solutions requires us to develop objects that show the person behind the disability, emphasizing their cultural preferences and lifestyle, and exposing the prejudice as false.

The shattering of the stigmatized image seems to be more powerful as it runs contrary to prejudices, so using symbols of physical performance, sexiness, aggressiveness, speed, or outdoor and radical activities, seems to be the most effective way of creating non-stigmatizing products.

Take figure 1 as an example, by associating Olympic level sports with the common image of disability, it contradicts prejudices relating to physical fragility and ineptitude which are usually associated with disabled people. This relationship between contradictory symbolic elements shakes the preconceived perception of disability, thus generating a rupture in which prejudices are questioned and in which a new social image can be found for people with disability.

In figure 2 we have a still from the documentary film Murderball, which depicts the recent evolution of wheelchair rugby. In this movie the positive result of the objects that associate disability to sports is quite evident, the dirty, smashed look of the aluminum coating signals the falls and bumps throughout the matches, which then underline the physical endurance of the players, questioning our prejudices towards them.

Unfortunately, membership of an elite group of professional sports athletes is something accessible only to a few. Most of ordinary disabled citizens are left out of this equation.

Nonetheless the possibility is there, as images 7 and 10 show two wheelchairs that use outdoor lifestyle solutions as a powerful contradictory symbol to the prejudice that it is not safe for disabled persons to go off-road.

In order to guarantee an effective symbolic transformation of disability, the proposed new symbolic imagery must create an “argument” with the automatic perception of prejudice. If a product creates an impression that doesn’t fit our expectations about how a disabled person should look, then it exposes our prejudice and gives us the chance to change our minds.

This “argument” works not only at the level of the general population, changing the social image of disability, but also, and most importantly, at the level of the disabled persons, changing their self image, proposing new activities and social engagements and paving the way for an attitude of greater self confidence.

Methodology

The stigma associated to the use of an object is a rather complex phenomenon. On the one hand, it stems from the cultural meaning given to an object, on the other hand, it is related to the emotional response from the user.

A research model was developed with the intent of evaluating the way in which the construction of meaning is made in objects developed specifically for people with disabilities.

This model aims to respond to a difficulty inherent to the very nature of the study: the identification of a stigma symbol is an unconscious phenomenon, where emotional reactions and interpretations deeply rooted in cultural codes converge.

Such a constraint leads to the need to employ three different data retrieval methods, linked to the three levels of emotional response proposed by Donald Norman [9] - visceral, behavioral and reflexive - each complementary to each other, when the interpretation of the participant’s reactions are concerned:

1. Registering the attention focus of the participant, by monitoring it via eye tracking technology, capturing the image points that are being observed, and which provides us access to a precognitive level.
2. Evaluating the emotional impact of the image through association with a predetermined range of emotions.
3. Open-ended questions about the meaning attributed to each image – which provide access to the participant’s reflexive process.

The crossing of the data collected from these three levels of reaction will allow us to relate the attribution of meaning and the emotional state of each participant to the most relevant details of each object in his or her perceptive process.

In order to allow us to compare the results from the set of images thus far assembled, we cover: mainstream objects, products that are seen as excellent examples of universal

design, assistive technology, real and fictionalized contexts in which the disability(ies) can be approached in a non-stigmatizing way, and objects developed for disabled people through new imagery' perspectives.

Future developments

From technology compatible with the national industrial context, a small series of healthcare products related to several levels of discrimination, from canes to walkers, prosthesis and wheelchairs will be developed, so as to evaluate the non-stigmatizing dimension in a real context by Portuguese users with disability.

To that end we are counting on the cooperation of the Professional Rehabilitation Centre of Gaia, which will assure the project's compliance with the Portuguese social context.

The prototypes are the third stage of expected results of this research project, which in conjunction with the evaluation tool and the non-stigmatizing guidelines, are the foundations for future applied research projects on object-associated stigma.

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YOUTH DESIGN AGAINST CRIME

A catalyst for change amongst young people

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Abstract

The literature reveals a number of programmes across Europe to involve young people in design, planning and/or community safety. This paper describes a programme developed by the Design Against Crime Solution Centre in partnership with the young people's charity Catch22 that engages young people in design-led crime prevention—Youth Design Against Crime (YDAC). The programme is novel in that it targets young people labelled as ‘at risk of offending’ or ‘problem individuals’ by the police or education system. Supported by youth workers and teachers, and mentored by local police officers, teams of young people are challenged to address issues of crime and community safety occurring in the area in which they live using a process of research and design developed by the Solution Centre. Three such YDAC projects have been initiated to date. This paper shows how the development of research, team working, creative thinking and design skills can enable groups of young people labelled ‘problem individuals’ to develop solutions to real problems in their communities and convince key stakeholders of the value of their design ideas.

Introduction

Crime and security are key issues for children and young adults. In England & Wales, the British Crime Survey reveals that adults aged 16 to 24 experience higher levels of victimisation than other age groups (Flatley *et al*, 2010). Furthermore, the 2006 Offending, Crime and Justice Survey shows that just over a quarter (26%) of young people aged between 10 and 25 had been a victim of either personal theft or of violent assault in the last 12 months (Roe & Asche, 2008).

Young people—especially males—are also more at risk of committing criminal offences or engaging in anti-social behaviour. The risk of offending peaks between 14 and 24 years, and then declines. Offending is especially high amongst young people exposed to neglect, violence and abuse in childhood. Children are more likely to become delinquent or offenders if living in families on low income, with a history of

unemployment. Offenders are prone to negative beliefs and emotions, including low self-control, anger, hate and distrust of others. They seek the immediate rewards that criminal activities appear to offer—rather than longer term life goals—and adopt a confrontational style that may mitigate against educational and career success (Burt *et al*, 2006).

The general public generally associate young people ‘hanging around’ in the urban environment with crime and, more often, anti-social behaviour—often assuming that all young people are a potential threat. These expectations and experiences can generate feelings of insecurity and reduce quality of life—especially amongst vulnerable groups, such as older people—and may act as a barrier to citizens visiting certain locations, using particular amenities or participating in neighbourhood activities (ICVS, 2007; Walker *et al*, 2009).

Crime prevention methods to reduce feelings of insecurity amongst users of the urban environment often ‘target’ young people for surveillance or expulsion, moving them on and punishing persistent offenders with exclusion orders. In the UK, the “mosquito” device (listed in the Home Office’s (2006) Respect Action Plan to tackle anti-social behaviour) and so-called ‘Manilow method’ employ sonic techniques (in the latter case, ‘uncool’ music) as a means to encourage young people away from public areas (<http://www.independent.co.uk/news/uk/crime/cliff-vs-the-asbo-kids-481920.html>). In addition, amenities such as seating may be removed and Anti-Social Behaviour Orders (ASBOs) issued to exclude young people.

The design approach to community safety—what we term ‘*Community Safety by Design*’—offers alternative methods for dealing with feelings of insecurity, anti-social behaviour and crime issues related to young people. Such methods are designed to meet some or all of the following objectives:

- To engage young people in activities related to design, planning, urban development and community safety
- To support young people interested in gaining skills and knowledge related to creativity, problem solving, design, planning, communication and teamwork.
- To provide young people with the skills and confidence to effectively contribute to design, planning and community safety processes and procedures
- To develop mechanisms that support meaningful engagement between young people and key stakeholders—where young people’s ideas can be heard
- To develop mechanisms that allow young people and stakeholder groups to critically evaluate ideas and implement solutions that meet the needs of young people and improve actual and perceived community safety.

This paper describes one such *Community Safety by Design* programme to engage young people in design-led crime prevention, developed by the Design Against Crime Solution Centre in partnership with the young people's charity Catch22—Youth Design Against Crime (YDAC). Supported by youth workers and teachers, and mentored by local police officers, teams of young people are challenged to address issues of crime and community safety in the area they live using a process of research and design developed by the Solution Centre. Each YDAC project involves four or five groups of up to nine young people, and a partnership of outreach workers, community

organisations and schools. The project is supported by key local stakeholders in community safety, such as the police, planners and local councils.

The literature reveals a number of programmes across Europe that aim to engage young people in design, planning and/or community safety. The YDAC programme is novel in that it is aimed at young people with 'behavioural problems' that have come to the attention of school and/or police authorities. This paper shows how the development of research, team working, creative thinking and design skills can enable groups of young people labelled 'problem individuals'—and, in some cases, considered at risk of offending—to develop solutions to real problems and convince key stakeholders of the value of their design ideas.

Young people and urban environments

As already stated, young people in the urban environment are often associated with problems of crime and anti-social behaviour. Typical behaviours considered problematic include: groups of young people 'hanging out' on street corners or in public space, intimidating (often by their mere presence) those who walk by; bicycles and motorbikes being used in public spaces where they 'don't belong'; ball games that disturb residents or damage property; and skateboarders who use items of street furniture as jumps, 'grind rails' and obstacles in their play (van Soomeren & Flight, 2010). However, such behaviour—although potential anxiety inducing amongst some groups—is generally not criminal or even anti-social.

The majority of young people are law-abiding. In England & Wales, over three-quarters (78%) of young people aged from 10 to 25 had not committed any of the 20 core offences covered by the 2006 survey in the last 12 months. Just over a fifth (22%) of young people aged between 10 and 25 years reported that they had committed at least one of the 20 core offences in the previous 12 months. Amongst those that did break the law, many did so only occasionally or committed relatively trivial offences. Four per cent of 10- to 25-year-olds were both frequent and serious offenders, while one per cent had committed serious offences frequently (Roe & Ashe, 2008 p. 6).

In the UK, designers and crime prevention experts have attempted to design facilities that specifically cater to the needs of young people, enabling them to safely 'hang out' and play ball games without causing fear or disturbance to other users or local residents. A key aspect of designing successfully for young people is effective and meaningful consultation. This encourages young people to 'own' and use facilities, discourages vandalism and helps resolve competing needs and requirements. (See: DAC case studies on Hulme Park in Manchester and Northmoor in West Yorkshire, Davey *et al*, 2002; and guidelines on developing 'Youth Shelters' by Hampshire & Wilkinson, 1999).

In Germany, a programme funded by the Federal Ministry for Transport, Building and Urban Affairs has enabled young people to contribute more fully to the development of cultural and physical aspects of urban environments, towns and cities. "*Jugend macht Stadt!*" (in English, *Youth makes the City!*) enables young people to participate in developing and implementing a whole range of model projects tailored both to their needs and the local context. Example projects include: the development of facilities and spaces for young people; musical events for young people in unused parts of the city; a 'manifesto' for young people to communicate their views on the future development of

the city; the creation of film and music pieces about young people and the city. The projects counter the view that young people are a 'problem' and demonstrate that young people should be considered a key element of the city and its future (BMVBS, 2010a & b).

A number of the *Jugend macht Stadt!* projects were presented at an innovative seminar in Germany organised by the architecture and planning consultancy Plan Zwei. The event involved leading politicians, subject experts and professionals, but was co-chaired by a group of young people—a fact that successfully demonstrated to adult participants the value of youth involvement in urban affairs. The seminar resulted in a leading politician from the Federal Ministry for Transport, Building and Urban Affairs offering to consult with a group of 10 to 20 young people and their representatives on a regular basis.

In the Netherlands, research, design and urban management consultancy DSP-groep has worked with the Dutch Ministry of Youth and Families and the Dutch National Playground Association (see www.NUSO.nl) to develop facilities for young people. It has also developed '*Kids & Space*' for involving young people in the development of plans for public space (see www.kidsandspace.nl). Kids & Space enables young people aged between 12 and 18 years to make their wishes known and develop ideas for public space and built facilities. The young people develop plans, build models and present their ideas to city planners. DSP-groep employs experts in the fields of socially safe design, youth participation and neighbourhood development, who work in cooperation with (multi) cultural organisations and schools. The programme takes around three months, but can be adapted to different contexts and clients. Information about the projects is disseminated via websites such as www.livingstreets.org.uk.

Youth Design Against Crime

Background

The Design Against Crime (DAC) Solution Centre has been supporting designers in addressing problems of crime, anti-social behaviour and feelings of insecurity since 2000 (Davey et al, 2002; Design Council, 2003; Town, Davey & Wootton, 2003; Wootton & Davey, 2003, 2005 & 2007). The term 'design' does not simply refer to the physical design of the environment or products within it, but also relates to: (a) the process of research, analysis and evaluation; and (b) the formulation of integrated systems of delivery and value adopted by stakeholders. The Solution Centre's values, methods and approach are informed by Human-Centred Design and Systems Design—a focus on the constituent systems of meaning, learning, delivery (practice) and value (impact). Recent research projects have focused on community safety and addressing the social causes of crime in existing environments, which led to the Solution Centre supporting the development of the Youth Design Against Crime Programme.

The research project "*City Centre Crime: Cooling Crime Hotspots by Design*" (Aug 2007 – Jul 2008) investigated problem areas (so-called crime hotspots) in Manchester's city centre, and involved the development of a methodology for determining the relationship between the design, management and use of the urban environment and crime problems occurring within it. The research project resulted in 20 practical design interventions to address crime and anti-social behaviour issues. The

implementation of one intervention was widely publicised and led to the Solution Centre being contacted by the UK charity Catch22 about the possibility of engaging young people in design against crime.

The Youth Design Against Crime Programme

In collaboration with the charities Catch 22 and Prudential for Youth, the Solution Centre developed the *Youth Design Against Crime* programme to enable young people to generate ideas to tackle crime and anti-social behaviour problems in their neighbourhoods. The programme acknowledges that young people are often seen as “trouble-makers” and that their opinions are often ignored by adults. It offers teams of young people the opportunity to challenge such stereotypes by creatively tackling crime and anti-social behaviour in their community and developing design ideas that “make a real difference”. In addition, young people completing the programme and associated workbook, have the chance to gain ASDAN Wider Skills Level 2 Problem-solving accreditation—which is equivalent to a higher grade GCSE (Manchester Workbook, 2009, p2).

The YDAC programme is structured to run over an eight to ten week period, as shown in Figure 1, below.

Week 1:	<ul style="list-style-type: none"> – Deciding on a focus area – Understanding the challenge and setting ground rules
Weeks 2 & 3:	<ul style="list-style-type: none"> – Scanning & mapping – Assessing the problem – Developing a place-centred map – Completing a Problem Profile
Weeks 5 & 6:	<ul style="list-style-type: none"> – Developing a response to the problem – Brainstorming design ideas – Evaluating ideas – Reviewing – Select final design – Collecting feedback about final design
Weeks 7 & 8:	<ul style="list-style-type: none"> – Developing a visual format for the final idea – Model, drawing or poster development – Presentation development and rehearsal – Completing the YDAC workbook
Week 9:	<ul style="list-style-type: none"> – Hand in completed YDAC workbook – Participate in YDAC Showcase Event

Figure 1 – Example YDAC programme schedule

The young people choose the area on which their team will focus in week 1. Some focus areas explored in YDAC projects so far include: a misused public park; an underused playground; a motorway underpass / subway; a shopping centre walkway; and an area of public seating. The young people also undertake team-building activities, including identifying individual strengths and weaknesses and creating a team name.

The *Scanning & Mapping* stage (weeks 2 & 3) involves identifying an area to focus on, considering why the area is important to team members and identifying whether this area needs improvement and why. This enables young people to tackle problems of concern to them, and to use their own personal experience to identify and understand issues.

In collaboration with the police mentor, the team members must research crime and anti-social behaviour problems in the area as experienced by other users. This might involve discussions with police officers, interviews with local people (e.g. residents, shopkeepers and management and maintenance staff) and visiting websites (e.g. www.upmystreet.com and www.mindyourstreet.com). The young people are provided with a template and questions for conducting a structured interview to identify the location of problems and the causal factors associated with crime and anti-social behaviour. The research enables the young people to understand the problems and issues from the perspective of different stakeholder groups—offering the potential for design concepts to be developed that meet the requirements of other stakeholder groups. It also opens up a process of consultation with local people.

From information collected from interviews, site visits and observation, the young people develop a ‘Place-centred Map’ detailing changes in legitimate and illegitimate usage of the area over time. For example, this might indicate where young people choose to ‘hang out’ (and why), where families choose to gather (and why), and the activities taking place in different areas at different times.

Through this work, the young people also identify the most common / serious crime and anti-social behaviour issues, and gain insight into their causes by developing a ‘Problem Profile’. This involves organising their research findings about offenders, victims and the environment into a structured format that helps identify the causal factors associated with different crime or anti-social behaviour issues.

In weeks 5 & 6, the group use creative ideation and brainstorming methods to develop design concepts in response to the problems identified. These design ideas are evaluated by the young people in terms of their potential impact on users, on crime and anti-social behaviour and on the quality of the area. The group also considers whether any aspects of their design proposals might cause the seriousness of crime or ASB problems to increase. A final design concept is selected and further feedback sought from stakeholders regarding its strengths and weaknesses (Manchester Workbook, 2009).

In weeks 7 & 8, the young people develop drawings, models, presentation materials and argument to communicate the benefits of their final design proposal to the judging panel at the final YDAC Showcase Evening. They include details of how the design was researched and developed, as well as how the team developed in terms of its thinking, skills and ability to work together.

At the showcase event, each group is given 10 minutes to present their finished design to the judging panel in front of an audience of family, friends and invited stakeholders. This presentation can take any form that the group chooses. The groups are judged on: the quality/appropriateness of the design idea; the development of the idea; and teamwork. One group is selected by the judging panel as the YDAC winner, and receives a trophy. All runners up are awarded medals.

The structure and content used in the Problem Profile and interview questions are derived from the *Crime Lifecycle Model* developed by Wootton & Davey (2003). The Model was developed to help design professionals consider potential causes of crime and generate ideas during concept design development. The methodologies used to research users, offenders and the environment in weeks 2 to 6—including the Problem Profile—was initially developed and tested during the *City Centre Crime* project (Wootton *et al.*, 2009). *City Centre Crime* was a 12-month research project funded by the Higher Education Funding Council for England (HEFCE) and conducted by experienced researchers from the Solution Centre. The level of data capture and analysis was therefore reduced for the YDAC programme, and the text made easier to understand for individuals of a younger age group who had not been trained in either design or crime prevention.

Running the programme

In Greater Manchester, 23 young people aged between 12 and 19 years from schools and youth groups in Manchester and Salford participated in the initiative. The young people had generally poor educational backgrounds, with some having been excluded from school or involved in anti-social behaviour and therefore identified as ‘at risk of offending’.

In their four teams, the young people identified the following problem areas on which to focus:

- An isolated subway (main road underpass) close to the group’s school that attracts to anti-social behaviour problems and serious crime.
- A pedestrian route to a local shopping precinct with several problems. For example, groups of street drinkers and drug users congregate on the public seating in the area, creating a climate of fear.
- A local public park and sports ground that is underused (except by drug dealers and their clients), poorly lit, poorly maintained and considered unsafe by local residents.
- The playing fields next to the group’s youth centre, which have become a hotspot for drug dealing.

At the final showcase event in November 2009, all four teams presented their design interventions (see figure 2). A Judging Panel made up of senior decision-makers working in the areas of crime and community safety in Salford and Manchester were tasked with selecting the winning team. Inspired by the standard of the ideas, the judges pledged on the night to provide funding to implement the design solutions of all four teams.



Figure 2 – Greater Manchester YDAC Showcase Evening

Three YDAC projects have been initiated to date: Salford & Manchester YDAC (2009); Southwark YDAC (2010); and Lambeth YDAC (2011), with the latter due to be completed in March 2011. The financial services firm J.P. Morgan has financially supported the two London YDAC projects as part of their corporate social responsibility activities. Funding to undertake further YDAC projects in other areas of the UK is being sought. The two YDAC projects run in London differ slightly from the original Salford & Manchester programme, as each has involved young people from a single school: so-called ‘alternative curriculum’ students. This means that their YDAC activities were undertaken as part of their school lessons, falling under the subject area of ‘citizenship’.



Figure 3 – Southwark YDAC Showcase Evening

Discussion & conclusion

The literature review provided examples of some existing efforts across Europe to address the needs of young people through design, urban development and planning processes (van Soomeren & Flight, 2010; BMVBS, 2010a, b). The YDAC differs from existing programmes in that it is targeted at young people considered ‘at risk’ by police and school authorities, providing them with educational skills, knowledge and qualifications. The emphasis is on integrating crime and anti-social behaviour into a design process that is led and delivered by young people—rather than providing a consultation route for urban planning activities.

The YDAC approach adopted by young people is built on standard design processes and activities—involving research, idea generation and evaluation (Design Council, 2010). The emphasis is on understanding behaviour of all users—both legitimate users and offenders. This echoes the importance of the design research into user needs and requirements (sometimes called requirements capture). However, the YDAC process introduces methods specifically developed to enable designers to address crime and security issues (Wootton & Davey, 2003, 2005).

The fact that the young people themselves identify the problem area on which they will focus is important for two reasons. Firstly, it helps generate a sense of ownership of the project and a motivation to create a good design. Secondly, the young people bring to their projects a level of insight and ‘inside knowledge’ of the problems and issues in their local areas simply unavailable to outsiders. For example, one group of young people identified in their area problems related to prostitution that the police had no knowledge of whatsoever.

The YDAC process enables the young people to research crime and ASB problems from different stakeholder's perspective. This not only helps them come up with better ideas and communicate them to others, but also from a 'community building' perspective, builds bridges between the young people and different social groups where they live.

Designers are aware of the power of creativity, and that much of that possessed by young people goes untapped. However, 'design' is not 'art'. Design is the focused and intelligent use of creative thinking to solve problems and meet identified needs in an elegant way (in terms of costs, resources and aesthetics). Therefore, really *understanding* problems and needs, is the key to developing successful new designs. For this reason, the research process adopted is central to the success of YDAC.

Participation in the YDAC project improved the confidence, knowledge and skills of the young people. Indeed, an intentional 'side effect' of process is that it helped generate better relationships between the young people and teachers, residents, community workers and the police. As one police mentor remarks:

"...I feel I have broken down a barrier between myself as a Police Officer and the group. What I have been a part of in the past few weeks has opened my eyes and made me realise that these young people really do care about their community and really do want to make a big difference."

Police Mentor, Manchester

Young people often have direct experience of crime and anti-social behaviour and therefore bring new insights to design activities—sadly young people are over-represented in the crime figures both as victims and offenders.

The Solution Centre is tracking the results of the YDAC projects completed so far, and is seeking funding to conduct impact evaluations of the programme in the UK. Also, in partnership with Catch22 and partners in several European countries, the Solution Centre is exploring ways in which the YDAC programme might be extended to include teams of young people in other countries.

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Acknowledgments

The authors would like to thank:

- Catch22, especially Norman Lloyd, who initiated the development of the YDAC programme, and the funders of the YDAC projects so far: Prudential, HEFCE and J.P. Morgan
- Paul van Soomeren and Sander Flight, DSP-groep (Netherlands) and Dr Klaus Habermann-Niesse, Plan Zwei (Germany) for information about youth, design and planning programmes in Europe

- Those who participated in the *City Centre Crime* project, which was initiated by Manchester Crime & Disorder Reduction Partnership (CDRP) and conducted in collaboration with Greater Manchester Police, Greater Manchester Against Crime (GMAC), Manchester City Council and Northumbria University.

Locality

Service Design for Territorial Development: a Case of Sustainable Tourism in China

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Abstract¹

The Chongming Sustainable Tourism project is a peculiar design driven initiative where designers take the responsibility of both strategically mobilizing all of the stakeholders needed to develop a common vision of sustainable Tourism for Chongming Island and, secondly, leading the process of designing a dedicated sustainable solution to implement this vision through the activation of all local available resources [8] [5]. The aim of this paper is to discuss, presenting the results obtained from a thematic workshop held in Xianqiao Village (a small village of the island) during the last week of August 2010, how design face territory development, a kind of complex problem requires “systemic solutions that are grounded in the client’s or customer’s needs. This is where many approaches founder, but it is where design thinking—a new approach to creating solutions—excels” [3]. In this framework, Service Design is introduced as the promoter for a sustainable local development on the economic, environmental and cultural aspects.

Keywords: service design, territorial development, collaborative service, sustainable tourism

Introduction

There is a need for more research on the interrelations between sustainable consumption and production on the one hand, and the economic, dynamics on the other hand, in order to improve our understanding of the different drivers of the current unsustainable patterns and levels of production and consumption and their growth dynamics [11] [4][6][7]. Concepts, options, risks and relevance of green growth should be revisited and enhanced with a view to encourage structural changes towards sustainable solutions. In particular, alternative business models and regulation frameworks could be explored in the specific domain of territorial development for rururban areas.

The general aim of the project discussed in the following is to support the Chongming

¹ This paper is a common effort from the three authors. Nevertheless sessions 1, 2 and 3 have been written by Francesca Rizzo, sessions 4, 5 and 6 by Davide Fassi, abstract and conclusions by Luisa Collina.

community enhancing the agricultural productivity, improving the infrastructure (of transportation, health care, education, etc.), revitalizing the social fabric by envisioning and designing solutions for new forms of sustainable tourism for the island.

In order to get these results, the natural resource and geographic position of the island have been considered the project strategy starting: more than 2/3 of Chongming island is dominated by farmlands and forests. Furthermore, with the recent improvement of the transportation facility (the Shanghai Yangtze Bridge, the planned railway), the island can become the preferential resort “o-mile” destination for the Shanghai citizens.

In the nowadays China who is recently recovered from the global financial crisis, the agriculture is not seemed to be a popular topic. While beneath every popular topic, the images of the agriculture, the countryside and the farmers could be found easily. For example, when we are talking about the transformation of the economic model, it is acknowledged that the precondition of the existing manufacture-exporting model is the vast countryside population in China which is the main part of the low-cost labor resource. Behind the rapid urbanization process is the morass of the farmers who lost their farmland. The headstream of the frequent food security accidents is often the pesticide abuse. And in the discussion of the environmental issues, such as soil degrading and water pollution, the next step of the industrialized agriculture should be reflected. The Chongming Sustainable Tourism project is a pilot experiment in this macro social/economic background.

Backing on the biggest Yangtze River Delta metropolitan cluster, the Chongming area reflected all kinds of problems in the Chinese countryside: it is located in the Yangtze River estuary, the transportation between the island and the mainland is quite inconvenient. Comparing with the vast acreage of the island, the infrastructure of transportation, health care and education is inadequate. Because of the poor efficiency of farming, more and more farmers immigrate into the city for work. Although the average income of the island residents is relative higher than other areas, there is still a huge difference between the city and the countryside².

In this larger context, the Xianqiao Village, which is located in the middle of the island, has been chosen as the pilot case. Here, the average income and the farmland acreage are on the average level. Since the low efficiency of farming, most of the young male villagers are working in the Shanghai city.

Every family owns a piece of farmland of circa 1 mu (about 667 m²). Since only elder, female and children are left in the village, the villagers' association helps the farmers to cultivate and harvest the crops collectively. Almost every family has an independent house, and the front/back yard is generally cultivated as a vegetable garden, so that the basic demands could be self-sufficient, while the spare products would be sold in the market 2 miles away.

To move in this direction, the concept of “rururban” (rural-urban area) has been

² In 2009, the average income of the urban citizens is 28,838 CNY, and 12,324 CNY of the rural citizens. <http://yanzhao.yzdsb.com.cn/system/2010/01/29/010354311.shtml>

introduced and integrated with the Chinese ancient idea of Yin-Yang: the countryside provides a “restoration” area for the city, while the active participation to island activities could improve the Shanghai citizens’ quality of life, as well as bring the needed economic resources to the countryside. The rural and the urban can generate a new form of symbiosis where they complement to each other: the idea is that the city and its island can become parts of a beneficial exchange that will be based on the need to preserve the island from the city development by designing a system of services to stimulate the island economy promoting, facilitating and make attractive sustainable tourism. In particular: with an efficient distribution system, the agricultural and tourism resource would be more accessible to the citizens. When the potential demands on better food and air were satisfied, the farmers could gain more income and the overall environment will be improved. At the same time, the expanding employment opportunities could be attractive for the young, educated generation, thus a self-standing sustainable community could be expected.

Basically the project relies on the idea that the rural community that resides on the island needs a strategic vision that will ensure its development together with the development of its territory and the resources that characterized this land.

That means designing for a sustainable rural community. Sustainability means not only the sustainable environment, reducing the artificial impact, and improving the energy efficiency, but also the economy sustainability: the industrialized agriculture has improved the farmers’ income to a certain extent, but with the present price fixing system of the crops, the agriculture has been thought to be the bywork of the rural families. More and more farmers immigrated into cities and the permanent rural population is rapidly decreasing, thus the social fabric and historic context are facing the problem of dissolving. To realize the sustainable development of the rural area, any specific solution for the economic, environmental and social problems is not sufficient, only when they are considered systematically, a new way for the countryside reconstruction could be figured out.

The paper is organized as follows. Session 2 describes the project strategy and vision. Session 3 offers reflections on the role that design can play to support territorial development and proposes an emerging approach based on the convergence between service design and planning.

The project

The Chongming sustainable tourism project is a design driven project. It comes from the vision of sustainability, the insight of the present context and the understanding of the particularity of the area. It is a sustainable community based project based on a design research initiative led by Tongji University, Studio Tao and Politecnico di Milano –School of Design. The project focuses on territorial development and revitalization and aims to coordinate all the interested stakeholders, including the local Chongming island government, village communities of the island, business partners and University resources to develop a common vision for the project and a correspondent strategy. The Chong Ming initiative is, in other words, an attempt to use design at two different levels: as a new actor capable to promote solutions towards

a sustainable future for Chong Ming and as a domain of specific competences to design a set of tools to be used to help stakeholders to imagine and figure out possible solutions to implement sustainable tourism for the island.

Designers' role in the project is strategic: they have the role of mobilizing the social capital to understand and share the relevance of the project for the island. To reach this goal a specific strategy has been elaborated that can be synthesized as follows:

step 1: understanding local resources

step 2: contextual workshop

step 3: scenario and strategy

step 4: self-standing proposals

step 5: co-design processes

All the roles, or the stakeholders, have been motivated by the design activities and solutions. The key issue of the project has been the quality of the scenarios and proposals and how much the stakeholders could be activated. Given that designers intervened at different levels of the project using different design tools.

Fifteen Italian students and eight Chinese students were part of the design team that has so far developed the first four phases of the project. Students were from 3 different backgrounds: student, design and architecture (urban planning), this emphasized the multidisciplinary nature of the project. The present results have some design proposals for the rural areas of Chongming Island, developed during a design workshop lasted a week, supervised by professors from the Politecnico di Milano - School of Design and TAO practice in Shanghai. The fifth phase will be developed within the next year through a series of co-design and design workshops.

Understanding local resources

In the preparatory phase, the students have conducted research and joined courses in their home country, on the theme of sustainable mobility, proximity tourism and about the area linked to Chongming Island in relation to the city of Shanghai. The focus on bike-sharing systems, integrated with other forms of public or private transport, and tourism, as a development engine for the local economy, were two aspects on which students focused on.

The desk research has led to the filing of several cases of best practice in the field of urban bike sharing laying the foundation for the exploration of scenarios and training systems to apply at a later time on peri-urban context of Chongming. Other study-cases were analyzed with on-site research, testing services offered by the municipality of Milan, Lyon, Paris.

Sustainable mobility as a macrosystem, where the bike sharing is, has been analyzed in various aspects of the discipline of design in terms of services as a strategic choice of the contemporary city government to raise the so-called "green transportation", of product as technology of the components of the system platform and bike rental, of space and equipment of areas used to sharing connected with the context, of communication with a signals system and user interface.

The theme of the local tourism has become central when the desk analysis of the context of Chongming Island has highlighted the close link with the city of Shanghai,

complementary with it. On the one hand, the megalopolis by purely physical characteristics related to the building, the other a large rural agricultural area with high potential for tourist accommodation from the nearby town.

Contextual workshop

The activities carried out on site in August 2010 in Chongming Island, has allowed the actors to generate some design concepts applied to the context, following a series of primary data collected in different ways (interviews, videos, photos etc.), organized and shared with local stakeholders.

A first step has defined what were the elements that give identity and character to Chongming Island, analyzing the flora / fauna, the system of channels, socializing with residents, their craft, agriculture, traditions costumes and history. A "qualitative research" with interviews with local people, workers, farmers, volunteers.

A second part was focused on the existing services that allow to discover and experience the island as a tourist: systems of rental bikes / scooters, bed and breakfast, information centers, services in towns and in rural areas, seeking to understand who are the actors behind these initiatives and who are the visitors to the island today. This phase is accompanied by a parallel investigation of possible ideas put in place to bring visitors to Expo 2010 to discover in greater depth the area of Shanghai, its traditions and its culture.

This first step has been completed by visiting the island by public transport, with bicycles rented from local farmers, and walking groups in areas poorly served.

Scenario and strategy

The research results showed two categories of values:

a. "To preserve":

- real & not fake: in Chongming Island it is possible to experience real China, with the rural and agricultural life;
- local attitude: local reality, slow life, welcoming;
- untouched island: simplicity, freshness, silence, light air, horizon view;
- pure feelings: hearing, tasting, looking

b. "To discourage"

- sustainable banal stereotypes;
- invader attitude: promoting low impact projects;
- "make it something else" approach: not trying to Chongming values change, by destroying or modifying them their natures, but work on them, to emphasise Chongming personality.

Collected enough data on the context, profiles of probable users were defined through the construction of a series of personas reference (also based on the analysis): the sport performers, the event Engaged, the poise seekers, the tied-up , the somebody else, the poetic wanderer.

Each one goes to Chongming for different reasons. Every briefly typology is embodied by a character, who is charmed by the various aspects of the island, that are

never the same. Through personas analysis some hot interest areas has been discovered. For each one, two opposites behaviours were thought (i.e. learning-leisure, short trip-long trip, observer –proactive etc.), in order to understand the main trends to get to precise concept direction



Fig. 1: Personas and interest areas in Chongming Island

After the personas definition the essential elements that all these personas will need in order to improve their experience on the island were assumed: Chongming advertising, website, thematic paths, signage, magic number, integration bus-bikes, workshops, catalogue. The solutions based on mobility and Internet were the most suitable and common to the majority of the personas. Some other solutions, such as workshops, are more specific. That's why they are not included as transversal elements helpful for the development of the concepts. These transversal cues are mainly two: the need of communicate in an effective way and the need of gathering useful information and using them. Through these two the main lacks of the Chongming experience can

be filled up.

At the end of the research phase an definition of the personas, some concepts were assumed as outputs:

a. Chongming Island identity

The brand step is fundamental to make people appreciate all the possible experiences in Chongming Island, otherwise quite hardly somebody will go there without any kind of previous advertising. It's all about making people aware and charmed by what Chongming Island is. "Made in Chongming Island" should be built as brand and synthesis of the island values. Its existence would help understanding what is Chongming and why it is attractive. This is not only a transversal element, it is a prerequisite for any project.

b. *Community website*

The creation of a Chongming website would help in creating the Chongming Island lovers' community. In addition it would be the output of a strong net build through bed & breakfast, hostels, shops and any kind of service available and it would help tourists planning their staying

c. *CM catalogue*

The catalogue can be both printed or on the website and it provides the list of all that you can find in Chongming - services, tours, offers. It would be an useful tool for Chongming visitors with all the news and events about Chongming island.

d. *Paths and signs*

The experience in Chongming Island is made unique thanks to its inhabitants. Anyway it is important not to be strongly dependent from them. The municipality should distribute for free clear island maps with possible path to be followed. Furthermore the path signals should be all around the island to help people orientating.

e. *Mobility integration*

Working on the integration of the means of transportation is one of the key elements for Chongming Island success. Tourists should be able to reach any point of the island without having any problem. The integration of bus, bike, ferryboat is fundamental, but even working on the water means would be great to give another possible choice and to make the Chongming Island experience unique.

f. Magic number

Speaking Chinese is not that easy and almost anybody in Chongming island can speak English. So, as it is already happening in Shanghai, providing a magic number to call when it's impossible to make a proficient communication would solve many misunderstandings.

Self standing proposals

The aim of this phase is to create a set of sustainable design solutions for the exchanges between rural Chongming communities and urban Shanghai communities this can be achieved by the design of systems that balance technology, activities and services that enrich the users lives.

A series of design activities have been focused on envisioning and designing a network of new and creative services business ideas, able to create an entrepreneurial community in a village of the island, Xian Qiao, which would act to develop sustainable tourism in the island. The results have been a set of 5 ideas in different field:

CHONGMING WATER TOUR

A better mobility integration of different kind of transportation and water paths

CHONGMING REAL FOOD

“Ping Heng Dao” is a service that aims to transform the village into the land of balance where eating has a natural role in healthy lifestyle. It provides the balance and the connection between food and life by discovering and exploiting traditional medical food.

“Bio Ming” is a service that brings to the urban customer an organic choice of products from the island. Fruits and vegetables are local seasonal and regularly delivered to different point of sale in shanghai.

Special labelling and packaging for Chongming original and organic food, to be spread inside and outside the island.

PUBLIC CHONGMING ADVERTISING

Advertising campaign promoted directly by Chongming municipality

CHONGMING ACTIVITIES FOR EVERYONE

Different kind of activities, such as picking up fresh fruits or crabs fishing, designed for both children and adults during all the year.

CHONGMING HOSPITALITY

This is a service that valorizes the local habits of the villagers in welcoming visitors. It encourages the renovation of traditional constructions for accommodating the visitors, instead of building new ones and stimulates interactions and cooperation with villagers.

This design action was about linking design solutions in a local system, creating mutual connection and relating them to the external environment. Here the design role has been to organize the project services network. This meant finding design solutions to connect the different services and to understand how they could support one another and to frame a consistent scenario.

Systematizing proceeded by finding synergies between analogous, complementary and compatible activities. These has been obtained by:

- sharing some operation and infrastructures and creating a critical mass;
- understanding if there are output of one activity that can become input for another one
- understanding which solutions, if combined, can generate mutual virtuous savings

and reinforcement.

Conclusions and future steps

This contribution shows the application of a specific design approach to face the problem of how to address territorial development that relies on the convergence between strategic design tools and pillars and service design. Is this an approach under experimentation in several projects that the Politecnico of Milano School of Design (Strategic Design Research Unit - <http://www.dis.polimi.it/>) has conducting for different years [9] and that seems to suggest an interesting phenomenon: design for sustainability and sustainable territorial planning are converging. In fact, as preliminary project results suggest:

- Designed sustainable solutions tend to be localized. That is, to keep in account the territorial specificities of the place where they have to be implanted.
- Sustainable territorial planning tends to be articulated in self-standing proposals. That is, to be implemented through a variety of relatively autonomous small scale, self-standing projects coordinated and systemized by the means of some real and virtual networking platform [1] [2][3]based on a larger vision and framework.

Self standing proposals here (due to the early stage of the project) are taking the forms of concepts for the context where they will be embedded. In other context, as in Feeding Milano, they are real service prototypes that are currently delivered in the city and that are existing processes of exchange between Milano and its rururban area (food delivery, eco-tourism, cultural heritage fruition). That is, to be really implementable self-standing proposals should be:

- Economically viable and, therefore, to be based on service ideas, capable to leave in the framework of the emerging distributed social economy.
- Technologically viable and, therefore, to use, in an innovative way, the existing technologies and knowledge.
- Socially viable and, therefore, to refer to locally already existing active communities or to communities that are activated by the same project proposals.
- They have to be based on local actors active participation and they create radical different ways of living and/or producing.
- They re-generate the ecology of the territory where they are embedded. That is, they are local systems that, thanks to their number and diversity, enrich the environmental and social resilience the larger ecological system in which they are embedded.
- They requires to be implemented a (tacit or explicit) design support in terms of appropriate strategic and service design skills and tools.

For the future we are planning to continue the project for Chong Ming Island by share design proposals described above together with all of the interested stakeholders from end users to service providers. The most promising re-designed proposals will be used

to elaborate a strategy of funds raising that would conduct to the extensive and real experimentation (as it is currently happening for Feeding Milano) of some of the envisioned solution.

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FRESH-CLEAN IDEAS IN DESIGN: BANAT CASE IN TURKEY



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Abstract

The role of design as a differentiating factor is gaining value all around the world, every day. Design has been engaged as a national policy in many countries while design awareness merges into a broad-based and long-term societal work.

Despite its impressive economic growth rate over the last 10 years Turkey is not a country where the importance of design factor embraces the manufacturing sector as a whole. Still deprived of a national design policy in the first decade of the millennium, Turkey has been going through a particular industrialization process as other NICs have also gone through. Although the country has built a considerable industrial infrastructure with indigenous product development capabilities through this industrialization process, design is still not considered as a competitive factor in large sectors of the industry and government agencies.

On the other hand, certain SMEs or large-sized companies recognize the importance of design and use it efficiently. When looked at closely, those companies appear to be the ones with design departments and/or design consultancy services integrated into the product development processes, they have cutting edge design skills and consequently they are able to match the competence level of international players. This paper will focus on Banat, the first Turkish toothbrush manufacturer and will be a case study of how the company uses design to develop innovative products and of how design awareness helps the medium sized company to deal with large-sized, multinational competitors.

In 1921 in a country ruled by wars and poverty, and so far foreign to the simple habit of brushing teeth, Banat was founded to provide toothbrushes to the army. The company was formally established in 1947 in Istanbul. Introducing the toothbrush to the society and improving public health by creating the habit of brushing teeth has become Banat's primary mission ever since.

In 1976, the company's small business had already grown to include a new factory and production had increased. Between 1985 and 2000, Banat added hair brushes and home care products to its product range and acquired the status of a medium sized enterprise by installing a strong corporate structure. In parallel with Turkey's economic growth speed, Banat has expanded its business and has begun exporting toothbrushes to Balkan countries. While enhancing its product range, Banat has also established an in-house product design department.

In 2000's, product differentiation through design has helped Banat to become the leader of the Turkish toothbrush sector against multinational competitors. Since 2002, Banat has taken investment decisions at national scale and has placed product design at the center of its business structure. The same year Banat has signed up an external product designer to accomplish an innovative toothbrush project. The external designer brought in new ideas widening the company's vision, created synergy on commercial prospects and the designs produced by the company have been awarded internationally. As a medium sized company competing with multinational companies in international arenas Banat is a successful Turkish brand today.

This paper will look into how a medium sized company which uses design effectively can differentiate itself and evaluate the company's design led success to offer guidelines to other interested small or medium sized companies.

Introduction

The role of design as a differentiating factor is well established [1] Design has become an indispensable tool of creating added value on products and services and thus increasing the competitiveness of companies. In addition to being a differentiator, design has become the resource for improving the new product development process and the resource for defining new opportunities, an integrator and transformer. [2]

Countries that are aware of the above attributes embrace design as a national policy and allow a synergistic merge of design into their broad based and long-term socio-economic development path. Countries which are latecomers in the industrialization process such as Turkey are rather slow in this kind of embracement. [3]

Despite its impressive economic growth over the last decade, Turkey is not a country where the importance of design is acknowledged by the manufacturing sector as a whole. Still deprived of a national design policy in the first decade of the millennium, Turkey has been going through a particular industrialization process similar to the Latin American NICs to a large extent. [4] While in the first stage of industrialization, an industrial base was tried to be established by a protective trade regime favoring national industry, in the following stage the protective barriers had been decreased and exporting became the major focus of industrial development. [5] The real motivation for industrial design activities emerged at this latter

stage and some companies started to feel the urge for new product development activities which would enable them to compete in both the domestic and foreign markets.

Despite the lack of a general consensus on the value and role of design on the larger part of the Turkish industry and decision makers, there is a considerable design activity in some sections of the manufacturing and service companies. Balcıoğlu states that “there is currently a design ‘melting pot’ in Turkey, which is full of promise for every aspect of design in the fields of profession and practice”. [6]

While exporting their products to foreign countries and competing with multinational companies in the domestic market, a number of Turkish manufacturers discovered the advantages of design and the opportunities rising along with it.

Today in Turkey, a considerable number of large companies recognize the importance of design and use it effectively. They have in-house design units and/or seek the services of design consultants. Though very limited in numbers, some small and medium sized companies also follow the example of large companies and try to incorporate design into their activities.

This paper will focus on a medium sized company, Banat, the first toothbrush manufacturer in Turkey, and will be a case study of how the company uses design to develop innovative products and of how design awareness helps it to deal with large sized, multinational competitors.

History of Banat, the First Years

In 1921 in a country ruined by wars and poverty, and so far foreign to the simple habit of brushing teeth, Banat was founded to provide toothbrushes to the army. In a country which lacks a manufacturing base, the small workshop fulfilled a heavy task. Mainly focused on the assembly of natural bristles and celluloid handle, Banat faced raw material procurement difficulties and technological deficiency. To overcome the problem, the owner of the workshop and possibly the “silent” designer of the sole product invented a convenient substitute for the toothbrush’s celluloid handle by using an accessible and cheaper material which was wood.

For two decades, the workshop functioned as a provider to the army instead of a small, independent business since brushing teeth was unknown to the society and the army was the major permanent customer.

The company was formally established in 1947 in Istanbul. The old capital which remained the most industrialized city in Turkey also provided a favorable background for investment and for economic growth through its strong connection to Anatolian cities, offering new businesses a chance to blossom after the Second World War. Within this era of change, the workshop was expanded to become a small factory and to serve civilian customers despite their small numbers. In the factory, the main activity was based on toothbrushes. Introducing the toothbrush to the society and improving public health by creating the habit of brushing teeth has become Banat’s stated mission ever since.

On the other hand, product development and technological improvements were taken into consideration in order to ensure a moderate growth. The necessity of using adequate technology oriented the company owner to import machinery from Germany. Once machinery arrived to its destination, a serious problem occurred: the lack of system know-how. As heuristic as it is, the technicians needed to discover how to assemble the equipment. [7] It didn't take long for them to discover that product diversification was also possible with these new machines, and the company immediately started to produce hand brushes as well. Banat's toothbrush and hand brush factory was the first among Balkan countries and the company's achievements merited a letter of appreciation from the economy ministry.

The marketing part of Banat's business at the factory's opening stage deserves attention for various reasons. Firstly, as mentioned above, the habit of brushing teeth was absent in the society. Secondly, industrialization in the country had barely begun, there was a lack of basic knowledge about the methodology and structure of marketing activity related to mass production. Thirdly, the business units to facilitate the commerce of such a daily use product (markets, shops, stores and even pharmacies) were weak, dispersed or non-existent in rural parts of the country. Finally, the budgetary status of the company was tightly limited in terms of placing funds. The owner of the company was travelling from village to village to explain what a toothbrush is, how and why to use it. "The marketing of Banat toothbrushes was carried out of a suitcase for years, by the owner of the company himself". [8]

Partnership and Corporate Structure

Later, the aging owner of the company offered partnership to a successful entrepreneur, and the first steps towards corporate development were taken in a more established climate with their alliance. In 1976, the company's small business had already grown to include a new factory of 500 square meters and production of toothbrushes had increased to 240.000 units per year. Soon after the partnership was achieved, another factory of 8000 square meters was ready to meet the increasing demand, fully equipped with new generation machinery and a greater production capacity.

Between 1985 and 2000, Banat added hair brushes and household care products to its product range and acquired the status of a medium sized enterprise by installing a strong corporate structure. In the light of the varying needs of the consumers, the company became aware of the lack of scientific approach and of R&D in the factory's production process. By revising production and distribution strategies, it was possible for Banat to develop a larger product range and to begin competing with multinational players which entered into the Turkish market concurrently.

The change in the trade regime and economy policies experienced in the late 1980s brought about a very competitive market for domestic manufacturing companies both in terms of internal competition through the penetration of foreign actors and also in terms of the level of sophistication required to export. Matching the speed of Turkey's economic growth, Banat began exporting toothbrushes to Balkan countries. The export demand variety of the Balkan countries and the Middle East positively influenced product development resulting in improvements to the company's product range. Financial gains from exporting helped finance the inevitable investment in machinery renewal. Banat achieved important goals by means of investment and sales, fortified its financial position and weathered the national crisis of 1994.

Banat, a Transforming Company

The fundamental transformation of the company was obtained by the integration of professionals to the management team, by the stabilization of production/export input structure and by the quality standardization which was secured by regulated raw material supply. While enhancing its product range, Banat has also established an in-house product design department and started applying basic advertising methods in order to upgrade direct marketing solutions. Since Banat was operating all around the country for decades, its distribution network and its access to local retail dealers gave the company market penetration strength whilst multinational competitors were struggling to immerse their businesses in Turkey.

At the beginning of the new millennium, the company's product range extended from oral care to personal care, household care and industrial products within vertical integration through new placements of equity capital, and resulted in an increasing market share. An important step of vertical integration has been the full automation process of Banat's plant which was completed shortly after the company's increase of market shares. The company's transaction costs such as research, contract and coordination decreased accordingly. Banat needed new departments to reorganize its corporate structure; sales and marketing department serving headquarters, molding shop to provide in-house molds for products and their packaging, and a larger warehouse network to supply various distribution channels (regional, national and international).

In the 2000s, differentiated product designs have helped Banat become the leader of the Turkish toothbrush sector against multinational competitors. Since 2002, Banat has taken investment decisions at national scale and has placed product design at the center of its business structure. The company's product design department focused on incorporating a wide range of personal care products and was helped by technological, managerial and logistic support. In this way, it was possible for Banat to keep the toothbrush production around 300.000 units per day, to move forward with newly added care products and to ensure the growth of exports in order to achieve long-term objectives.

Toothbrush Projects and Design Contribution

In 2002, Banat has signed up an external product designer to develop an innovative toothbrush project. The general manager of the company, Mr. Kaya states that Banat is the only national competitor in oral care market against four big multinational companies and this situation makes product design a very important asset for the company's market share. In fact, Banat's design strategy was becoming closer to the successful examples of the country in terms of the effective use of design.

Banat's external designer who is a talented Turkish industrial designer brought in new ideas widening the company's vision. [9] In short time, the external designer's project created synergy inside the company's departments not only in terms of general enthusiasm but also in commercial prospects and in machinery renewal decisions. As a result, Banat has been the first company producing three component toothbrushes in 2005 and expanded this new technology application with household care products. The benefits of the synergy and its impulsive nature allowed Banat take new steps forward. An economy class household care brand "Bella" was created to target rural market segments with a modest product line and private label production has been added to the company's export agenda.

In late 2000s, Banat became an active player on international markets, exporting 400 different products to over 40 countries. Banat's 'purely national' production strategy differed from its multinational competitors but didn't prevent the commonly encountered problem of intellectual property: imitation of original designs abroad and at home. The company's external designer's awareness on the matter has been of help, his insistence on patenting Banat products was vindicated in 2009, with the surfacing of Tri-action toothbrushes "made in China".

The innovative design approach which defines Banat's recent projects led to an exponential impact, especially in the company's oral care division. In 2005, "Exclusive", "Sweepy", "Tri-action", "Tri-action Too Fresh", "Tri-action Too Bright" toothbrushes entered the markets.



Figure 1- Banat Exclusive toothbrush



Figure 2- Banat Tri-Action toothbrush



Figure 3- Banat Tri-Action Too Fresh toothbrush



Figure 4- Banat Tri-Action Too Bright toothbrush

In 2007, “Vizy” and “Bubble” for kids were launched. In 2008, “Dynaform”, “Caredent Orthodontic”, “Figure”, “Relaxion”, “Duocare” and “Acrobat” toothbrushes were added to the product line.



Figure 5- Banat Vizy toothbrush



Figure 6- Banat Relaxion toothbrush



Figure 7- Banat Acrobat toothbrush



Figure 8- Banat Acrobat toothbrush



Figure 9- Banat Acrobat toothbrush

On the other hand, new designs in the divisions of personal care and household care were moving in parallel with oral care, distinguished by chromatic harmony, smoother forms and simplified packaging.

Product design's value adding character reflected on the change in Banat. The external designer's contribution to the company's brand awareness came along with national and international awards of important design competitions. Banat Tri-action toothbrushes have been exhibited in The Design Turkey Industrial Design Awards 2008 Exhibition, Tri-action won The Good Design Award. One year later, Banat "Acrobat" toothbrush was the Innovation Award Winner of the Third Prize in the 51st FEIBP (European Brushware Federation) Congress. The same innovative product had a nomination by the Federal Ministry

of Economics and Technology for the Design Award of the Federal Republic of Germany 2011. Banat "Acrobat" toothbrush also received "Good Design 2009" Award and has been selected for the Permanent Design Collection of the Chicago Athenaeum: Museum of Architecture and Design. Finally Banat "Acrobat" toothbrush has been exhibited in The Design Turkey Industrial Design Awards 2010 Exhibition. Banat "Acrobat" toothbrush design won The Good Design Award and The Superior Design Award.

Boundaries

It was said earlier that Banat considered introducing the toothbrush to the society and improving public health by creating the habit of brushing teeth as its primary mission. Over the past sixty years, Turkey's population have only partially acquired this habit (especially in big cities and mostly the young generation) but it is still lacking proper principles about the use of a toothbrush. The 88 years old company owner complains on this matter "Turkey is a 70 million country and unfortunately 40 million people never brush their teeth. According to AC Nielsen reports, toothbrush sales on national basis are around 30 million units per annum. For sixty years, Banat's main purpose has been to improve oral care awareness and to point up the importance of brushing teeth. When we look at the numbers, with its 60 million potential toothbrush user, Turkish oral care market should have reached 180 million toothbrushes per year. But national toothbrush use ratio is 16.17 %, which means only one person of four is aware of the importance of the fact. Again, in England for example, a person uses 2.4 toothbrushes per year, in Sweden 2.5. In Turkey, individuals use the same toothbrush for approximately two years, instead of four months." [10]

It is clear that the Turkish oral care sector pioneer Banat helped improving society's awareness but it is also obvious that this is a long-term, effortful and planning demanding task. To improve awareness, Banat holds continuous social responsibility projects with universities, local authorities and dentistry related associations. Focused on a healthier future for Turkey's young generation, these projects include primary school seminars, dental examinations in classes and design workshops for kids. Although financially difficult, the company undertakes important social responsibility projects and by doing so is becoming a good example of company strategy consistency for both SMEs and big companies in Turkey.

In Turkey oral care market is dominated by multinational players. As mentioned earlier, Banat is the only national brand among five leading players and has to compete on multiple levels of commercial activities. Multinational companies benefit from their larger departments such as product design, R&D, sales and marketing, planning etc. and spend less time and effort to enhance brand awareness. More importantly, the international players have the advantage of a larger mass production scale in terms of investment, technology, cost effectiveness, branding and contract in the countries they are operating. Facing such strong competitors, Banat develops design-led strategies and uses design to develop innovative products and brand awareness but also for reducing product costs and gain price advantage in the markets.

The award winner Acrobat is an appropriate example to characterize the company's attitude. Acrobat is an innovative toothbrush with unique and patented body structure which allows an increased hygiene by preventing toothbrushes from touching each other. It has a flexible head structure which provides extra flexibility to the head of the toothbrush around the body axis, minimizing the pressure of the bristles on the gums. Acrobat comes in different scents which

gives a feeling of extra cleanliness to the user. And finally, Acrobat is neatly cheaper than the other four leading products of the multinational companies. Table 1 is a basic comparison of the products in Turkish oral care market by January 2011. Although Banat is the leader of the oral care market in Turkey on the unit basis, its annual turnover figures are above main competitors.

NAME	BANAT ACROBAT	SENSODYNE MICROACTIVE	ORAL-B PRO-EXPERT	COLGATE 360°	SIGNAL ULTRA REACH
BRISTLES	Nylon with smoothed ends	Micro thin	16 ° angle	Smoothened ends	Transversal
GRADE	Middle	Extra smooth	Middle	Middle/ Soft	Middle/ Soft
SUITABILITY	All adults	Sensitive teeth	All adults	All adults	Sensitive teeth
PROPERTIES	Hygiene, flexible head and scent	Against gingivitis	Massage and tongue cleanup	Tongue and cheek cleanup	Designed by Ferrari's designer
PRICE (Turkish Lira)	4.75	7.5	9.35	8.50	8.90

Table 1- Top products in Turkish oral care market (listed in Hürriyet, 2011)

Conclusions

The Banat case study underlines the company's development path in a historical framework, its passage to a corporate structure synchronized with the evolution of the country's economic policy, its transformation through vertical integration and the impact of design-led attitude towards tightening markets. In the evolution of the company, it can be said that design played the role of transformer, by means of defining new opportunities in the early phases of its development. Then it became an integrator in terms of improving the new product development process with the establishment of a product design department. Finally, Banat used design as a differentiator to compete with multinational players in Turkey and abroad.

It would be presumptuous to declare design as the main strategic tool of the company but it is certainly one of the competitive assets the company regularly uses today while struggling with cultural and competitive issues. Design is one of the competitive advantages of the company since it allows innovation opportunities, reputation and cost effectiveness. For Banat, design is at the center of its business. The company's straightforward strategy embeds design in national market diffusion and new export areas for a wide product range. As a medium sized company competing with multinational companies both in domestic and export markets Banat is a successful Turkish brand today.

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Promoting Design from D.C to Dhaka

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This paper considers the relevance of early 20th Century American Design promotion for contemporary design development in Dhaka, Bangladesh. The limits and possibilities harbored within such an engagement, expands design discourse to include cultural exchange and application. In building common ground, local distinctions find comparative resonance. American design development offers lessons of collective individualism, incomplete institutionalism and fractured identity. Through writings of American designers, like Ernest Batchelder, Frank Lloyd Wright and historians, like Arthur Pulos, Jeffery Mickle and Christopher Long we find variations on American themes of democracy and design. One account related to the role of public design promotion can be found through the archived papers of Federal Arts Project director, Holger Cahill. In particular, two documents summarize the intent and method of two national level projects: one announcing the theme of the 1939 New York World's Fair and the other charting the purpose of the Index of American Design. Although generated during the same year of 1935, the two projects describe radically different visions for American design identity. This paper defends the contemporary international relevance of domestic contradiction in the development of American design identity. Through America's experience, developing democracies, such as Bangladesh, searching for a competitive, autonomous and unique design identity, may find deliberated dissension, regarding past retrospection and future projection, craft and industry, knowledge and profit, as essential to design development. The fact that the 'official' version of American Design was not only multiple but contradictory, showcases, debate the source of democratic national unity. Whether D.C or Dhaka, the education and location of design shape deliberate systems of domestic and international engagement. Profit or pedagogical motivations of design motivation when explicit can locate debates about national identity both past and future, but when opaque hide fragile assumptions of artificial agreement. Hence, a democratic design identity cannot be modeled but can be exercised as deliberately protected dissension about the remembered and imagined shapes of a nation.

Context

In 1925, then United States commerce secretary Herbert Hoover, had declined an invitation to the Paris *Exposition des Arts Decoratifs*, citing an absence of American modern design.^{[1],i} At this moment of lack and humility, America initiated a public promotion effort to provoke indigenous Modern American design that would rival Europe and claim a distinct market for itself. Four years later the crash of the stock market compounded the cultural recovery with economic urgency. In historical American style, social concerns merged with economic and the look of American things signified both perspective and shape. The 1939 New York World's fair was a culmination of these efforts and announced America's contribution to 'Building the World of Tomorrow.' Inversely, the Index of American Design sought an American unified Tradition of American design that would build a shared foundation in the past. Within a span of less than 15 years, with the success of the World's fair, the official status of American modern design had shifted from lacking modern design history to leadership in a streamlined future. As a result the public role of design promotion waned and the consumer-citizen ushered in an era of corporate identity and branding, the second half of the 20th century.

The 'Official' story

The corresponding response to the 1925 public confession of limited American modern design can be found in several public forums. One such public venue was associated with the Public Works Project and in particular the Federal Arts Projects. The papers of the director of The Federal Arts Project, Holger Cahill, include the motivating principles of the Index of American Design (1935-1942), as well as the thematic announcement of the 1939 New York World's Fair. The two distinct perspectives framed in 1935 offer two views towards design development: Historical and Futuristic, Non-profit- for profit, domestic- industrial and national-international. Despite the divergent directions both efforts celebrate democratic citizenship and retain the context of design in America.

Relevance

Much like early 20th century America, today developing countries historically assigned to manufacturing roles aspire to design autonomy, in order to claim market and cultural distinction. In contrast to European design tradition, early 20th century U.S efforts offer particular insight for emerging democracies discovering the role of design in social and economic development. For example, the non-profit organization, *Design without Borders*, had found Bangladesh lacking in design and consequently sought to assist the development of local design capacity.ⁱⁱ These efforts include both craft and industrial production. The unique context design development in Bangladesh while related to this exploration, is worthy of separate consideration. For this paper I ask, in the socio-economic development context of design in Dhaka today, what lessons could be learned from design considerations in Washington D.C almost a century ago?

What lessons?

There are various sources of documented design efforts both public and private, ranging from designer manifestoes, corporate manifestoes, museum exhibitions to public propaganda. Designers such as Ernest Batchelder wrote to teach, government officials

such as Holger Cahill or John Cotton Dana wrote to promote, while others structured fairs, composed journals like Gustav Stickley or write histories such as Arthur Pulos, Jeffery Mickle or Virginia Tuttle Clayton. These institutional attempts of identity collective construction encompass educational, commercial, cultural and political motivations and offer articulated agendas that can be studied. Two general lessons become quickly apparent. First, institutional structures are necessary conditions for framing questions of design identity. Second, institutional structures alone are inadequate for democratic identity construction. The lesson D.C offers to Dhaka is that, in a democracy designs of the future, just as memories of the past, are multiple. What is shared is the discussion, not the image.

Thesis

Devoted to the contemporary relevance of the internal contradictions that fueled the public effort of American design development, this paper argues that democratically motivated design development, whether past or future oriented, thrives on diverse reception and resists formal consistency. As such, American design remains an example of a vivid dream, rather than a theoretical model. The D.C story offers Dhaka, designed democratic inspiration but no formula for developing a national style.

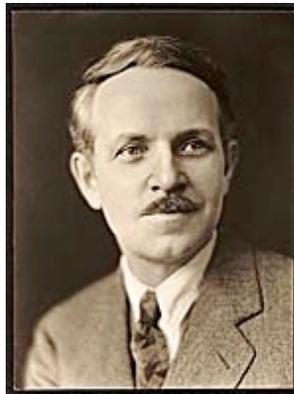


Figure 1: Holger Cahill, Director, Federal Arts Project (1935-1943)

Method

This paper analyzes and interprets two documents from the Holger Cahill Papers housed in the Smithsonian Archives of American Art: The first document is the thematic summary for the World's Fair presented December 11th, 1935 (Frames 733-758), and the second charts the 1936 justification for compiling an Index (Frames 1077-1085). These two documents present two differing perspectives for the promotion and development of national design identity. While director Cahill articulates his own defense of American design in his writings and lectures, these two documents although not authored by him, show contradictory perspectives within the Federal Arts Program. As a cultural and economic response to the great depression, the FAP was a division of the largest New Deal agency, the Works Projects Administration charged with the task of providing nation-wide economic relief for workers in the cultural fields. The historical background of socio-economic relief and development is certainly consistent with similar, although smaller in scale efforts in developing democracies. Public design promotion out of this context of a national effort to recover from the great depression became infused with

social responsibility towards social progress and development. Consequently, despite many differences, both documents promote a collective vision of progress. The task of this paper is to uncover, what collective, by whom, for whom, and the qualities of progress, economic, cultural, social and/or political. In order to do so, I consider the different accounts of: *Function, Time, Space and Gender*.

The 1939 World's Fair: "History pays no dividends."



Figure 2: Poster Design Promoting the Fair

The 1939 World's Fair report archived in the Holger Cahill Papers, explicitly articulates the date, location, participants, theme and organization. The committee met for dinner at the City Club in New York City, December 11th, 1935. The participants included industrial designers, Walter Dorwin Teague, Gilbert Rohde, architects, Caleb Hornsostel, Harvey Corbett, landscape architect Henry Wright and urban historian, Lewis Mumford. The title page sets the professional and disciplined quality of the report, if not the Fair itself. Titled the 'Fair of the Future' it announces its purpose as follows, "We believe that the program of the Fair must have an underlying social objective. It must demonstrate that betterment of our future American life which may be achieved only through the coordinated efforts of Industry, Science and Art. Above all else, it must stress the vastly increased opportunity and the developed mechanical means which this twentieth century has brought to the masses for better living and accompanying human happiness." Nothing short of an expression of human happiness becomes the purpose of the Fair. The triple function to exercise unity of industry, science and art, to exploit mechanical means not human labor, and to display a betterment of the masses, together offer a collective dream of the future without reference to a shared past.

The futuristic tone of the report is essential to its purpose. Describing the uniqueness of the 1939 fair, it claims, "The great Fairs of the past have all had a unity of theme: but none of them have had so exhilarating a theme; none have attempted to portray a new pattern of life unlike any that the world had witnessed before. Because Fairs of the past have been retrospective, because their theme has been manufacturers and merchandise, and not the social consequences of these new processes and products, they have lacked architectural unity and significance." Grounded in social consequence and not formal identity, the report emphasizes possibility supported by technology rather than history. Combining the social vision and the faith in technology, the role of industrialists become that of mass-producing the means to the American dream. Manufacturing acquires a

democratizing role, equalizing the rich and the poor and seeking social benefit alongside profit. According to the report, “the most exciting and spectacular feature a Fair could have is the demonstration of the wonders of contemporary life now within the reach of the man of the millions as well as the man with the millions.

Consistent with the futuristic perspective, spatial order acquires a central role in realizing the vision of the tomorrow. Attention to architecture is enumerated in the description of the physical concept following the social vision in the report. It suggests, “We recommend, in place of the old arrangement, the organization of the Fair into a unified whole which will represent all of the interrelated activities and interests of the American Way of Living. These various activities and interests, all parts of the inseparable fabric of life, will be divided as follows: housing, food and drink, health, education, work, recreation, art, government and religion.” The spatial organization structures the planning of the according to different but equal functions rather than bureaucratic hierarchy.

The report presented the design of the Fair from the perspectives of function, time and space: A social vision constructing the future possibility through experienced and organized space. Although not a component of the report, a quick note regarding gender needs to be raised before concluding this summary. The centrality of domesticity and everyday life infuses the consideration of citizenship and personal happiness. Women become agents of the social transformation of housing, food, health, education and recreation. Although much thought had been given to women as consumers, citizens and guardians of the future home, there were no women at the dinner table of December 10th, 1935.

The Index of American Design: “Obviously it is only through such a groundwork (in American Tradition) that an organic design of the future may emerge.”



Figure 3: Image from the Index of American Design

The Index of American Design was an unprecedented national effort to visually document an American design tradition. Unlike the glamorous inception of the New York World’s Fair, the idea of the Index emerged from a perceived lack by two women in New York, searching for a historical source of inspiration. Ruth Reeves, a textile artist and Romana Javitz, the head of New York Public library’s framed picture collection hoped to “feed artists and industrial designer’s with authoritative pictorial research.”ⁱⁱⁱ In July of 1935, the women decided to offer a formal proposal to the newly formed Federal Arts Project. The Holger Cahill papers contain the 1935 manual for compilation and a document but also a document describing the intent and national scope of the project. As

early as March 15th, 1936 an exhibition of collected material was held at Marshall Field's in Chicago. The document that references this exhibition and the general function of the Index, has the name of Constance Rourke, handwritten next to the title. Constance Rourke became involved with the *Index* and was deeply invested in the development of American Art and Design, she attended Vassar and the Sorbonne, wrote and published articles about American Art, such as "American Art: A possible future." Her informal authorship of the document in the Cahill papers is in stark contrast to the collective formality of the Fair report.^{iv} Of the function of the Index, Rourke explains, "In planning the work of the Index, consideration has been given from the outset to the interests and requirements of contemporary designers who wish to ground themselves in American traditions. Obviously it is only through such a groundwork that an organic design of the future may emerge." In other related documents, four specific reasons for the Index are provided. First, to record and compile material of historical significance, second to gather traditional material for developing future design, third to make a 'usable' source of records for practitioners, and finally to provide employment. The emphasis on knowledge acquisition over profit or social motivation significantly frames the anticipated function of the Index.

Rourke's words reveal an important direction of the Index. Unlike the Fair that proclaimed 'history pays no dividends,' the Index considered history and tradition a source of future designs. The reliance on America's past for its identity, contrasts the future orientation of the Fair. Rourke mentions the periods covered by the Index as ranging early settlements to about the 1870s. Locating the source of American identity in a particular historical period through examples of handicrafts suggests an emphasis on early European settlers. Indeed, the inclusion of works by Native Americans and African Americans was limited. It is also important to note architecture was not included. The argument was to avoid redundancy with other national efforts. The exclusion of architecture in the Index, contrasts the centrality of architecture at the Fair.

The inceptive role of architects at the Fair corresponds with the emphasis on spatial planning, while the role of archivists, artists and administrators in the Index corresponds to its emphasis on hierarchy and regionalism. The hierarchy is set according to regions, as the procedures for the Index states, "The Regional and State directors of the Federal Art Project will initiate the work of the Index of American Design. Designation of personnel to assignments on the Index is the responsibility of these directors, who will exercise supervision over the Index, assist in making contacts with museums, libraries, historical societies, and private collectors." As such, lines of knowledge gathering and knowledge dissemination become critical for the Index. The look to the past, the emphasis on bureaucratic organization and the function of collection all present a stark contrast to the Fair's emphasis on the future, architectural organization and consumption. The differing roles of women as producers of the Index and consumers of the Fair's social vision mark the significant contribution of women in national identity construction. Ten years after America's confession of lacking indigenous modern design, in 1935, two drastically different views of what American design should be are crafted. In the contradictions of the two the projects and associated documents we find the practice of democracy that seeks unity through a multiplicity of perspectives. Despite all drastic differences, both

have the best interest of the ‘masses’ in focus. Both celebrate the American everyday, everyman and everyplace.

Crafting Conclusions from Contradictions

There is much detail that include method, materials, public reaction and historical assessment worthy of consideration of the Fair-Index comparison, however for the purpose of this paper, let us now look to the international relevance of this domestic contradiction. The two different approaches to American design in terms of function, time and space evident in two documents composed during the same year of 1935, showcases the shared question of American identity and the corresponding conflicting answers. As suggested earlier, the two lessons for developing democratic design identity, is that first, a public platform is needed for hosting conversations about design, whether history inspired or imagining the future. The two documents housed in the Holger Cahill archives give official presence to the perspectives. The public promotion of these efforts whether direct in the case of the Index or indirect in the case of the Fair, insists on visualizing American democracy. The institutional lens gives objective presence to the subjective experiences of living in America. While the first lesson extols the need for public participation in the democratic development of design, the second lesson confesses the limitations of a singular effort. In other words, there is no ‘official’ story, in a democracy, only an ‘official’ stage. These contradictory views concerning the direction of a national design agenda is not unique to the U.S. Indeed, the debates in Germany between Henry Van de Velde and Hermann Mathesius, certainly influenced German design.^v Similar, explicit confrontations can be found in national design debates across the globe. However, unlike European efforts with strong historical lineages, American design struggled with multiple lineages, European, Native American, African American, immigrant etc. The lack of a uniform American design identity is perhaps deliberate rather than indicative of a lack in formal tradition. The American context shows that locating a national design tradition is not the only condition for developing local design capacity.

For example, in the case of Bangladesh, identifying local design issues require collecting differing considerations of function, time and place. Issues related to traditional crafts and design, cultivating a local market, collective future visions, industrial scale, non-profit, for profit and social businesses all can together build a public platform for the role design in social development. Indeed, while the early 20th century American context is an example of design debate without synthesis, the second half of the 20th century, public promotion of design falls away in favor of corporate branding. Perhaps, current efforts of design in developing countries can remind post-industrial countries of the political value of design discourse, as cultivating creative citizenship. The NGO efforts toward design development in countries like Bangladesh are insightful and in need of a public platform. Without a shared stage for discussion, these efforts remain isolated instances of local and global consumerism without citizenship. Archived documents, such as the plan for the Fair or Index, offer textual material to analyze, interpret, and revise. It gives us objective plans to rework according to subjective and changing needs. The 1935 considerations of American design may not be applicable today, but the announcements could be revised for 2035. Similarly, how would Bangladesh craft documents related to design

discussions? As the Index and the Fair, show, the participants, the methods and the function frame different perspectives for design education, consumption, production and promotion. The underlying claim of this paper is that design writing is a crucial component of design development.

Promoting design from D.C to Dhaka rests on global efforts to make local expression explicit. This paper briefly summarized the international relevance of two documents archived in the National Gallery of Art. The institutional efforts related to design, whether, political, educational, historical or commercial give objective form to social relationships. Contemporary design whether in Bangladesh or America, is missing a public platform, where discussing 'things' give us as Hannah Arendt suggests an 'objective shared world'.^{vi} Public design promotion, as distinct from corporate design advertising shifts socially conscious consumerism to the active agency of creative global citizenship. In sum, the democratic lesson is threefold: first, build public platforms for design debate; second, resist the impulse for synthetic agreement; and finally, document the differences, developments and divergences, as a way to detect social progress without formal identification.

Reference:

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[ⁱⁱⁱ] Virginia Tuttle Clayton: 2003. *Drawing on America's Past: Folk Art, Modernism and the Index of American Design*, Chapel Hill: The University of North Carolina Press.

[^{iv}] Ibid, 20.

[^v] Carma Gorman, ed.: 2003. *The Industrial Design Reader*, New York: Allworth Press.

[^{vi}] Hannah Arendt: 1958. *The Human Condition*. Chicago: The University of Chicago Press.

PHARMACEUTICAL SYMBOLS ACROSS CULTURES

Towards a Comparative Analysis



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Abstract

In response to relatively high rates of therapeutic failure, pharmacists have been developing graphic images as a complement to oral and written communication, focusing on the use and interpretation of information and directions on the use of medicines.

Since the late 1970s a number of pharmaceutical collections of pictograms and iconic graphic devices have been developed in many different countries as a pictorial support for medication instructions.

Those visual resources are meant to play a preventive role and have proved to be able to improve the ability to recall pharmaceutical information, particularly in the case of more vulnerable audiences.

This project in progress aims to analyze and compare pharmaceutical pictograms from different historical, social and cultural environments and to evaluate their legibility as iconic language.

Introduction

The areas of health and medicine have been showing increasing concerns in regard to the forms of communicating information relative to the risks inherent in the use and interpretation of treatments.

Medicines, if badly used or administered in incorrect doses, can have very serious adverse effects and irreversible consequences (Pita 1993:180).

The main purposes of the present project are:

- (1) to collect as many pharmaceutical pictograms as possible from all over the world;
- (2) to determine and understand their history;
- (3) to define possible relationships between images;
- (4) to identify the therapeutic messages illustrated and
- (5) to group them in categories;
- (6) to understand the analogue-digital formats in which pharmaceutical pictograms are presented and produced;
- (7) to characterize the graphic conception of the symbols (colour, contrast, captions, concepts of graphic familiarity, etc.) and finally
- (8) to relate these graphic conception to the social and cultural contexts for which the images were produced¹.

The pictograms were collected by means of a survey on the development of pharmaceutical pictograms based both on bibliographical research (pharmaceutical and medical libraries and archives) and on direct contact with pharmaceutical professionals, institutions and international organizations.

The analysis of the systems of graphic images and pictograms was carried out by means of instruments created through Adobe InDesign CS5 program.

1. Pharmaceutical context

The information associated with drugs which is provided to patients is an information governed by the laws in force in different countries, and by the Agencies responsible for the scientific assessment and supervision of medicines.

In the 1980s, at the 37th World Health Assembly (held in 1984), the World Health Organization (WHO) recognized the need for information about drugs, and encouraged countries to give their support to the preparation and dissemination of objective and comprehensive pharmacological messages.

Since the late 1990s, several studies have recommended the association of iconic symbols to linguistic information in labels and leaflets in order to maximize the therapeutic indications on warnings, interruptions and mistakes. For example, to facilitate recalling treatment (Morrow 1996), to help conveying drug information to non-literate adults (Ngoh 1997), or to improve the comprehension and recalling of information about warnings on treatments (Sojourner 1998).

The major focus of health professionals has been on measuring therapy and treatment adherence (doses and overdoses, administration intervals, interruptions, barriers and motivations), but also on special cares associated with sensitive moments of danger and of alerts (70th FIP 2010).

¹ Points 6, 7 and 8 are still in progress.

2. Systems of symbols

Nearly a thousand pictograms/symbols (935) in the area of drug instructions and, in some cases, of hospital communication, have been collected so far, dating from 1976 to 2010. They are related to more than two dozen different systems, and originated in Australia, Austria, Belgium, Brazil, Canada, Denmark, Estonia, EU, France, Germany, India, Italy, Japan, Netherland, Romania, South Africa, Spain, Portugal, UK and USA.

The collections of symbols surveyed belong to studies performed in or for faculties of medicine and pharmacy, international pharmaceutical institutions, agencies regulating medicines, pharmacopoeias, pharmaceutical associations, the pharmaceutical industry, catalogues of pharmaceutical products, hospitals, medical institutes, standardization institutes, private companies and design agencies. The great majority of symbols were developed by pharmacists. In very few and specific instances there was collaboration of graphic designers.

One of the most complete systems of pharmaceutical symbols is American, and comprehends 81 pharmaceutical pictograms - USP 1989; 1997. The largest system of hospital symbols is French, and has a base of “103 central pictograms, 20 external shapes and shape modifiers, five colours, and eight top-right pictograms”, allowing over five million combinations (Lamy 2008:10). Systems can be focused on culture-specific pictograms - FIP, 2004, while others include several language versions² - such as Rad-Ar 2006. Some other systems, specific to certain diseases or treatments, are very small collections.

The existing bibliography is not entirely enlightening on the graphic production, supports, materials, printing size, formats, shape and colour of the symbols. However, we can already ascertain that there are solutions that use stickers, others that use symbols printed directly on leaflets, or on pill cards, and others that use symbols as a storyboard in a computerized A4 layout. The pharmacist is the person having the leading role in the use of the systems. It is he or she who, in most cases, handles this visual tool and applies it at the time of dispensing the medicine, according to specific medication and patient. The print dimensions of the symbols are almost never indicated. But, from the supports used - medicines packaging (boxes / bottles), leaflets, pill cards -, we may conclude that the images are of small size, approximately 10x10 millimetres.

The formats are in most cases horizontal, very rarely vertical. The colours of the symbols are mostly b&w, though different colours can sometimes be used to help distinguish categories of importance, with the help of external shapes. Colour, external and internal shape will be referred to in more in detail below.

The vulnerable audiences involved in the several systems collected are the following:

² English, Spanish, Portuguese, Korean, Chinese (Simplified), Chinese (Traditional) and Japanese.

- (1) groups presenting special reading difficulties – illiterate population, people with no knowledge or limited knowledge of the language;
- (2) groups with difficulties in remembering and / or understanding the treatment – aged population, people undergoing multiple treatments at the same time, people with lower intellectual abilities;
- (3) people who do not speak the native language of a place or are part of a different culture – foreigners, tourists, immigrants.

3. Language associated with the symbols

In the studies reviewed almost as many written messages as symbols were identified. Although using a simple vocabulary, fewer and less technical words than the leaflets, those captions pointed to a great linguistic diversity on the same message (see example in Figure 1), regardless of the language(s) used.

The captions were grouped and it was then possible to reduce them to 75 basic therapeutic messages, linked to general categories such as "hazards", "precautions" and "how to take" the medicine.

The most common therapeutic messages are warnings relating to pregnancy and breast-feeding, to driving associated with drowsiness, dizziness or sleepiness and to the consumption of alcohol. Also frequent are messages associated with the correct therapy, such as "take on an empty stomach", "take with meals", "shake well before using", "take until gone", "keep out of reach of children" or "not to give to children and babies".



Figure 1 – Example of linguistic diversity on the same message: "Do not drive".

4. Pictorial language

Pictographic language towards developing a “world language without words” (Meggs 2009:423) appears only in the 1920s with the first system of graphic signs of the Austrian sociologist Otto Neurath (1882-1945). His Isotype system (International System of Typographic Picture Education) advocated the creation of an international language of normalized images, and consisted primarily in the use of simplified images to convey information in the fields of economics and the social sciences, with humanistic and pedagogical intentions.

Neurath followed the principle that “words make division, pictures make connection” (Neurath 1936:18)³, and so he exhaustively searched to process complex statistical data into a set of graphs and self-explanatory elementary pictographs, in a language of universal reading.

In the 1960s ICOGRADA (International Council of Graphic Design Associations) was founded in London. ICOGRADA is a professional organization that has dealt with problems related to the standardization of graphic signs. After a failed attempt to establish a unified set of symbols, ICOGRADA currently maintains a very close cooperation as a consultant with ISO (International Standardization Organization), the organization responsible for the legislation and evaluation of graphic symbols.

The transmission of a visual language associated with healthcare services began in the 1970s, with the graphic sign system ERCO, designed by Otl Aicher. The vast number of pictograms designed (over nine hundred) served to give direction in various areas including healthcare (Rathgeb 2007).

In the late 1980s early 1990s, a number of collections of pharmaceutical pictograms were developed in different countries as pictorial support for medication instructions⁴ (see above, 2).

5. Internal shape of the symbols

Symbols and pictograms are used to represent messages in the form of schematic design (Fiske 1999:70). The level of visual synthesis should always be high (Costa 1989:169) and the context in which they are used and displayed is of the utmost importance.

However, for the pharmacists responsible for the development of the various systems analyzed, the main concern in the creation of pharmaceutical symbols is not just “to give directions” – as is the case of systems developed by designers – but to avoid mistakes and to alert to dangers associated with therapy in vulnerable audiences. And so, while in some of the studies reviewed the concept of an international language proved to be relevant, in others that it was of no concern at all.

³ Yukio Ota also says “words divide, images unite” (Ota,1993:26).

⁴ It is not clear which was the first collection of pharmaceutical pictograms.

In the pharmaceutical systems studied where the issue of internationalization does not arise, enhanced cultural concerns can be detected. The degree of graphic similarity of the internal shape may be higher, and the pictograms can almost be said to be able to "live" without the captions.

In systems where the question of internationalization of the images arises, the graphic detail of the internal shape may be smaller. This may make the captions attached to the pictograms fundamental for understanding the message.

Some case studies on both types of system mention comprehension and evaluation tests of the symbols and an effort to comply to the minimum percentages of correct interpretation of the ISO and the ANSI criterion norms, 67 % and 85% respectively (ISO 2006, 2007; ANSI 2006, 2007).

It should be noted here that pictograms⁵ are icons or symbols – generically, signs⁶. Icons are signs that may present a greater or lesser degree of iconicity or level of detail, but always relate to the object/reality through *similarity*. Icons try to reproduce the abstract arrangement of the object/reality by looking for relationships in its basic and intrinsic principles. Icons are usually signs where the signifying object is an objective figuration of the signified object/reality.

Symbols are used to communicate concepts and ideas which are difficult to materialize in icons. They are signs that do not necessarily "portray" the referent (reality or object) and that can also represent abstract concepts. There is always a link with reality, but in case of symbols this link is *conventional*. The relationship or correspondence between the idea or concept (*interpretant* for Peirce) and the sign/symbol (*representamen* for Peirce) is founded on social, economic, cultural, emotional or contextual reasons - Figure 2 (Fiske 1999:65). Pictograms, but also logo marks, are examples of symbols. Among symbol systems, language itself occupies a special place – not only because it is almost wholly based on pure or arbitrary convention, but also because it alone is able to relate its symbols to every part and every sort of human experience and to all things, and for this reason all other symbol systems are explained by reference to it (Robins 1971:13).

For purposes of discussion here we will refer to iconic symbols.

⁵ Or ideograms. "Pictograms are pictorial representation. A pictogram is an iconic sign which represents complex facts, not through words or sounds but through visual carriers of meaning"; "Ideograms are representations of a concept. An ideogram corresponds to the sign as a symbol which relates to the object or concept referred to, independently of any formal identification with it." (Abdullah, 2006:11). It should be noted that the formal qualities of the graphic signs may be different for different authors.

⁶ According to Charles S. Peirce (1839-1914) (Fiske, 1999:70).

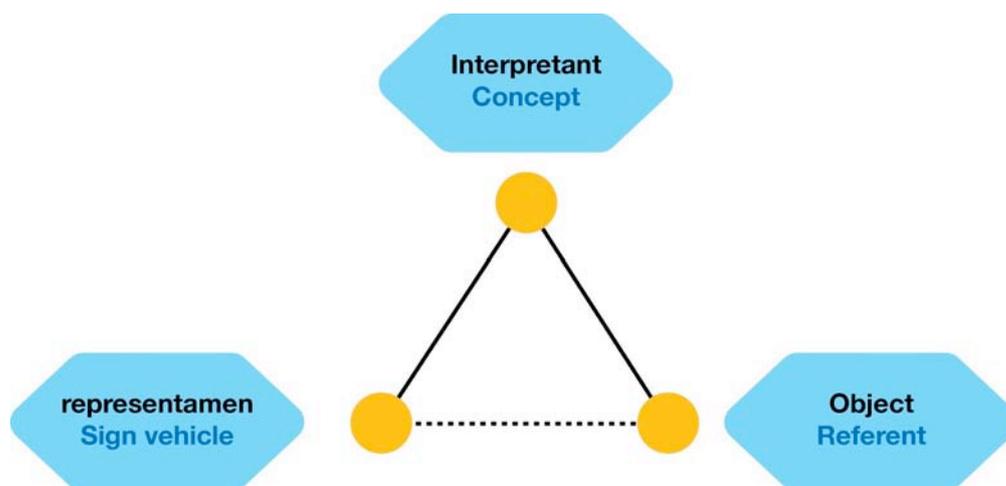


Figure 2 – The elements of signification according to Peirce.

Irrespective of there being a purpose of internationalization in the analyzed systems, it was perceptible that certain pictograms exhibit very specific cultural characteristics – that is the case, for example, of symbols representing food / meals and alcoholic beverages, and of those representing the human form or the eyes. In any of these three groups quite diverse figures were found.

On the other hand, there are messages that, regardless of the geographic area for which they were designed, use very similar images with quite "international" characteristics - that is the case, for example, of symbols relative to cares related to pregnancy (always a front or side view of a pregnant woman), or to driving dangers (front or side view of motor vehicles) or to special warnings for children and infants (the figures used to represent babies and children are very alike).

The "international" character of those symbols does not invalidate the fact that they also assume different degrees of iconicity associated with cultural issues, when those require higher levels of similarity to the referent and / or higher complexity in the figurative elements. Also because, even when there are figure similarities for the same message in different systems (for example in images relative to cares related to pregnancy), it is important to refer that these are corporate systems, presenting a specific and coherent aesthetic and cultural identity.

For symbols that have captions, the caption appears either beneath or on the right side of the pictogram, outside the external shape. Typographical concerns and contrasting printing are practically nonexistent, specially in regard to the fact that captions may contain a considerable number of words (see figure 1) and are printed in a reduced typeface size.

The internal shape sometimes integrates other symbolic references, such as isolated words, punctuation marks ("!" or "?") or arrows to draw attention. Only very occasionally are captions included within the external shape.

6. External shape and colour of the symbols

The external shape is an important factor in the differentiation and understanding of symbols. In the systems reviewed it was possible to perceive relations between categories such as "precautions", "hazards" and "how to take" the medicine and external shapes such as triangles or diamonds, circles, and squares or rectangles, respectively - Figure 3. The thickness of the lines represented in figures 3 and 4 does not correspond to reality. The same contrast was used for purposes of comparison.

Figure 3 shows that in the studies reviewed a message of "precautions" may be within a triangle or a diamond (line 1) or sometimes just a square or rectangle. A message of "hazards" is usually represented by external shapes associated with prohibition (lines 2, 3). Messages about "how to take" the medicine may come as a single pictogram or as a group of pictograms. The individual pictograms are squares or rectangles (lines 4, 5) and the groups are usually sequences of 2, 3 or 4 pictograms (lines 6, 7, 8) inside a horizontal or vertical rectangle format (lines 6, 7 and 8).

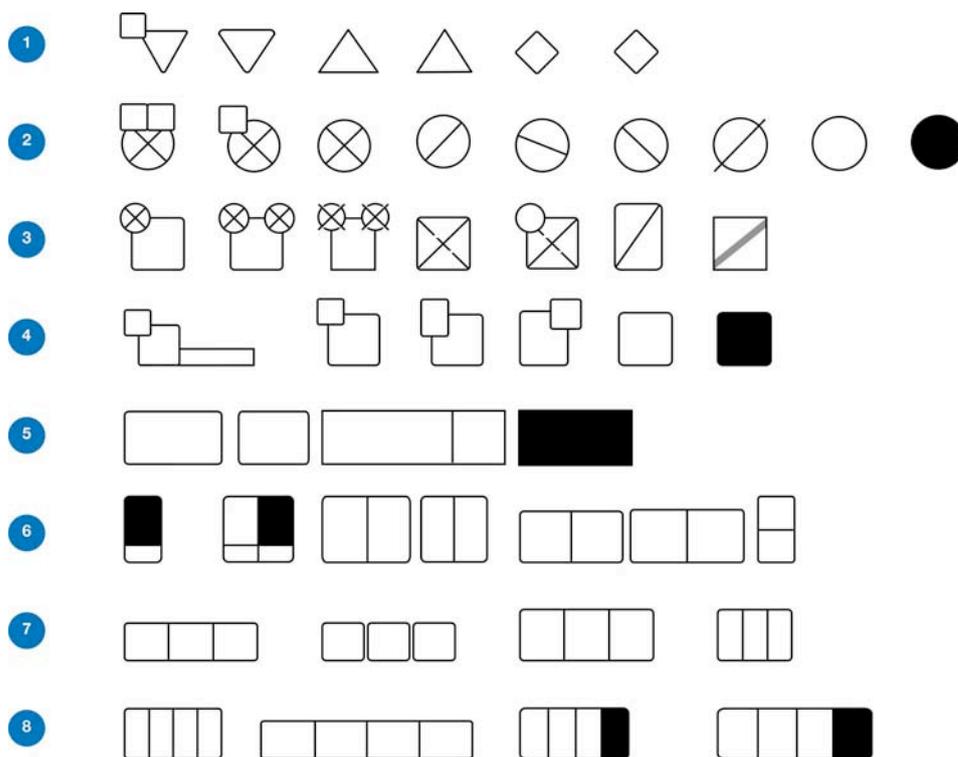


Figure 3 – Comparison of the external forms of pharmaceutical symbols.

Together with the external shape, the chromatic features of the symbols are also associated to the identification and differentiation of categories, as well as to contrast and printing technologies. Colour is a privileged means of identification that is not always available. Most of the analyzed symbols are in b&w by printing imposition -

in these situations, categories are distinguished only by the external shape of the symbols (Figure 3).

Figure 4 shows chromatic contrasts organized by major external forms and not by category or colour. In line 1 we can see colour contrasts associated with triangles and diamonds; in line 2, chromatic contrasts of circular shapes, and in lines 3, 4 and 5 contrasts of squares (including rectangular shapes). "S" represents the colour of the internal shape. So, chromatic contrasts involve three factors: the colour of the outline of four major external shapes, the colour of the internal shape and the colour of the background.

The colours used are reds, yellows, oranges, blues, greens, black and white. Each colour contrasts, in most cases, with white or black – see figure 4. The symbols in b&w are associated with any of the four major external shapes, as can be seen in lines 1, 2 and 3.

The colour range and the colour contrasts are various. Colours proved to be not always in a symbolic relationship with the symbol or the category, but sometimes simply conditioned by the process in which the symbols are printed, supplied and applied.

Red (with high contrast) means "hazards", a sign of prohibition, danger or alarm. Yellow or orange signal "precautions", special care or attention. Blue or green signal a specific action or behaviour and refer to "how to take" the medicine.

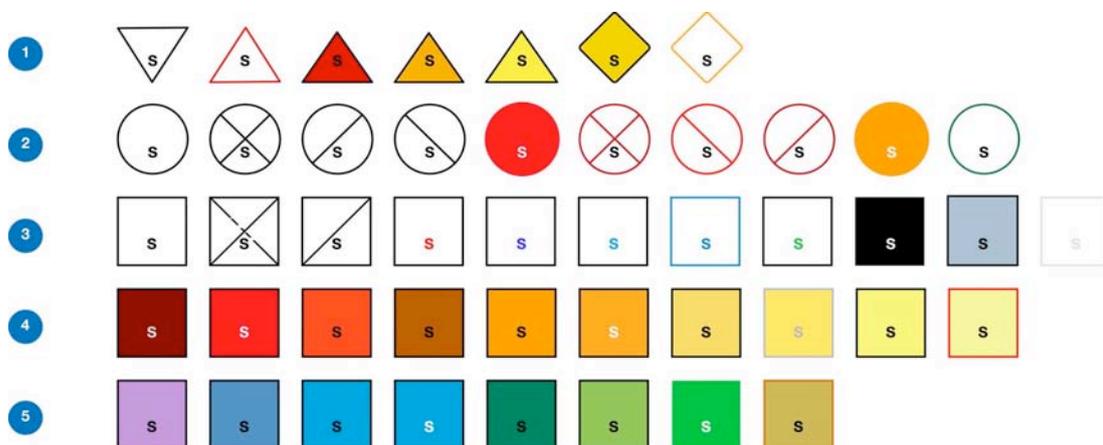


Figure 4 – Comparison of colour combinations.
 Line 1: triangles and diamonds - b&w, red, orange and yellows;
 Line 2: circles - b&w, reds, orange, green;
 Line 3: squares – b&w, greys
 Line 4: squares - variety of reds, oranges and yellows;
 Line 5: squares – variety of blues and greens.

However, there are several exceptions relating to external shape and associated colours. A symbol of prohibition may not have the external shape of a circle, or have a diagonal band, or a cross, or even use red - in this case the message relies

exclusively on the caption. Since the diagonal band is an international sign of prohibition (Dondis 2003:187), there is no need of total dependence on the caption. In those cases where people do not speak or can't read the written language associated with the pictogram, it may be particularly dangerous to use symbols of prohibition open to misinterpretation.

To summarize, symbols contrast and their readability are dependant on their internal and external shapes, on their colour, but also on their printing size, which, in the samples studied, is almost never indicated. The cross comparison of those features showed also that systems do not seem to be in any way related to or even aware of one another.

7. Legibility of iconic language

It has already been mentioned that a pictogram represents a message in the form of schematic design and that it may be more or less iconic, complex or normative. There are no strict rules for its design. However, for the decoding process to be possible, pictograms must conform to certain criteria of graphic harmony, shape and colour contrast.

Neurath formulated long ago one of the basic principles for pictograms to be international, "The symbol may not denote more than is necessary to the statement of facts for which it is chosen. (...) At the first look you see the most important points; at the second, the less important points; at the third, the details; at the fourth, nothing more – if you see more, the teaching-picture is bad." (Burke 2008).

The concept of mental image of a particular object or reality is not quite as Neurath hoped for, because perception involves a cultural process, an education, a social environment and a host of visual experiences unique for every one of us.

However there are two fundamental processes in the graphic design of pictograms, mentioned by Neurath in the 1920s, and also by contemporary authors:

(1) reduction: to check the graphic synthesis and the contrast of shapes, lines and colours.

(2) graphic harmony: to check the consistency and visual rhythm of the system.

Most of the analyzed pictograms showed high levels of similarity to the referent (iconicity), and great complexity in the number of elements used. When they were printed on a small scale they lost contrast both in forms and in lines, due to their lack of abstraction and schematization (Costa 1989:142).

The comparison of distinct pictograms from several areas shows that systems are sets of independent elements that relate and interact with one another, and whose basic principle is to simplify the message. Abrupt changes of the internal shapes in the same system - a situation that occurred in some of the samples analyzed - necessarily affect the decoding of the message, resulting in potential confusions for the public.

A pictogram must respect the principles of regularity and continuity, harmony and coherence, if it is to enable the recognition of the other pictograms in the same

system, and if it is to unlock reading barriers and contribute to a quicker and more correct interpretation.

The degree of abstraction is also linked to geometric and to freehand design. In both graphic harmony is possible. However, “it should be noted that the higher the degree of abstraction, the more uniform the images become” (Abdullah 2006:37). The major advantage of rigorous technical drawing is construction based on a grid that unifies the elements and enforces greater grammatical coherence in the whole system. In the process of graphic synthesis the perspective of the internal shapes (2D, 3D, front-, side-, topview) is also important, it is necessary to search for the best point of view from which to simplify and represent the referent.

In addition to the factors listed here, “the legibility of pictorial symbols is also based on the conditions of use, and especially on the expectations of users” (Massironi 1982:122). The cultural context and the comprehension and evaluation tests of the symbols are therefore crucial.

Conclusions

Pictograms have evident limitations but also advantages in relation to spoken and written language codes.

It is manifest in the samples that there is a great variety of representations for the same therapeutic concepts. The systems of pictograms and/or symbols do not seem to be related to one another (or aware of one another). Not all of them were subject to usability tests. Cultural differences in representation are evident.

The graphic representations found ask for a more profound study from the cultural point of view of their graphic legibility.

But it is already possible to ascertain that, in the case of the forms of representation for certain concepts, it is particularly revealing to characterize the images graphically (with reference to the level of abstraction/similarity, simplicity/complexity, and to the graphic norms for technical design used). And that the comparative characterization of those images proves to be very enlightening in cultural terms.

Keywords

Medicine/Drug use. Community pharmacy services. Therapeutic indications. Design of Pharmaceutical pictograms. Symbols graphic legibility. Cultural contexts.

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The Emergent Role of Design as a Mediating Force in Socio-cultural Transformation

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Abstract

This paper considers the role of the designer as a mediator in planning and policy delivery. It discusses the implications for a definition of design arising from a doctoral research project that examines design's contribution to community development.

Design continues to expand into new territories of practice, seeking to reframe its purpose as a catalyst for organisational innovation and systemic transformation. Fry (2009) describes the potential of design as a "*pathfinding means to sustain action countering the unsustainable while also creating more viable futures.*" Co-design, service design and transformation design are terms that describe new approaches within design that have been applied to complex social issues such as health, inequality, crime and social exclusion (Lee, Y., Cassim, J. 2009). However, support of action on such issues has largely been explored through the use of creative methods applied through the design process. If design is to effectively assist sustained and meaningful transformation, it must develop an understanding of practice suited to social organisation. This paper asserts that if design is to realise its potential as a catalyst for behavioural change, cultural re-orientation and social innovation then it is crucial to first re-design design.

The paper discusses findings from a field case study conducted in Clackmannanshire, a region of Central Scotland. Local community planning objectives on issues related to health and wellbeing was used as an anchor from which to navigate beyond conventional boundaries and explore actions. In essence: the project was rooted in a real-world policy context, but unconstrained in its methods or scope. The objectives were two-fold: to understand issues relating to effective planning and delivery, and to recognise the transferable attributes of design practice in such a context. The paper argues that an effective design intervention must focus less on the objective of problem solving and more on mediation as a method for design in its new age.

Conceptualising design practice with social mediation at its core has profound implications for the required skills of the design practitioner. It therefore seems reasonable that engagement with new challenges and contexts of practice will require fresh approaches to education and training. The paper concludes by identifying some policy implications for design education and practice.

The Need for Change

By the turn of the 20th Century the industrialisation had transformed our collective values, economic growth, facilitated by technological innovation and mass communication became the dominant measure of progress. Egalitarian concepts of democracy were pursued through the production of utilities. At the turn of the 21st Century the banking crisis, environmental degradation and widening inequality are all symptomatic of the need for a deep reassessment of our current values. It is now widely acknowledged that action must be taken. The values, which drove industrialisation, enjoyed a mutually reinforcing relationship with the emergence of design as a profession in the first half of the 20th Century. This paper will explore contemporary issues of understanding in relation to transformative objectives and their relevance to design.

Humberto Maturana (1997) argued that in contemporary culture our constructed reality is dominated by two permeating ideologies, “the market justifies everything, “and progress is the value that transcends human existence.” The dominant problem therefore appears to be one of understanding what action should be taken; realised and meaningful transformation will require new ways of seeing. Political theorist, Hannah Arendt described previous attempts to break with modern structures of thought as unsuccessful (Arendt, H. 2000), reasoning that in the reassessment of value and hierarchies, conceptual frameworks have largely remained intact. It seems therefore that transformation will require us to transcend prevailing structures of thought in looking to new solutions.

Realised and meaningful transformation will require participation from everyone (Manzini, E. 1998., Papanek.V. 2001). Furthermore, it will require an uptake of individual and collective responsibility across every area of society (Papanek, V. 2001). However, it is widely observed that current policy and planning frameworks do not adequately support opportunities for social innovation (Boyle, D. 2010, Spratt, S. et al. 2010). Sustainable development is now a commonly referenced concept; concerned with the balance of social, economic and environmental agendas the aim is to “*meet the needs of present generations without compromising the ability of future generations to meet their needs.*” (Brundtland, G. H. 1987) The current political definition of sustainable development derives from the Brundtland Report (1987). Submitted to the United Nations Environmental Programme in 1983, the report sought to address accelerating environmental degradation and increasing social inequality through sustainable growth. In doing so it expanded the ecological concept of sustainable development to encompass social and economic considerations. It acknowledged that while there were threshold limits with regard to the consumption of resources, economic growth could co-exist with environmental interests: “*Growth is absolutely necessary to overcome mass poverty ... how else without growth, can we hope to cope?.. if they are to escape the poverty trap.*” (Brundtland, G. H. 1987)

It therefore did little to subvert the dominant ideologies of New Welfare Economics, implemented in the 1930's that an increase on collective wellbeing relied on an increase in Gross National Product. These principles are still prevalent in European policymaking, the Europe 2020 Strategy, (2010) reviewed Europe's progress in relation to the Lisbon Agenda post-economic crisis. In address of structural weaknesses exposed by the economic crisis it focuses on sustainable recovery as a prerequisite to sustainable growth. Greater investment in R&D and innovation, increased use of ICT and a more dynamic business environment are outlined as the means to address the '*productivity gap*' which has widened between Europe and its main global economic partners. Technological innovation applied within an industrial economic framework is still pursued as the dominant model of progress.

Homer-Dixon (2000) asserts that healthy societies require a balance of both social and technical ingenuity through an iterative of relationship of positive and negative feedback. While principles of subsidiary action are applied in theory at the highest levels of policy, the practical application does not currently deliver (Spratt, S. 2010). In a competitive culture which focuses on rapid technological innovation social ingenuity can fail to keep up, when this happens an '*ingenuity gap*' forms (Homer-Dixon. T. 2000). The revaluation of our current value systems and hierarchies will require greater clarity at a policy level on the realistic interrelation and prioritisation of social economic and environmental objectives (Orr, D. 2002, Spratt, S et al. 2010).

The Design of Transformation... or the Transformation of Design

The need to assess the relationship between technology, the environment and social capacity for action has had profound implications for design. The potential of human '*resources*', '*research*' and '*intelligence*' have not yet been sufficiently realised (Manzini, E. 1998., Homer-Dixon, T. 2000). The increasing address of ecological and social issues concerned with equity and wellbeing (Sangiorgi, D. 2010) considered in conjunction with Manzini's (1998) proposal of community products, such as, washing centres and collective kitchens represents perhaps one of the most significant shifts in contemporary design practice. While concepts such as cooperative washing centres may not be new (Manzini, E., Jegou, F. 2003) their application in the mainstream represent a dramatically different forms of social organisation.

While community products look to service solutions for collective use, their practical realisation re-frames application re-centres social design objectives beyond products and services, to crafting conditions for change. Victor Margolin (2000) describes two distinct functions of design research, the first being the practical knowledge required in the creation of commodities, and which commodities may be created. The other is to understand the application of these commodities and their subsequent social function. However, "*if we are to move the question of what is to be designed outside the confines of market driven concerns, then we need new ways of understanding better the relation of design to the satisfaction of human purposes.*" (Margolin, V. 2000. P.4)

If design has a role to play in effecting true socio-cultural and socio-political transformation a deeper understanding of what that role may be and the principles of

practice which inform it is required (McKee, L., Press. M. 2009). With the emergence of service design as a recognised discipline in the 1990s services were initially seen as products. This view evolved to the perception of services as complex, '*relational entities*' (Sangiorgi, D. 2010). While products may be produced in process, it makes a transition from a systemic view of services grounded in conventional objectives of product creation to one of navigating relationships. It acknowledges that solutions can never be fully realised or controlled by the designer (Sangiorgi, D. 2010., Findelli, A 2001). Sangiorgi (2010) explains that in recent years this view has evolved further and services are no longer conceived as *ends in themselves*, but are increasingly considered as an engine for wider societal transformations.

New Design Spaces

As social design objectives increasingly aim to push beyond conventional boundaries in the navigation of everyday life, the scope expands beyond focused service interventions to multi-organisational systems perspectives. The Southwark Circle (2008) project carried out by Participle to address issues relating to an ageing population in the U.K places an emphasis on social equity and regional development. Reframing dominant design objectives from economic to social concerns will require the development of new ways through which design can navigate higher levels of complexity, ambiguity and uncertainty (Margolin, V. 2000). In doing so it must find ways to transcend the confines of process, economic objectives and its relationship with commodities (Fry, T. 2008) and to reflect back in identifying which attributes are transferable.

New Design Spaces was a field case study conducted in Clackmannanshire, Central Scotland between September 2009 and November 2010. The study sought to explore possible applications of design in crafting conditions for mindful transformation. The study was grounded in a context of regional planning and policy development as a mechanism through which to take a meta perspective of design and better understand the requirements of design practice suited to processes of social organisation. It involved collaboration between Clackmannanshire's community planning partnership (the Clackmannanshire Alliance), the University of Dundee Master of Design and Fine Art students, local organisations and residents.

Community planning processes are now a primary vehicle for regional planning and policy delivery in the U.K. The operational aims are to make sure '*people and communities are genuinely engaged in the decisions made on public services which affect them*' and for '*organisations to work together, not apart, in providing better public services.*' (Scotland. 2003) Strategic plans, known as Single Outcome Agreements (SOAs) were outlined by each Scottish local authority in 2008 to reduce inequalities and boost sustainable growth. Action was to be delivered through local community planning partnerships and financed until 2011 by the Fairer Scotland Fund.

New Design Spaces explored issues affecting cohesive regional service development relative to objectives of the Clackmannanshire Alliance. The methodological approach was emergent throughout and developed responsively to insights as they surfaced through research. Objectives were therefore left deliberately open at the outset. The study involved,

- A one month **residency** to obtain an organisational, socio-cultural and socio-political understanding of the region
- Supervision of a **practice-led design project**, *Co-creating Change* with Duncan of Jordanstone College of Art and Design, Master of Design and Fine Art students to explore local social needs through the application of creative research methods.
- A **multi-organisational workshop** to identify the strengths and weaknesses in current service provision and opportunities for core service development.

A rural region of only 490,000, industrial decline has had a profound impact on Clackmannanshire. Poor transport links and relative geographic isolation has exasperated issues of intergenerational unemployment and poverty. In 2008, 23.6% of Clackmannanshire's population lived in one of the 15% most income deprived areas in Scotland. Pockets of extreme poverty co-exist with areas of notable wealth, inequality is polarising through the regions development as a commuter belt. Since 2008 transport links to the area have seen significant improvement, creating opportunities with regard to tourism and inward business investment.

The residency took place across January and February 2010. Organisational engagement, interaction with local residents and experiential insights provided a comprehensive understanding of the official and unofficial picture of Clackmannanshire. Immediate objectives were to meet as many organisational stakeholders in the community planning process as possible to get to know the structural, organisational and laterally the hierarchical landscape. Beginning the study without tangible objectives or a clear purpose initially presented challenges in communicating expectations and objectives. At times the complexity of the organisational landscape was overwhelming. As a designer the absence of a visual understanding presented a challenge.

Findelli (2001) explains a structure of design process in the address of organisational change, in contrast to the dominant model of process the start point; instead of being a problem or need is simply a *state*. The end point, as opposed to a solution is also a *state*. In this situation the designer is situated within the process alongside the *user*. The lack of a predetermined direction made nothing, yet at the same time everything relevant. While many people could sketch or verbally outline their own organisational or departmental parameters and closest partnership connections, there was no big picture from which to work. This raised the question of how, and if design could support cohesion in the planning process, by making tangible the interrelations between organisations?

In the delivery of planning objectives, it emerged that council officials concerned with streamlining national policy objectives into the planning framework, rarely saw the impact of delivery in the communities. This insight illustrated the need for greater feedback and between local people, front-line workers and decision makers.

Initial consideration was given to methods of visualisation at a systems level to support understanding. However, mapping organisational and qualitative data at a regional scale involved unmanageable levels of complexity, real depth or qualitative understanding was lost depending on how the problem was re-centred. Visual representations of the landscape would only attempt to fix meaning and thus the fluid,

adaptive nature of social organisation rendered it impractical as a long-term planning tool. The challenge became one of defining the scope.

The complexity of actual needs in contrast to assumed needs and the complex factors and variables that must be taken into account in multi-organisational service provision required a deep level of understanding. The first priority therefore was to define realistic parameters and acquire an understanding of action based on those needs. Recent research demonstrated that health and social issues increase with relative levels of inequality. This holds across national, regional and neighbourhood scales (Wilkinson, R., Pickett, K. 2009). The thematic framework for delivery of community planning objectives in Clackmannanshire encompasses four overarching areas; health improvement, positive image, substance misuse and employability.

The majority of Fairer Scotland Funding has been invested in employability with a focus on skills and training, more than double that which was invested in health improvement. Issues related to poor physical and mental health are intrinsically linked with income deprivation (Scotland. 2008). Supporting people in address of complex needs requires variable and flexible pathways of support. This was demonstrated in the organisational structure of Clackmannanshire Healthier Lives (2010), a Fairer Scotland Funded anticipatory healthcare initiative focused on a people-centred approach to improving individual health and wellbeing, *“CHL aims to help people improve their health and employability through assessments and tailored packages of support designed to meet clients’ specific needs.”*

A weak labour market meant that even when people were ready for work there were few employment opportunities; the cyclical relationship between health, wellbeing and income deprivation represents a complex problem to local authorities.

Two questions emerged,

- How might design support the development of a core service infrastructure capable of meeting complex needs and supporting people into employment?
- Can new objectives for economic development and models of job creation surface through a contextual understanding of needs and opportunities?

Throughout the residency, insights were fed back to a group of three Masters of Design and one Fine Art student. They visited Clackmannanshire and met with a senior community learning and development worker and representatives from Clackmannanshire Healthier Lives. In 2010, 30% of adults smoked, significantly worse than the 25% across Scotland as a whole (NHS National Services Scotland. 2010). As a starting point, the students were asked to explore local smoking rates and respond accordingly. The brief was left deliberately open and emphasis was placed on deep research and understanding with no set parameters in relation to outputs.

At the outset the design students found the openness of the brief uncomfortable. Being asked to set their own objectives through research and reflection required them to navigate higher levels of ambiguity than they were used to dealing with. The 2008 Health and Well-being Profile for Clackmannanshire (NHS National Services Scotland. 2007) highlighted that 33.7% of mothers in Clackmannanshire smoked during

pregnancy in comparison to 24% across Scotland. By 2010 this number had fallen slightly to 29.9% in line with national patterns (NHS National Services Scotland. 2010).

Based on these statistics and further conversation with local organisations the students refined their focus to women aged 18-24. To obtain a deeper understanding of the issues surrounding high smoking rates, a temporary photographic studio was set up in an empty retail space on Alloa High Street (Clackmannanshire's largest town). Designed to be playful and informal, the event benefited from the energy of town centre arts initiatives that were already taking place. A press release was issued and information about the event broadcast on local radio.

To prevent the impression of negative stereotyping and to allow for a broad understanding, the studio was open to all, smokers and non-smokers. People were asked to come along and have their portraits professionally taken while discussing their thoughts, perceptions and experiences of smoking. The information obtained was transferred directly into workable personas. 25 people participated; each was given a high quality portrait in return, some of which were later displayed in a public exhibition.



Figure 1 - Photographic studio

The photographic studio (fig1) was followed up with street interviews. As a tool for engaging with people however, the street interviews were less successful. On reflection the students found that people were more evasive and defensive when approached in the street. It emerged that as method of engagement the photographic studio was much more effective in providing a creative, neutral space for conversation.

Boredom, isolation and stress emerged as significant factors contributing to high smoking rates and presented challenges in relation to smoking cessation. In addition

they relied less on conventional methods such as nicotine patches than on networks of support. The information was collated and synthesised in a workshop at Duncan of Jordanstone College of Art and Design, and examined from different vantage points. In conclusion the students found that a lack of affordable, accessible childcare in Clackmannanshire reinforced problems of social isolation for young mothers. It created barriers of access to a range of opportunities from health services, skills and training, volunteering and employment options.

During the feedback session the viability of new service development in the current economic climate was called into question. The question of how these services would be funded was a primary concern. It emerged that there was no cohesive understanding of how current childcare service provision linked-up across the region in relation to people's needs. The absence of clarity suggested the need to refocus the question to how an understanding of current childcare provision could be obtained. This defined the parameters for a multi-organisational workshop with public, private, third sector organisations and local residents (fig 2). The workshop visually mapped current childcare provision against areas of deprivation and local schools. It explored issues of access and availability in relation to time, geographic location and affordability



Figure 2 - Mapping current childcare service provision

By exploring strengths and weaknesses in current childcare provision visually, participants made linkages across organisational boundaries. Exchange of knowledge and experience contextualised visually provided a basis of shared understanding upon which to identify gaps and opportunities for address in a brainstorming session. Combined experiential knowledge and insight produced a range of possibilities for new service development and service redesign. Key ideas, such as mobile service provision and the utilisation of existing spaces were explored further in conjunction with a variety of financial and organisational frameworks. Possibilities of public private partnerships, business incubation, social enterprises and volunteering opportunities emerged through identification of potential resources for service redesign and new service development in relation to needs.

A number of participants identified possibilities from within their own roles in the area to support future objectives such as exploring contact points and connecting others to the process. The approach taken in the workshop was described as ‘*non-threatening*’, giving everyone the opportunity to contribute. One participant explained that as a local mother she enjoyed sharing her experiences in this environment. Positive feedback was given with regard to both the workshop and the methodological approach of *New Design Spaces* and the possibility of adopting similar methods in the future:

“Approach is essential to engage a wide range of stakeholders. Need to more of this type of event – joint planning.”

“Good approach, inclusive and utilising good community learning and development principles. Need to do more of this.”

Participants identified potential next steps for development:

- To understand the demands for childcare in Clackmannanshire a further mapping of needs would be required
- Incorporate more stakeholders into the discussion to move it forward such as, community, private sector, parents, employability organisations and toddler groups
- Identify opportunities for social enterprise development and include it in social economy action plans
- Explore how childcare initiatives could support people into education and employment
- Research other examples of good practice

Design Mediation

New Design Spaces surfaced a number of insights relevant for address at a policy level. Primarily responsibility for the realisation of transformative objectives through subsidiary social action must begin at the highest levels of the government. Short-term political goals place unrealistic targets on local authorities and finite funding streams place pressure on regional development initiatives to produce quick, measurable results on complex social problems. Ultimately, this deprives community-planning partnerships of the necessary space and time to take realised and meaningful action based on a qualitative understanding of complex factors and variables.

While community planning advocates a more subsidiary approach to policy making, fieldwork in Clackmannanshire demonstrated that in practice without greater support in implementation it would remain tokenistic. As the old gives way to the new a much deeper level of reflexivity and social participation is needed. The flow of both positive and negative feedback will require the development of frameworks capable of supporting this. The current culture of short-termism has reinforced a fear of complexity amongst local authority decision-makers, at many points during the fieldwork this surfaced in a delegation of responsibility to the public. The lack of effective mechanisms capable of navigating increasing levels of socio-cultural complexity and consequent systemic fragmentation has alienated policy makers from those tasked with delivery. Furthermore it has alienated much of the public from the socio-political

system of which they are a part. Pressure to deliver within strict parameters through conventional methods of measurement encourages answerability to the system not to the people who solutions are designed to serve.

Social systems organise through unending, unpredictable processes of iteration and adaption as they respond to changes in their local environment (Wheatley, M. 1996), change within the system will spur a reaction, the consequences of which cannot be predicted. A system cannot be acted upon, only within (Findelli, A. 2001). Working within the system therefore “*it is not the design of a specific structure but rather the conditions that will support the emergence of the necessary structure.*” (Wheatley, M.1996). New Design Spaces highlighted a mediatory role for design practice focused on crafting conditions for social transformation.

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Acknowledgments

This research was developed in Duncan of Jordanstone College of Art and Design, University of Dundee.

With thanks to the Arts and Humanities Research Council.

Vertigo

An innovative approach for design interpretation



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Abstract

This paper aims to present and debate a museological and museographic initiative in the area of Portuguese Design. The project is not so much a museum as an Interpretation Centre for Portuguese Design (ICPD), whose role will be to investigate (gather, connect, study, classify, communicate and display) the extent of the heritage of Portuguese artefacts, presently dispersed about the country and at risk of disappearing into oblivion. We believe that an “reverse design” approach (a term that has been coined through analogy with “reverse engineering”), involving retracing the creative process from the object itself to the idea that gave rise to it, will enable us to identify a particularly Portuguese identity for these artefacts, which will do justice to its long history and the wealth of geographic and cultural influences that have contributed to it.

1. Introduction

Till now, little thought has been given to the matter of Portuguese design, and there have been few systematic disciplinary surveys into the existence and history of Portuguese artefacts. This deficiency is reflected by an apparent lack of public interest in the subject, the incorrect use of the concept of design, and above all, by the scanty attention paid to its culture on the part of industry and the State, with devastating consequences for the international affirmation of its identity and obvious obstacles to its future.

Our project is based on the following assumptions: (a) for the effective evaluation of material culture, the operative vision of Design is required allowing the uniqueness of that culture to be fully recognised; (b) the divulgation of this culture and its public recognition brings economic benefits, and rises self esteem of that region; (c) the

construction of interactive narratives using information technology will transcend the limitations (of both time and resources) imposed by the construction of a physical collection, while simultaneously providing a space for shared critical debate.

The use of information technology to capture and reveal these artefacts, using a dynamic and multifaceted form of representation open to new forms of interaction (i.e. multi-touch devices, augmented reality), will encourage public intervention, promoting the participation in the reconstitution of the meanings attached to the experiential dimension of these artefacts.

This paper presents a strategic overview of our project, some related works, and also describes a methodological approach that we have termed “reverse design”, applied in a PhD research process into the four hundred year history of Portuguese poster design.

A preliminary response to a series of research questions that may be summed up as follows:

How to configure design research to add a new hermeneutic dimension – a design perspective - to historical, anthropological and ethnographic perspectives traditionally used in research about material culture?

2. Related works and a strategic vision

Since 2002 we found stimulating to ponder about the concept of a museum of Portuguese Design from a Design perspective [16]. The proposed models represent a convergence of opinions of researchers, designers, and consultants with abundant experience in the field of design operations/companies but never found bearers of the idea whom were able to entirely implement it. Nevertheless gained a logical, political and simultaneously guiding dimension of some routes of research in the area of design at the University of Aveiro (UA).

Strategically we decided to develop research within related topics like Portuguese Design History [8][11][12][14] and Design Theory [28][29][17]. Cases studies were launched whenever opportunities appeared at institutional level: a collector gave the University of Aveiro 30,000 Portuguese posters and making them available on the Web [31], suggested the need for a new approach for cataloguing those artefacts [10] and their interpretation [6] motivated a Phd on Portuguese poster history [13]; a study of Portuguese brands and products made by BA students became a exhibition and workshop both at Aveiro and at RMIT (University of Melbourne, Australia) [1] and research about Portuguese footwear (Sanjo) was shown at the Innovation Center, Central Saint Martins College of Art and Design, University of the Arts London as a result of a on going PhD [2]. Other applied research led to MSc dissertations: Porto wine identity, motorcycle design, the brands of Portuguese main cities or the symbolic and identitary permanence of Portuguese culture in contemporaneous jewellery are some examples of those efforts. On researching about Virtual Museums [5][7][9][19] the intent was to encourage changing from the initial utopia to an e-topia, that is, strengthening initiatives towards building an immaterial museum on material culture.

If with Malraux [26], the imaginary museum gained a sentimental dimension, builder of meaning, with the “freedom” of virtual worlds, one can go through a

voyage in time and space, building a network of reasoning. A novel concept of museum which arises from the emergence of a society model which is characterised by [25][22] multiplicity, acceleration of time, amplification/reduction of space, individualization of paths, interactivity, privilege of the present and by a constant changing in meaning production [3].

The Centre for Portuguese Design (CIDP) project will contribute to the advance of knowledge in three main interrelated domains:

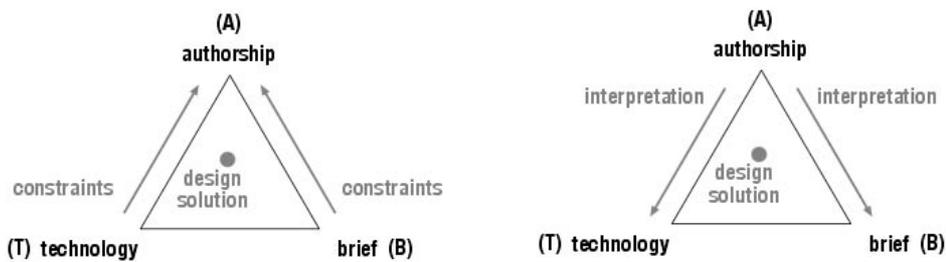
(1) Artefact interpretation based on a design perspective: we will focus in this theme the next topic;

(2) Optimized interactive representation of artefacts: on-line design museums do not generally seem to take maximum advantage of the representative and interactive potential offered by computer technologies [15], instead, they are often limited to providing historical data, information about authors/artists, and a picture of the artefact in question. By using new interactive possibilities opened by the development of augmented reality within the web [4][24] a stronger sensorial experience will be enabled, closer to the real, with greater capacity to dynamically articulate the correlative information with the logic of the physical use of an object. Exploitation may be focused not only on the artefact itself but also on information associated to it: texts, videos, CAD models, audio, images and hyperlinks. The digital representations and interpretations for each artefact will have specific treatment in order to motivate inferences about the reasons behind its design but also the reasons behind its use and meanings within the time frame of its existence.

(3) Sharing of personal narratives about the artefacts: current Web technology enables the public to participate in the development of artefact interpretations namely through the construction of personal narratives and documents [21]. This issue will be fundamental to capture the way meanings are conveyed by products enabling further understanding of their semantic dimension [23].

3. Artefact interpretation based on a design perspective: a “reverse design” approach

One of our main objectives is to develop “reverse design” which could be defined as an analytical framework to decompose an artefact and understand the process that led to its conception. This new hermeneutic dimension will be centred on the study of the morphogenesis, motivation and opportunity of artefacts (products, devices and services). It involves highlighting the semantic and abductive dimension of the artefacts by, on the one hand, uncovering the series of decisions which led to a particular solution, and on the other, demonstrating the proliferation of meanings that the market promotes and its use provokes. This tool will depart from the triangular design model (Fig.1) proposed by Francisco Providência (2003).



(Fig.1) Theoretical model developed by Providência at the University of Aveiro (Barbosa et. al, 2002).

This model provides a framework in which design space (or the solutions proposed by it) is represented as a triangle, the vertices of which represent authorship (A), technology (T) and brief (B). From this model we can deduce that design is a process of meaning creation, involving an interpretation (authorship/syntax) of the various constraints that derive, either, from the specifications given in the brief (semantics), or from the technological possibilities available (pragmatics). Experience, culture and attention to social signs that characterise a particular time and space all contribute to this interpretation (Barbosa *et. al*, 2002).

Authorship presupposes innovation, valorization, uniqueness, intention/willingness and identity, while technology is related to the means of production and reproduction, and to issues such as standardization, regulation and optimization. The brief involves desire, necessity and the specifications of the artefact's characteristics and functions.

Four hundred years of history of Portuguese poster design

The applicability of this model, as an analytical tool, is currently being demonstrated in a research project undertaken in the context of a doctorate into the history of the Portuguese poster design between the 17th and 20th centuries (the first record of a Portuguese poster in the National Library of Portugal (BNP) archive is from 1640). This makes use of the two largest documental archives in Portugal: 1) the BNP, which contains 18,941 (catalogued) posters; 2) the UA collection (about 30,000). The main objective was the construction of a design narrative distinguishable from other perspectives (the historical, sociological and anthropological) while recognising that this is a contaminated narrative, as interdisciplinarity is also part of the genetic code of design.

The research followed three main directions:

a) **The history of the poster itself as an object** has contributed to an understanding of the artefact's name, the boundaries of the term and the transformations that it underwent over time, and led to a categorization of posters into historically identifiable types, and to draft a new definition for the poster.

b) **The history of Portuguese material culture** offers an ecological framework for understanding the poster evolution. That is to say, at any given moment, the posters were correlated with the system of objects into which they belong, with political, economic and sociocultural contexts and with the technological developments influencing production and reproduction.

c) **Analysing the poster through its visual rhetoric** it was possible to perceive and reveal the outlines of its poetic construction. The identification of moments of formal “rupture” corresponded, methodologically, to a focus upon the relationship between authorial dynamics, technologies and briefs, and the constraints that these imposed (and impose) upon the designer's freedom; thus, the result at each moment manifests the possible representation of the design concepts. We also recognise the importance of studying the meanings the "uses" of these artefacts. Despite the fact that this experiential aspect is lost in time, it may be partially recovered when it emerges in other discourses (for example in pictorial or literary works, or in the succession of definitions conserved in dictionaries). Any artefact, irrespective of its period, will have also a 'use' for a professional or design scholar, which will always be a valid source for the comprehension of the conceptual phenomenon.

Given the sheer size of the universe under study (something like 49,000 posters), it was necessary to constitute and refine a representative sample of posters that reflect the dynamics of poster evolution, avoiding a “heroic approach” mentioned by Conway (1997).

It is important to point out that the bibliography consulted did not contain a single reference to criteria that could be used for the selection of posters in a context such as this. This was not a matter of applying an algorithm, but rather of filtering the search to recognise visual arguments that support the analytical orientations mentioned above: for example, the representation of text and image were taken into account, as was the developing relationship between them.

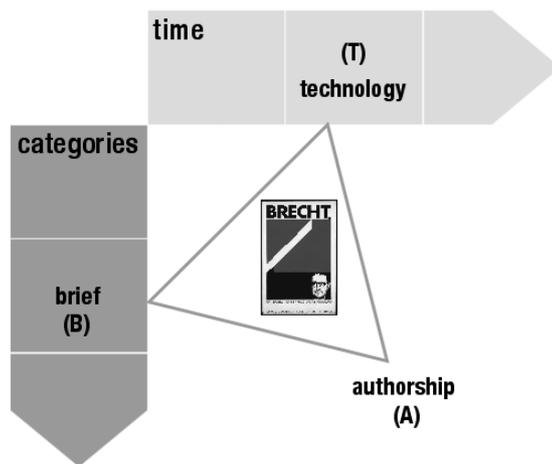
The analysis of contents, enabled hypothesis about the original brief, and enabled not only the division of the posters into categories and subcategories, but also the identification of particular characteristics, which altered in different periods. We sought to construct a sample that offered a representative spectrum of various themes, distributed across the chronological period covered by this research, to enable an understanding of the variations within subcategories and detect the appearance of new ones. But we also tried to maintain items that revealed something of the historical and sociocultural context in which they were produced, such as design-related themes, relevant historical events and the divulgation of Portuguese brands that became national icons.

One objective criterion adopted for this selection was the date of production, in order to ensure that the sample contained a suitable spread across the chronological period under study. The result of this first selection phase, in which these criteria were applied to the poster collections in the BNP and UA, resulted in a sample of 3,706 posters, of which 2,080 belonged to the BNP and 1,626 to the UA. In a second phase, this number was reduced by eliminating posters that were repeated in each collection, those that were visually similar, and also that had no chronological indication, resulting in a reduced total of 1,962 posters.

We thus attempted to define a ‘new territory’ of knowledge about the Portuguese poster directly from the object, based upon the organization of the sample according to two axis: one corresponding to **time** and the other corresponding to a classification based on **three brief typologies – the political, cultural and**

commercial poster¹.

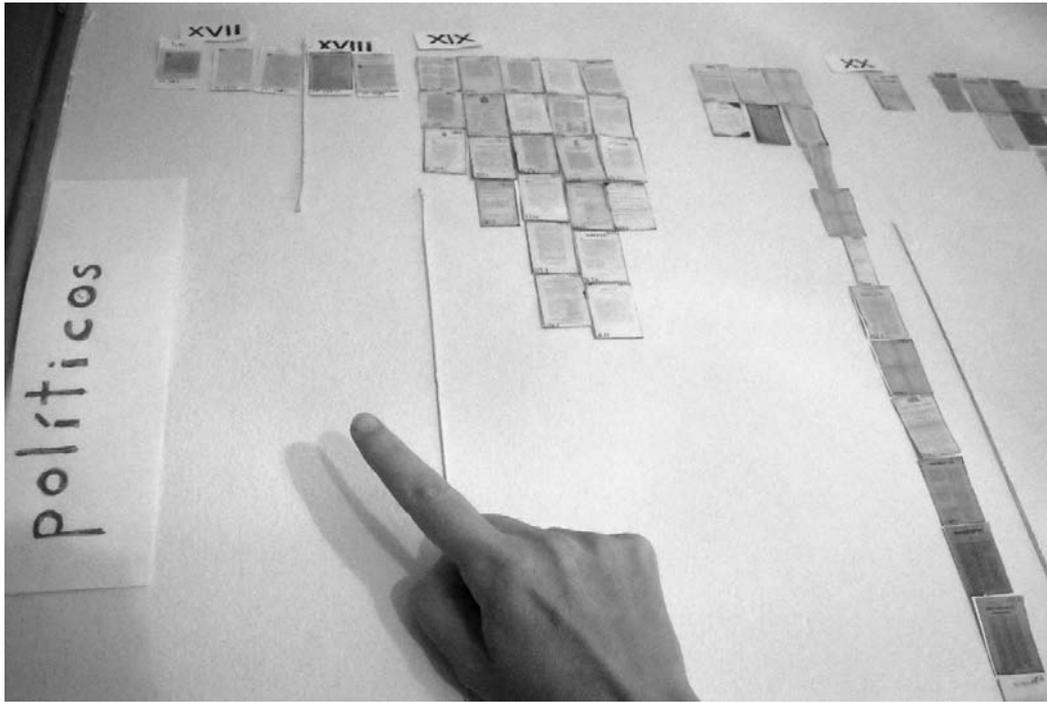
Categorising posters in this way enabled the alignment of the posters along these axis and permitted their contents to be classified, firstly, in accordance with social, political and economic contexts, whose relationship clearly extends to the production technologies used, and secondly, with relation to the way visual discourse varies in accordance with genre. In organising the sample using the triangular analytical model, the vertex 'technology' moves along the chronological axis (reflecting technologic and contexts evolutions), the 'brief' vertex relate to the classification of the posters by category (reflecting different purposes), and 'authorship' vertex reveal itself in each artefact through its visual rhetoric (Fig.2).



(Fig.2) Relation between the triangular model and the organization of the sample.

Then the posters were reproduced in miniature (2.5 cm X 3.5 cm) and placed on a wall (Fig.3) in accordance with the axes described above.

¹ Classifications used by Abraham Moles (2005) e Françoise Enel (1974).



(Fig.3) Detail of the wall of 1,962 posters miniatures.

The entire sample of 1,962 posters could now be viewed at once, provoking some interesting intuitive interpretations. Ultimately, this was designed to function as a visual tool to support the selection and commentaries of a series of specialists, who were invited to give their opinion about the ‘posters’ displayed.

This operated as a kind of ‘peer-assessment’, and no criteria was suggested to influence the selection. Each specialist had to select (Fig.4 Col.2) a set of posters, for each category, covering the time span of the sample and justify each choice individually. The commentaries, which were recorded with their permission, yielded a wide range of qualitative assessments, reflecting each guest’s individual experience, and also pertinent design issues evoked by each object.

These choices and arguments opened up a new perspective upon these artefacts, not only through the analysis of representations but also the memories that these posters evoked. This perspective emerged from the variation of the specialists discourses, either focused on visual rhetoric (when the comments concerned posters from the past) or mixing direct emotional experiences (when more recent posters were involved).

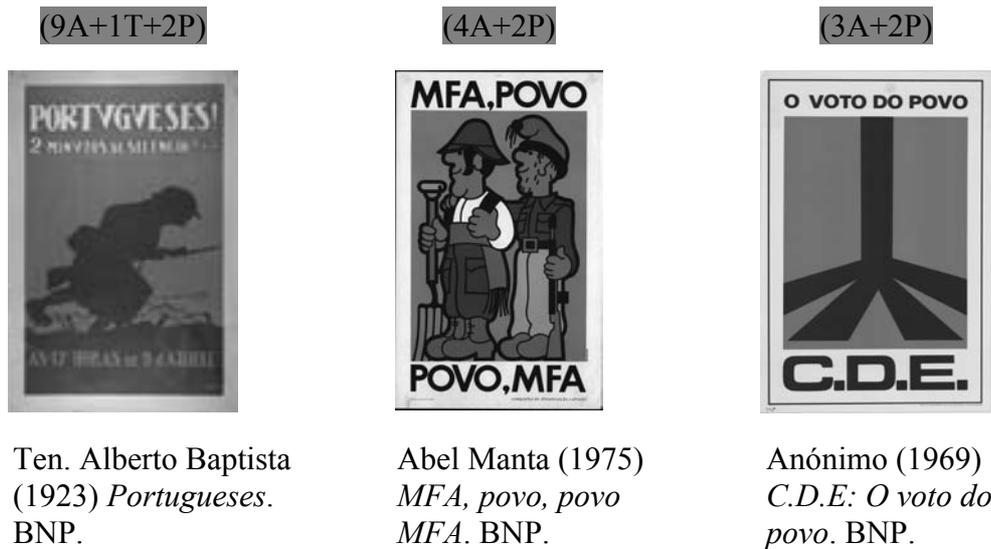
Thus, the sample was once more reduced, this time to a total of 240 posters (Fig.4 Col.5), as the specialists’ choices frequently coincided (185 out of 425 possible choices). Indeed, the number of posters that were repeated in the specialists’ selection was around 37.29% of that group, with a temporal distribution as shown in the table below (Fig.4 Col.7).

	1 n° of posters in the sample (BNP+UA)	2 selection requested to each specialist	3 max. number of possible selections by all 10 specialists	4 % of the sample =(col.3)/(col.1)	5 n° of posters chosen by all the specialists	6 % related with the n° of possible multiple selections =[col.5]/(col.3)	7 n° of repeated posters >=2 times in the selection of the specialists	8 % of repetition in the selection of the specialists =(col.7)/(col.5)
séc. XVII	3	1	3	100,00%	2	66,67%	1	50,00%
séc. XVIII	2	1	2	100,00%	1	50,00%	1	100,00%
séc. XIX	143	3	30	20,98%	19	63,33%	7	36,84%
1901-1909	33	3	30	90,91%	13	43,33%	7	53,85%
1910-1919	89	3	30	33,71%	11	36,67%	6	54,55%
1920-1929	52	3	30	57,69%	12	40,00%	7	58,33%
1930-1939	93	3	30	32,26%	16	53,33%	4	25,00%
1940-1949	93	3	30	32,26%	19	63,33%	6	31,58%
1950-1959	79	3	30	37,97%	13	43,33%	9	69,23%
1960-1969	147	3	30	20,41%	17	56,67%	6	35,29%
1970-1979	461	12	120	26,03%	71	59,17%	25	35,21%
1980-1989	447	3	30	6,71%	26	89,66%	2	8,00%
1990-2000	320	3	30	9,38%	20	74,07%	7	41,18%
total	1962	44	425	21,66%	240	56,47%	88	37,29%

(Fig.4) Filtering the sample through specialists' selection of posters.

These convergences reinforced the importance of including those posters in a new sample, which offered an empirical and conceptual map of the field, displaying the analytical and historical narrative that was unfolding. Fig.5 presents one case – the political posters, showing simultaneously the number of specialists that select the same poster and the distribution of arguments sustaining their choice. The specialists' justifications were analysed and classified in accordance with the three dimensions of the triangular model (A)(T)(B). The choices mostly focused upon questions of regarding the visual discourse (authorship).

time specialists	séc. XVII	séc. XVIII	séc. XIX	1901-1909	1910-1919	1920-1929	1930-1939	1940-1949	1950-1959	1960-1969	1970-1979	1980-1989	1990-2000
10	10A												
9	9A				9A	9A+1T+2P							
8													
7													
6													
5													
4				4A							4A+2P	4A+1P	4A
3			3A+1P				3A+3P		2A+2P(1) 2A+3P(1)	3A+2P	2A+1T+1P(1)		3A
2			1					3	2	1	1		
1	1		5	2	1	1	7	4		2	4	6	3



(Fig.5) Specialists repeated selections and analysis of their arguments (A)(T)(B).

Thus, each of the chosen posters, at least by two or more specialists can act as a reference for the Portuguese production of this type of artefacts. Their selection not only distinguished them, but also allowed them to trace the history of the Portuguese poster, according to practice and discourse of design.

Conclusion

The example presented, in the ambit of the history of the poster, reflects research of a qualitative type, supported by a collection of iconographic and bibliographic documents based upon a phenomenological approach in both the unstructured perception and judgements by specialists about the posters consulted, and on accounts of the history of design and of the Portuguese poster collected in semi-structured interviews with Portuguese designers of acknowledged prestige.

This type of approach seems to be generalizable to any type of artefact, as the triangular theoretical model enables to establish a inquiry framework that can be answered either by the authors (designer, company, etc.) or by a panel of specialists in the cases where this may not be possible.

The designers as authors are the operators in the practice of the triangular model, but also the constructors of discourses about the artefacts they design. In analysing a collection or cluster of artefacts, they effectively become “curators”, and at the intersections of their narratives lie artefacts that display an authorial “surplus”, that is to say, that reflect particularly significant moments in the history of design.

To achieve our objectives the research have to, on the one hand, improve our approaches to artefact interpretation to reveal its «life»: from its desire to its use; to reveal the process of its conception, development and, after entering the market, the way people relates with it. On the other hand, the research team will need to conceive, develop and test new strategies (a mix between new media and

conventional supports) towards a better understanding and visibility of Portuguese Design enabling public involvement.

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the EVOLUTION of Design methods

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Abstract

The study of design methods in the 1950's started from the perception of the increased complexity in industrial products. The linear paradigm of the first models evolved to more systemic representations of the design process. This paper presents the development of design models in order to contribute to a greater understanding of the methodology for design projects with caution to the fact that each one reflects the period in which it was developed. Based on the understanding of product design taxonomies, a framework for product design methodology was generated.

Introduction

The idea behind the word “design” is relatively recent. The concept was established in the modern era, before the Industrial Revolution. It became characteristic of this period, not only in the restrict sense of product design, house design or urban planning, but also in the sense that all dimensions of life could be planned. Design in Architecture, Industrial Design and Engineering presents particular characteristics not only technical, but social and political as well. In any field, design activity implies meeting simultaneously different requirements. This will affect the performance, the usability, the environment and the society. The simultaneously meeting of different aspects of the design problem is not new – it was a current topic in since the 1970s. This approach suggests a systemic view that considers how the requirements, such as the ergonomic or technologic ones, affect each other. This systemic approach distinguishes from the dominant paradigm in the design methodology in the 1970s. The ideas of René Descartes in *Discourse on the Method* (1637) greatly influenced the design thinking of the time: “divide each difficulty into as many parts as possible and necessary for its adequate solution.”.

The perception of inherent complexity in the product developed from the second half of the twentieth century was pointed by Christopher Alexander as one of the reasons for the emergence of design methods in the 1950s and early 1960s. The Cartesian principle of breaking down the problem in minimum units, whose partial solutions will lead to the general solution, could deal with the design problems in the functionalist period, but it was disturbed by the socio-economical, and philosophical changes in the late 1960s and 1970s. Thomas Kuhn published in 1962 *The Structure of Scientific Revolutions*, which postulates that the paradigm shift is preceded by the crisis of the previous paradigm, and that evolution, by paradigm shifts, is not necessarily progressive. Kuhn's idea indeed contradicts the previous paradigm, which can be illustrated by Karl Popper's thought. Popper argues that all knowledge is progressive and cumulative, which conveys the idea of linearity. Paul Feyerabend comments on the evolution of methods in *Against Method: outline of an anarchistic theory of knowledge*, opposing to a general model, and arguing that the variety of strategies for dealing with product development is a way of dealing with the increasing complexity that results from a humanistic view. [3]

The evolution of design methods can be reviewed, since then, as a succession of periods of skepticism and optimism. The precarious nature of the activity practiced since the Industrial Revolution until the middle of the twentieth century was perceived when compared with the complexity of new products manufactured since 1950s. In the 1960s, the belief that a simple design structure, an abstraction from the singularity of the design problems, could ensure the access to a perfect solution was common. This view displeased the main authors in the 1970s, largely due to lack of practical results of the previous years. [16][9] In the 1980s, based on new paradigms, the design methodology adopted new approaches that no longer have as its purpose the establishment of objective functions, but to understand how people interact with products in their environments. Studies on design methods began to explore other tools, such as scenarios method, initially developed by Herman Kahn and Alvin Toffler. [3]

Since the 1960s the field of Design Methodology evolved through different paths, from rationalist to anarchist. In order to contribute to a better understanding of the main current tendencies, this paper presents the evolution of design methods and proposes a framework to guide their teaching. It is part of a study that investigates the design practice of product designers and start from the premise that we should expand the study of design methods to include other approaches, especially the more flexible ones, which may be more appropriate for solving complex problems and reach high degrees of innovativeness, typical of the challenges posed by sustainable development.

The evolution of product design methodology

For a long time since its rise as a profession in the late eighteenth century to the mid-twentieth century, the design method was restricted to the method of designing through scale drawings:

“The method of designing by making scale drawings will be familiar to many readers of this book. The essential difference between this, the normal method of evolving the shapes of machine-made things, and the earlier method of craft evolution, is that trial-and-error is separated from production by using a scale drawing in place of the product as the medium for experiment and change. This separation of thinking from making has several important effects.” [10]

This practice was developing at least since the Renaissance, not only in sketches of works of art, but also in mechanical projects and other innovations planned in those times. Representation techniques gained in refinement and precision through the development and standardization. Nowadays, the advance of digital technologies provides the scale drawing with resources beyond those pioneers' imagination, (e. g. simulations and virtual immersion).

The emergence of disciplines like operations research, decision-making and creative techniques, and the development of computer programming, played a major influence in the origins of new design methods during the 1960s. [6] The early years were also characterized by constant exchange of information between design methods, artificial intelligence, cybernetics and problem-solving theories. Many of the first authors present a clear connection to traditional sciences, as is the case of Christopher Alexander. Architect and mathematician, Alexander, one of the pioneers of the design methods movement, provide a mathematical basis for his theory on his 1964 book *Notes on the Synthesis of Form*. This closeness between science and design practice has brought insecurity to the professional. And since then design had lost its character as a personal activity that relies solely on the designer. The need to support every decision with rational arguments arose. On the other hand, the same rationality would ensure compliance for design methodology by the universities. [1][3] Moreover, there was pressure from students of design schools that wanted "to know the specific purpose of their activities without complying with vague indications". [1]

From 1950s to 1960s there was a great effort in various areas to develop design methods capable of coping with the complexity and the uncertainty present in the problems that was inherent in the technological development context. The rationalization tendency of the design methods culminate in the *Conferences on Design Methods*, held in England, under the coordination of researchers from a wide range of disciplines. A reference work of this period is the book *Design Methods*, by John Christopher Jones. It presents a collection of tools to assist the design activity and a theoretical framework about the design process. The essence of design methods developed in the 1960s relies on the division of the process in well-defined steps. These steps can be broadly described as: understand and define the problem, gather information, analyse information, develop concepts for alternative solutions, evaluate alternatives and select solution(s), test and implement. Its foundations lie in the idea of the Cartesian method of understanding the problem prior to reducing its complexity, in order to be able to tackle the problem. One of the first representations of the design process was presented by Bruce Archer in 1963, in a sequence of articles for *Design* magazine. In these articles he suggested that the designer's work combines intuition and cognition, and that the formalization of the creative process tends to transform it in a more scientific practice. The design process model proposed by Archer predicts the need for different approaches in different moments: systematic observation and inductive reasoning in the analytical phase, and subjective and deductive reasoning in the creative phase (Figure 1).

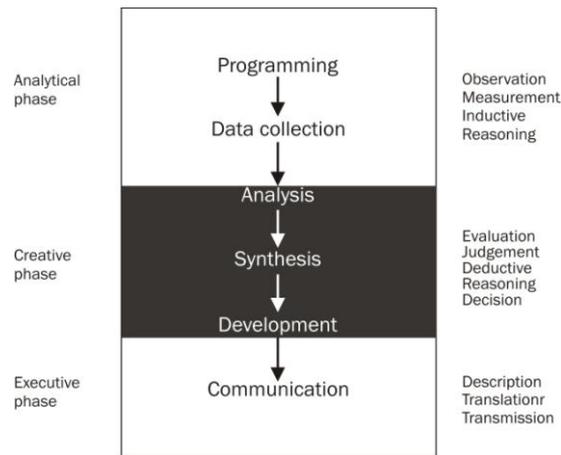


Figure 1: Archer's model of the design process [5]

By that time, Morris Asimow proposed a representation that considered the life cycle of the product (Figure 2). This representation starts with the analysis of requirements, followed by a feasibility study, prior to joining the preliminary design and detailed design phases. Next there are the activities related to the production, distribution, consumption and disposal. This method is considered as a predecessor of all the product development methods organized in separated phases. [6]

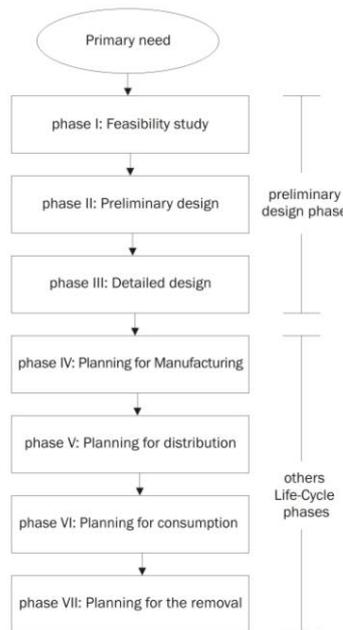


Figure 2: Asimow's method

Phase models, such as French's and Pahl and Beitz's methods (Figure 3), were developed concurrently in business and academic environments to reduce the uncertainty in the development of new products before the competition.

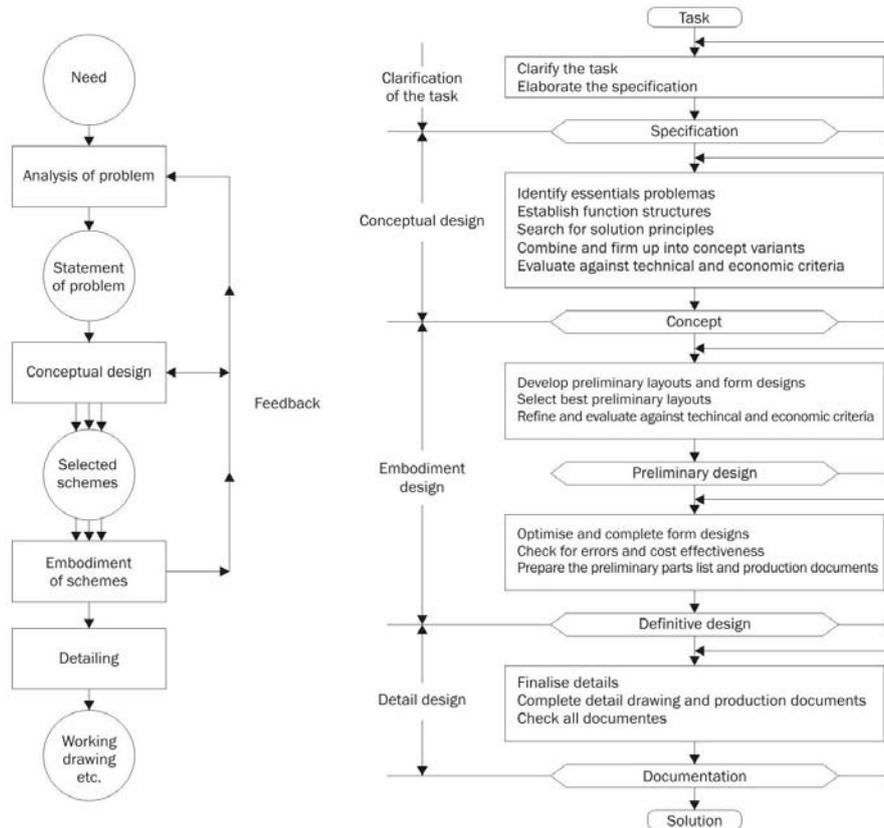


Figure 3: French's and Pahl and Beitz's methods [18]

In the late 1970s, due to external influences – such as Kuhn's, Popper's and Feyerabend's ideas – and in a reaction to critics, a new paradigm in the design methodology emerges. Jones stood out again with his *Essays in Design*. In this book, Jones deeply criticizes the reductionists' methods, emphasizing the role played by emergence and intuition in the creative and investigative process. [9][3]

With the depletion of the functionalist and rationalist paradigm, the methodology tendency of proposing a general representation of the design process changed, and studies on specific tools became more common. In addition, integration with various non-design disciplines resulted in the increase of the designer repertoire. The interest changed to the proposition of new tools such as mind maps, scenario techniques, usability testing, cooperative/participatory design, among others. [3] Nevertheless the interest in describing the design process through a diagram is still present among researchers and design groups. The Design Council, from UK, presented a flexible representation for the design process in four phases: discover, define, develop and distribute (Figure 6). The form originated its name: *Double Diamond*. In this diagram, the process of divergence and convergence are associated with key moments in the design process. Discover and develop phases correspond to divergent processes, while define and distribute phases are convergent. To complement and extend this representation, the elements arranged inside the diagram indicate exploratory and focus activities on the left diamond, and cycles of prototyping, testing and refinement in the right diamond.

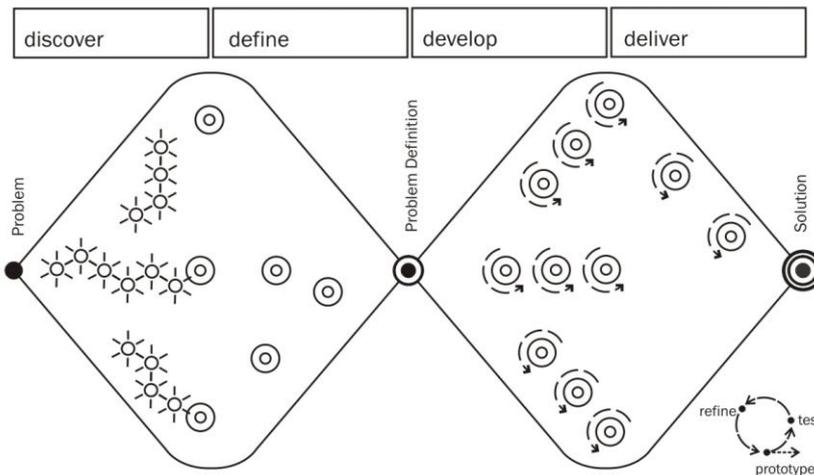


Figure 4: Double Diamond [7]

Linearity was a common characteristic of the first representations. Even though many authors included the possibility of returns and feedbacks, this was seen as a problem or an opportunity to correct errors. Another way of understanding the process embraces the nature of uncertainty as part of the design activity. The path was no longer linear, simply because successive iterations are needed to frame the problem and the solution. To this idea of parallel evolution between problem and solution is given the name co-evolution. This concept is discussed by Maher, et al. [12] and analyzed by Dorst and Cross. [8] L.J. March broke with the linear representation of design process, based on the assumption that the problem is dependent on the solution and that the inductive-deductive thinking is inadequate for the production of synthesis in the design process. March sought the work of the philosopher Charles S. Pierce for the idea of abductive thinking, which is linked to the production (synthesis), while induction and deduction are related to research (analysis). In other words “deduction proves that something must be; induction shows that something actually is operative; abduction suggests that something may be” (Pierce, cited by Cross [5]). March’s representation for design process (Figure 5) is a cyclic model that starts with production (preliminary requirements and assumptions about solution types to describe a design concept), followed by deduction (to predict solutions performance) and goes through a moment of induction (indicating changes and refinements in the concept). [5]

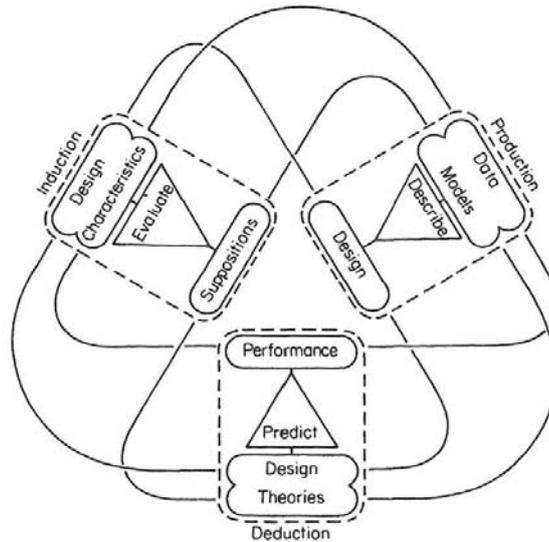


Figure 5: March's diagram [5]

Nonlinearity can be found in IDEO's design process, described by Brown [2] as "a system of spaces rather than a predefined series of orderly steps". Figure 6 demonstrate a modus operandi that is beyond the classic models. The process, or the design space, involves three areas: inspiration, ideation and implementation. Inspiration corresponds to the circumstances that motivate the search for a solution (a problem, an observation or both). Ideation involves the generation, development and testing of ideas that could lead to a solution. Implementation deals with the product launch. Throughout a project, the three spaces can be explored, in particular the first two, in order to refine ideas and take new paths. It is important to notice that the design in IDEO is done in close collaboration with its client's teams and that IDEO has a qualified group of multidisciplinary professionals with diverse backgrounds. This ensures that many activities can be done simultaneously, saving time in comparison with linear processes.

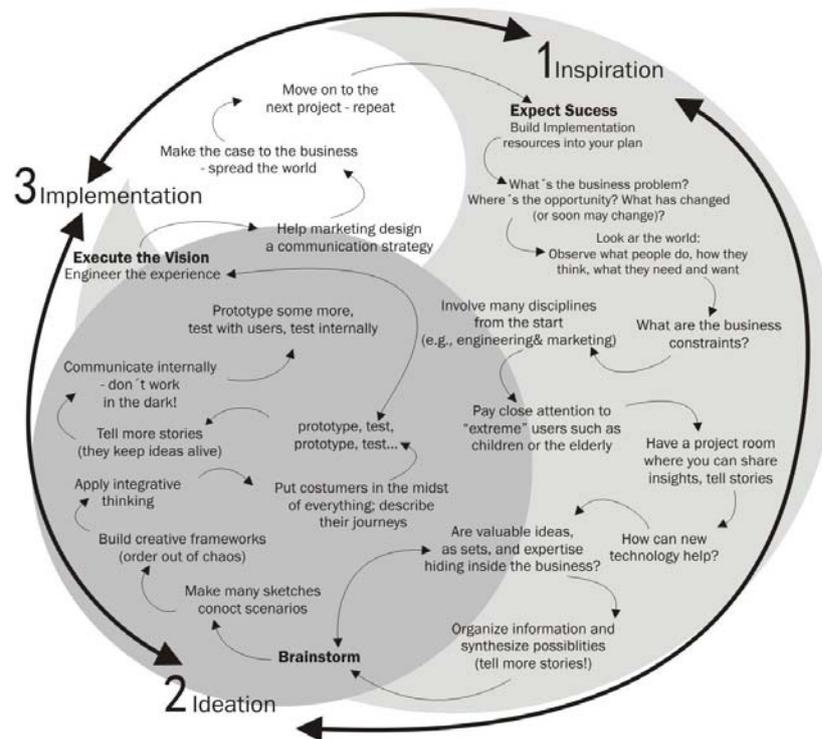


Figure 6: The IDEO process [2]

Faced with the need to live with antagonistic conceptions for the design methodology, Nigel Cross developed a flexible approach to the selection of product development methods. He considered variables such as level of problem definition, strategy to be adopted and, very important and largely unexplored, cognitive style of the designer. The starting point is the definition of the strategy, which describes the overall plan of action for the design and the sequence of activities. Depending on the type of problem, the strategy may be a “random search”, if there is a high degree of innovation, or a “prefab strategy”, when it comes to well-know situations. Thus, in some cases, the decision may be for the exploration of the problem with divergent thinking. In other situations, it would be the creative process, and its specific techniques. Other cases would ask for a more structured method, organized in phases. But the choice of method would depend also on the cognitive style of the designer. [5]

Basis for a new approach to analyse design methods

Since the 1960s, the role of designers in new products development process has changed to encompass other activities, not only restricted to the project itself. An example of possibilities for design scope can be found in Roozenburg and Eeckels [18], who defines design as a process of goal-directed reasoning that flows from the product function to its form (see Figure 7). Traditionally the core of design activities is related with the left side of the figure, the product designing process, not with the right side, the product planning process. But, as the authors says, “The more to right we start (...), the more open-ended the product development process will be”. [18] It means that

innovation effectively lies on product planning, when the constraints are assumed and the goals are defined.

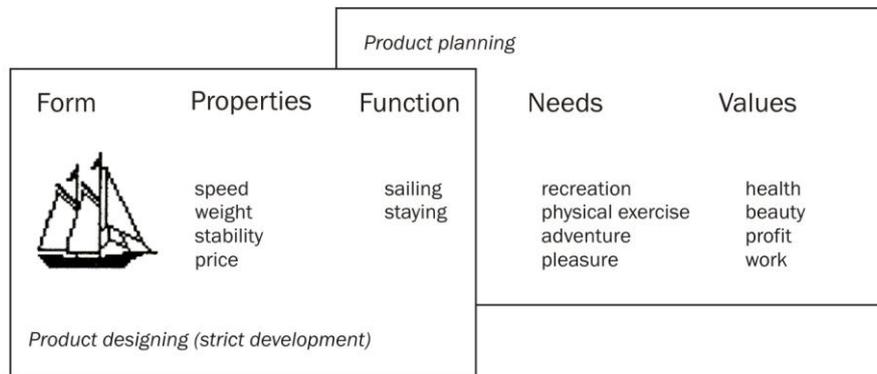


Figure 7 Product designing and product planning [18]

Simultaneously, the ideas of sustainable development have evolved greatly in recent decades. Sustainability entered the Design agenda since the criticism against the traditional production and consumption made by Victor Papanek in the 1970s. Today we can perceive different levels of interference in the sustainable product design process. Basically there are two approaches and four levels: a restorative, which corresponds to ecological redesign and development of new products, aiming at the improvement of existing solutions; and a strategic approach, encompassing the concepts of product-service system and the proposition of new scenarios, intended to modify the consumption and the production. [13] These levels of interference will certainly require different methodological approaches. Returning to the idea of complexity in design problems, it is important to consider that the degree of innovativeness will also affect the way the problem will be address. Naveiro [14] defines the complexity by the project size and the frequency and quantity of problems; the innovativeness is defined by the degree of problem structuring, ranked in four categories:

- “incremental project – consists in the modification of product parts, keeping the original concept. It is a structured activity as the main variables of the problem and solution are already identified;
- complex project – large projects involving many people and an extremely complicated information system... The frequency of problems is high, requiring great coordination efforts;
- creative project – consists of projects with low degree of structure in technologically simple problems; intensive project – projects that involve new and complex situations. As an example we can mention the Boeing 777, a huge team working with non-trivial problems.” [14]

Based on this classification, van der Linden and Lacerda [19] proposed a model for organization and selection of methods for teaching purposes (Figure 8). The context in which these projects occur will be added to this first model: those of high complexity require multidisciplinary teams that meet the wide variety of problems to be resolved; the low complexity can be solved by small teams and often the designer addresses himself the major design problems. This argument led to the conclusion that projects of high complexity can be seen under the logic of rational product development process or other systemic approach, while projects of low complexity allow classical approaches to

industrial design and even the use of creative process. The use of creative process was suggested by Cross [5] as a strategy to approach the problem in situations of high uncertainty. This model adopts the division into four quadrants bounded by the axes of innovativeness (vertical) and complexity (horizontal).

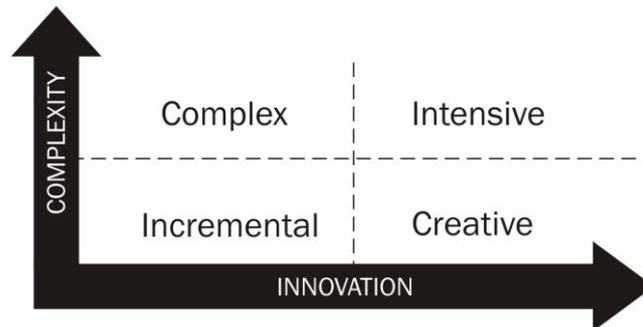


Figure 8 Model for organization and selection of methods for teaching purposes [19]

A Framework for Product Design Methodology

Crossing the levels of design intervention with the vision of the process of Roozenburg and Eeckels, [18] we find four suggestions for future strategies in product development. The impact is minor on redesign, with a simple change of form and properties, and in the design of new products, with changes in function. In a more advanced level of intervention, the design of product-service system serves the needs of various stakeholders. Finally the new scenarios proposal, involves changing values in consumption. From this association between levels of design intervention and the design process, was made a review of the model developed by van der Linden and Lacerda. [19] Initially it can link innovation with four levels of intervention, finding two groups: redesign (low innovativeness), new products, product-service system and new scenarios (high innovativeness). Therefore, the categories of incremental and complex project, which correspond to low innovativeness, are restricted to operations in form and properties. On the other hand, creative and intensive project categories allow a review of the function, needs and values. This is relevant to the issue of sustainability and also for innovation. In addition, the quadrants should better serve the characteristics assigned to each project category. As it seems reasonable to suppose that the incremental project does not has border with the intensive, neither the creative with the complex, we attempted a way to represent the relations between these classifications. For this, a sigmoid curve appeared to be adequate, because it enables to indicate in a subtle way the delimitation between the categories in the model (Figure 8). The boundaries between categories are diffused, since there are borderline cases difficult to define, in addition, the space occupied by each category is not able to be scaled, in the authors' opinions. Thus, the model serves as a framework to guide didactically the analysis of the design methods and development of new products.

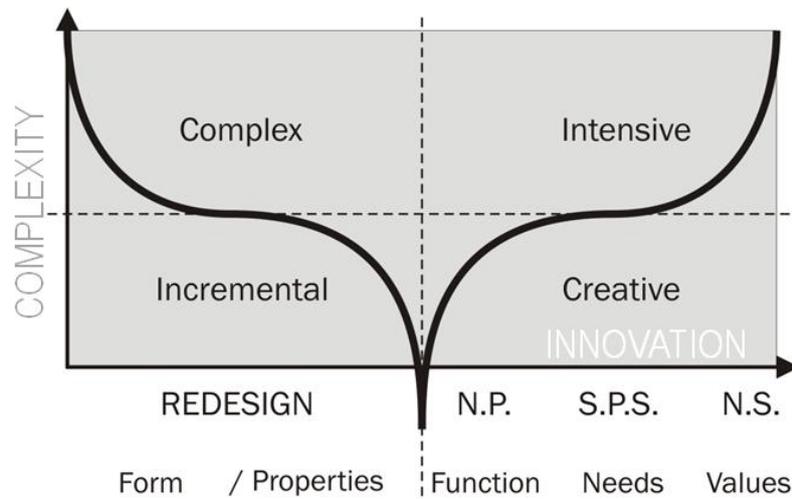


Figure 8 Framework for Product Design Methodology

As an application example, we use the models presented in the second section of this paper. Asimow, French, Pahl and Beitz correspond to product-oriented models: new products or redesign. Double Diamond, March and IDEO allow higher flexibility in use, causing them to also reach the highest levels of intervention (SPS and New Scenarios). These examples are still superficial, just as an indication of the use of the framework.

Conclusion

Observing the models as a manifestation of the design discourse, it was noted that during the half century occurred a significant evolution between the linear model of Bruce Archer and the cyclic model of IDEO. We should be careful when comparing models from different eras, especially considering the evolution of technology during this period, which certainly have an important role in their differences. From the era of mass production, we move to the era of mass customization (even it the first survives today; the second has become the reference). The problems which were complex in time of the pioneers *Conferences on Design Methods*, today carry themes such as sustainability, gender, globalization, dematerialization, and many others that have emerged as new ways and challenges. Any study of methods for product design, should assume there is a gap between the complexity of practice and the simplicity of a theoretical model. However, the models can not be neglected due to its main function as an element able to structure a complex activity to allow the detachment of the professional, which enables him to examine critically the process. Moreover, they allow the teaching of design activity, in that structured the process of beginners. Another important function of models is to standardize the language used by a team of product development, allowing communication between teams. Regarding the classification of projects into one of the categories proposed in the framework, in many cases will depend on the perception of what constitutes the problem when the project was done. The historical context of who analyses the design problem by this model will influence the analysis.

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Value of Co-Design

INNOVATION CONSEQUENCES AT HOUSING RENOVATION INDUSTRY

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Abstract

Co-design was applied to catalyse a change at the Finnish housing renovation industry. In the project IKE, 67 multi-stakeholder participants collaboratively created a process innovation Resident-Oriented Housing Modernisation. The shift from production orientation neglecting the residents' point of view to looking at residents as partners and renovations as opportunities for enhancing their living experience was revolutionary in the conservative industry. This paper tells the story of the consequences of the process innovation. The consequences encompass 1) general awareness of residents and modernisation, 2) creating new practices, and 3) implementations of Resident-Oriented Housing Modernisation. The paper exemplifies co-designing as a tool for making fundamental change for a complicated and abstract problem. The co-design outcome was not isolated products or services but the visionary innovation that led to an array of intertwined industry-changing consequences.

Introduction

The Celts believed the world would end at the foggy coast of Spain, at Finisterre [the end of the world]. Within a few centuries, people realised that there is a continent behind the ocean. Their view on the world extended. Our view on design is extending right now.

These days, growing amount of designers are interested in working with complex problems [1]. Design tasks have become more open, writes Tim Brown [2]: "From pediatric obesity to crime prevention to climate change, design thinking is now being applied to a range of challenges that bear little resemblance to the covetable objects that fill the pages of today's coffee-table publications". A design outcome can be for example an innovative vision for an industry, a process innovation that redefines the social and technological realms within the industry [3]. We are facing a situation where we need to redefine design and the value of design outcomes.

The project Life Cycles of People and Property (IKE) pioneered in co-designing industries in the context of Finnish housing renovation industry in 2004-2005 [4]. The industry was a complex network of intertwined stakeholders involving at least residents and their communities, companies and their business, institutions and policies, power structures, infrastructure and culture. The project IKE investigated how this complex system could be enhanced in Finland. The engagement of residents and professionals opened up new vistas. Based on the new understanding, the 67 project participants collaboratively created an innovation Resident-Oriented Housing Modernisation. The innovation shifted the vision of the industry from production orientation neglecting the residents' point of view to looking at residents as partners and renovations as opportunities for enhancing their living experience. Some of the project participants were inspired by the innovation and developed the industry accordingly. They tried to improve the position of the previously paltered stakeholder, the residents who are also the paying customers. In 2007, the project participants evaluated the project IKE:

From the company point of view, the project IKE was an awakener to look at the housing renovations anew: we need to change the renovation processes to development projects, and we need new skills at communication, resident-orientation and mass customisation. Inside the firm it was without a question an inspirer. Also we realised that we may influence the renovation market and not just go with the flow. You can see that we have made recruitment decisions based on the experience. It [the project] has made a concrete impact. (CEO, Mikko Vahanen Engineering Ltd)

Development has probably got off the ground but has not concretised yet. Maybe after five-year time span we may notice if the project IKE launched a progress. I have discussed the matter with various stakeholders and it is apparent that we are moving from new building construction to life cycle management culture and from production orientation to resident oriented renovation. [...] Usually, these kinds of transitions are slow. If the trend has been clearly redirected, if we are moving in another direction, would be the integral aspect. (Building Counsellor, the Ministry of the Environment)

What then is the relation of the innovation consequences and co-design? How do we evaluate the success of the design outcome, i.e. process innovation, if we cannot evaluate it against covetable design objects, and the designed system is changing all the time? What is the value of this type of design? We suggest extending our view on design in the spirit of the Celtic metaphor: we look further at innovation consequences by applying the ideas presented by Everett M. Rogers [5]. In the paper, we will examine the value of co-design by analysing the consequences of the process innovation that was co-created in the project IKE. The paper is based on opinion leader interviews two years after the project. According to the interviews, the innovation consequences fell to three levels: 1) general awareness of residents and modernisation, 2) creating new practices, and 3) implementations of resident-oriented modernisation. In the following, we will present the innovation consequences in relation to co-design.

Data and analysis: The project IKE

Leading practitioners and policy-makers launched the project IKE to catalyse development at the housing renovation industry. The project was the first collaborative attempt to get grips with the imminent workload the industry would phase within the next decades in Finland. Co-designing during the project synthesised and consolidated isolated ideas and practitioners' individual insights to a shared industry level strategic vision with a strong stakeholder commitment [6].

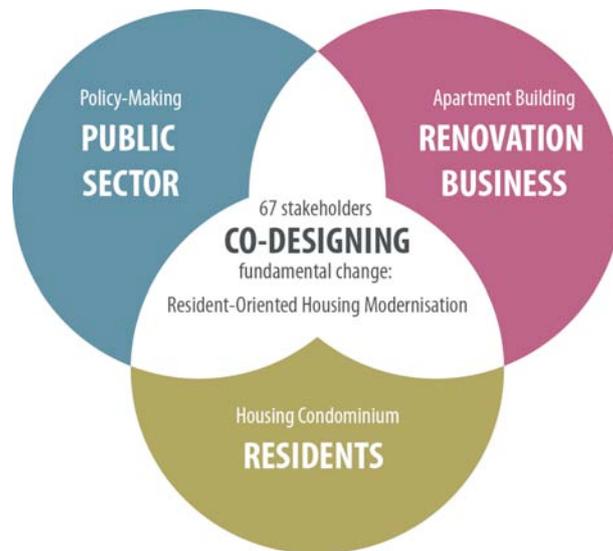


Figure 1 – The project IKE was collaboration of housing condominium residents, policy-makers at public sector and practitioners of the housing renovation business. Co-design generated a process innovation Resident-Oriented Housing Modernisation.



Figure 2 – Consequences of the IKE process innovation Resident-Oriented Housing Modernisation fell to three levels by 2007: 1) general awareness of residents and proactive modernisation, 2) creating new practices, and 3) implementations of resident-oriented modernisation.

"Share the goal; share the work; share the results", describes John Thackara [7] a contemporary design approach. It was also the central idea in the project IKE being a process of constant collaboration, negotiation and engaging of housing condominium residents, housing renovation business practitioners and policy-makers at the public sector (Figure 1). Co-designers facilitated these stakeholders' collective creativity, for

example, in a series of workshops. The workshops were a meeting point taking its vitality from the user study in three housing condominiums undergoing plumbing renovations [8,9]. The 67 professional and lay participants shared the goal and work of defining the development proposals for the renovation industry. The process innovation was a shared result of the collaboration. Ultimately it was a new, shared goal to be elaborated at the renovation industry.

The new, shared goal was the vision of Resident-Oriented Housing Modernisation. It was a radical process innovation as it redefined the partnerships at the renovation industry and also the service-oriented perspective for developing new technical solutions [10]. An innovation is the decision to adopt the new idea and also its consequences. Rogers [11] writes, “Consequences are the changes that occur to an individual or to a social system as a result of the adoption or rejection of an innovation.” The process innovation presented by the project IKE triggered changes in the industry and the consequences fell to three levels (Figure 2):

1. General awareness of residents and proactive modernisation,
2. Creating new practices and tools for housing modernisation and
3. Implementations of Resident-Oriented Housing Modernisation, which will be presented in the following chapters.

The analysis builds a story of the innovation consequences by positioning the interviewees’ interpretations on a timeline. We assume, the four opinion leaders’ unique access to the occurrences at the industry conveys a general overview of the development trends of policy-making, renovation practitioners and publicity. In addition, the other author was a project participant and a facilitator of the collaboration, thus having viable interconnections between the research and the industry. This presents an alternative to Rogers’ [12] survey research on consequences. He remarks that consequences have not been studied enough because of the over-positive attitude towards innovations, the traditional research methods that are inappropriate for studying consequences and consequences themselves, which are difficult to handle as a research subject. In this research the individual interpretation is vital because it reflects the *experienced value of co-design*. The interviewees were practitioners and policy-makers whose own experiences during the project IKE encouraged them to follow the humane innovation in their professional actions.

Growing awareness of diverse aspects of renovations

The interviewees raised the notion of ‘awareness’ when they talked about changes at the renovation industry stemming from the project IKE and its innovation. The industry was growing awareness of the varying aspects relating to renovations (Figure 3). The industry ended up to conflicts after recognising challenges in renovations beyond technology. The interviewees became ‘IKE activists’ who promoted the process innovation to enhance the housing renovation industry. The activists promoted resident-orientation and proactive modernisation. Residents and other practitioners asked for alternative solutions.

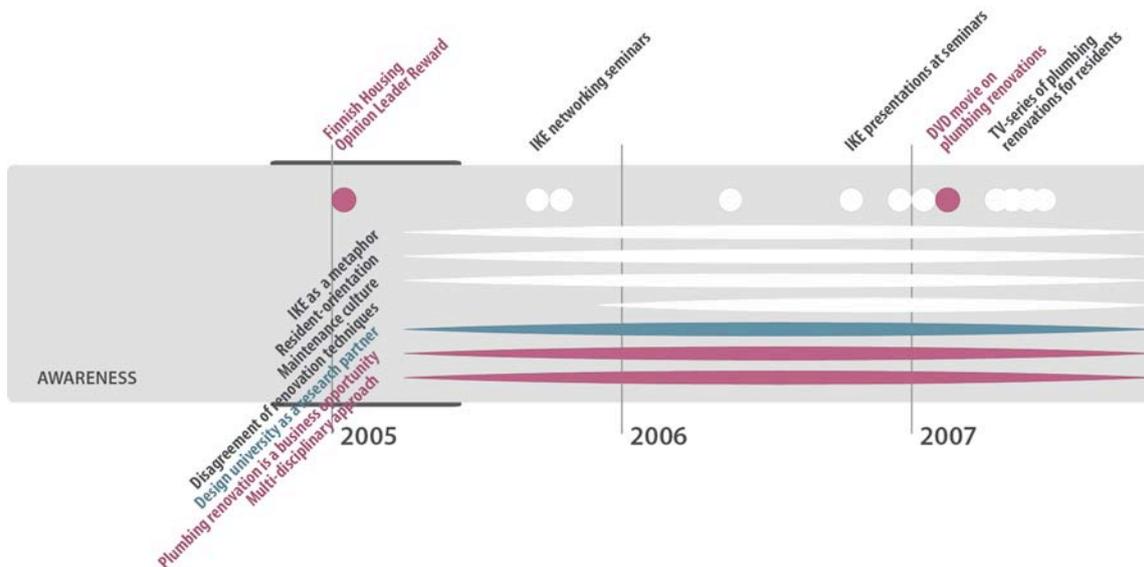


Figure 3 – The housing renovation industry is growing awareness of multilevel aspects that involve renovations.

By two years after the project IKE, the renovation industry was facing a change towards listening and trying to understand residents, and finding ways to involve them in the processes. The project IKE participants found their inspiration during the user study and the related workshops. For example Home Album -stories represented residents' inhabitation histories:

Back in the student days, Raili used to live in a communal apartment. Raili's favourite room was the kitchen where the flatmates gathered around a huge table for long philosophical discussions. Music surrounded them as Lea every once in a while took her violin and practiced a piece while Raili's brother accompanying her with a piano. There was a fireplace providing atmosphere and also a dishwasher that was a luxury for a university student in the 1970s.

These everyday stories awakened the renovation practitioners, policy-makers and communication professionals in workshops [13]. One of the IKE activists felt that "we got under the residents' skin". They re-situated the renovations along lifelong inhabitation: a renovation was not an all-embracing existence but a relatively short-term project having potential to improve living circumstances.

Two of the IKE activists were communications professionals and they used publicity systematically to promote the IKE vision. The residents were treated anonymously during the user study and they did not appear in the publicity. Instead, the communicators' experience of "getting under residents' skin" seemed to be a continuous source of inspiration. Systematic communication resulted in multiple 'IKE'-appearances in media, for example interviews in professional magazines, a TV-series on plumbing renovations and the award of the Finnish Housing Opinion Leader for the CEO of the engineering company.

The publicity led also to a conflict. Residents and practitioners beyond the project IKE questioned the traditional renovation methods: "People think that it [alternative solutions] is the fastest way to tackle the problem, to lengthen the beginning of the traditional method until they themselves have moved away" (CEO, Finnish Construction Communications). The reason behind the demand was money: a

traditional Finnish plumbing renovation is an expensive rebuilding of water and drainpipes, and bathroom interiors. The costs constantly increased and by 2007, an average total cost for a typical family apartment soared to 45 000 €. The conflict worried the CEO of the engineering company:

The new technology representatives, the alternative methods spokesmen, selling their methods as if they are cheaper, bother me. If we carry out a coating of the pipes, which is expensive, residents lose the unique opportunity to develop living towards healthier, safer, more functional conditions. [...] When you look at the wild cards – and see that all the risky parts are tendered with unit prices, an hour-based billing – and you will calculate a probable realisation, its clear in some tenders that the alternative coating method interpolated with all the risks may be more expensive than the traditional method. (CEO, Mikko Vahanen Engineering Ltd)

The quote shows how apartment building renovations were envisioned as an opportunity among project participants. Housing modernisation was prodded in the project IKE, for example, to set contemporary telecommunication equipment, to redesign the common sauna spa or to convert an attic to apartments. The initial idea came from the practitioners and it was discussed with the residents. The residents preferred affordable solutions and predictability at the renovation processes. To come up with a synergetic solution, we designed a development proposal to meet the demands of the residents and the practitioners: a collaborative service process (will be discussed in chapter Implementations).

Rogers [14] classifies the consequences to 1) desirable versus undesirable, 2) direct versus direct, and 3) anticipated versus anticipated. The interviewees interpreted the interest of residents' becoming active customers as a desired consequence. The direct consequence of public discussion supported this by representing residents' stories of the everyday experiences amidst renovations. Interviewees also anticipated that the empathy for residents' experiences would have increased among renovation professionals to inspire them to involve the residents better in renovation decision-making. Rogers [15] observes, "The undesirable, indirect and unanticipated consequences of an innovation usually go together", like the positive consequences. We discovered this also here. The conflict on the various renovation methods' benefits was an unanticipated consequence. The IKE activists felt that the public discussion led to an undesired direction emphasising too much the cheap, fast and painless aspects of renovation. They needed to defend the opportunities provided by modernisation, which indirectly affected the activists' means of promoting renovations. The activists' commitment to residents supported their ongoing efforts to promote service-orientation.

Creating new practices and tools for housing renovation

By 2007, the housing renovation industry as a whole had not reached a consensus of the future developments. Most concrete efforts towards improved renovations were made in the engineering company that co-funded the project IKE and whose CEO was the project leader. National-wide R&D had been launched in a national development cluster and in-depth studies. (Figure 4)

As we discussed before, new technical issues, such as evaluation of various pipe renewal methods, were highlighted at the housing renovation industry in the following years after the project IKE. For example, the Finnish Real Estate Federation (FREF) studied alternative methods after inspired by the project IKE. VTT Technical Research

Centre of Finland conducted a study ‘New pipe repair services’ [16]. Even though interest was on technical solutions, expectations to develop the industry towards holistic resident and service-oriented practices were high:

I have a feeling that also the operational environment drives sensible people to seek solutions from there where they exist. There will not be a demand for services if they do not take seriously the resident perspective. For me, it seems to be a long way at the housing renovation industry. Now we need tools to get stakeholders involved. In this aspect, the project IKE has been highly important. (Building Counsellor, the Ministry of the Environment)

In the project IKE, an objective was to achieve a balance between people and technology, as the project name ‘Life Cycles of People and Property’ suggests. The interviewees stated that it was the first project in the housing renovation industry to strive for such a synergy. The project initiators originally presented the merger of ‘people’ and ‘property’, which was then elaborated in the project IKE by the co-designers in a similar manner as Brown [17] describes design thinking:

By integrating what is desirable from a human point of view with what is technologically feasible and economically viable, designers have been able to create the products we enjoy today. Design thinking takes a next step, which is to put these tools into hands of people who may never have thought of themselves as designers and apply them to a vastly greater range of problems.

Design thinking provided means for co-designing in the project and its workshops. Thomas Binder talks about this kind of social prototyping in their book *Rehearsing the future*: “Innovation as a process of change and learning makes it obvious that invention has to go hand in hand with rehearsing what this invention entails” [18]. This ideology has its roots in the Scandinavian participatory design (PD) tradition. PD empowered factory workers by involving them to simultaneous developing and evaluating of design solutions. In the traditional PD the design outcome was for example a new factory assembly line. When designing the renovation industry, prototyping was acting out new roles and highlighting issues for elaboration. Engagement between the stakeholders in the IKE workshops was practicing new partnerships of residents and professional stakeholders. This experience promised something of the residents’ role: it was proved that the partnership with the lay people would be possible.

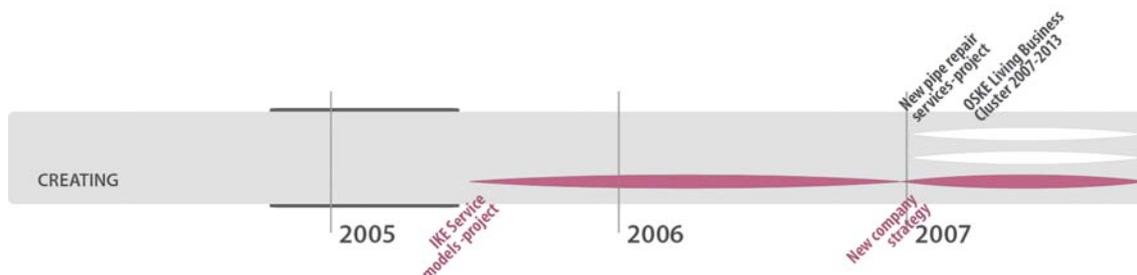


Figure 4 – An engineering company and public sector continued the work launched in the project IKE.

The engineering company was a leader in the field of renovation and constantly sought new ways of running the renovation business. The company CEO was one of the project IKE initiators and the company continued active development work outright the project ended. The company approached the challenge by improving interaction with residents and established an R&D project ‘IKE-PAP’ to develop service models for Resident-

Oriented Housing Modernisation. The Finnish law defined the board of housing condominium as the official client of the plumbing renovations, but the company included both the board and individual residents to their customer segments by 2007. The company established reciprocal communication with the residents. The company's redefined mission was to offer holistic housing renovation services and to provide residents decision tools at the expensive renovations.

We need new tools for renovation in the future. [...] Product modelling means that an old apartment building can be reconstructed as a 3D model [...] to illustrate the plans for the resident: here is your bathroom, the kitchen, would you like to have this basin, that bathtub or what would you like to have? The aim is to let the residents to visualise the plan. If we link the model to delivery chains, we could reach the potential of mass customisation. It is our goal. [...] It requires a lot of work still because those tools are not that sophisticated yet. (CEO, Mikko Vahanen Engineering Ltd)

The multi-perspective was used also in other follow-up developments as a starting point. A networking cluster 'Living Business 2007-2013' was launched to "speed up the development of solutions to serve residents" [19]. One of the leading themes of the cluster was called 'IKE'. The IKE project member, CEO of Finnish Construction Communications, emphasised resident-orientation during preparation of the cluster program. Ideas presented in the project IKE were thus spread to a national cluster that focused on living, housing and construction.

After the launch, some IKE activists strived for launching a national R&D project dedicated to Resident-Oriented Housing Modernisation. Finding an effective coalition took a lot of effort. During the project IKE, the co-designers were change agents, i.e. representing "an individual who influences clients' innovation-decisions in a direction deemed by a change agency" [20]. Co-designers diagnosed the problem of ambiguous renovation processes, the need for a transparent communication culture and residents' interest focusing on tangible results. Co-designers developed a need for change towards resident-orientation and guided the change by engagement and building up commitment to the co-created innovation [21]. They provided a communication link by combining inhabitation and renovations. Co-designers ended up their relationship with the industry as change agents when the project was finished. However, the adoption of the innovation Resident-Oriented Housing Modernisation was not stabilised yet. The renovation industry had not digested the co-design approach and methods well enough to lead the resident-oriented development. For example, the CEO of Finnish Construction Communications tried to turn his opinion leadership into a change agency but these roles were contradicting.

Efforts were dispersed at the industry and discontinuity of development was a constant threat. The interviewees stated that the absence of design hindered for example the launch of a national R&D project; a change agent presenting a holistic resident-oriented and solution-driven approach was not found after the project IKE co-designers moved to other assignments. The IKE activists expected certain skills for the development partner based on their experience in the project. They would need, for example, service designers who master for example designing complex systems [22], facilitating collaborative workshops [23], emphatic user studies [24], strategic thinking [25] and dynamics of public-private partnerships [26].

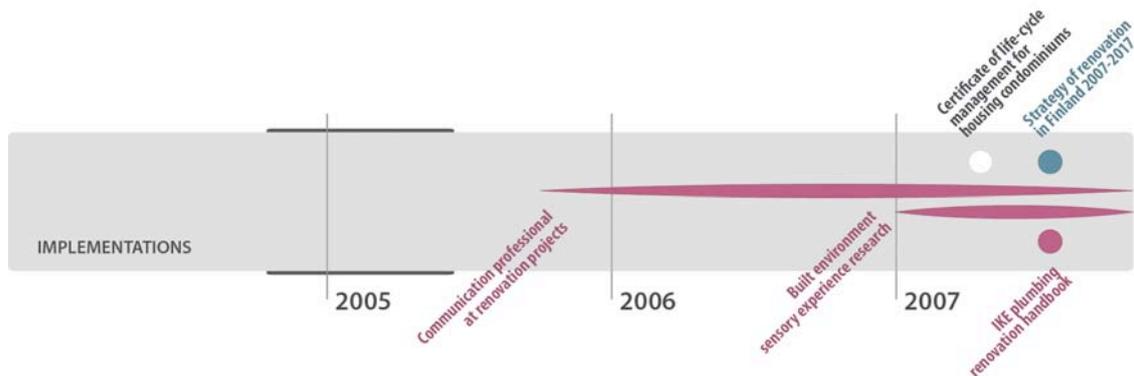


Figure 5 – Implementations following the innovation called Resident-Oriented Housing Modernisation.

Implementations of Resident-Oriented Housing Modernisation

Some of the development proposals were implemented by 2007 (Figure 5). These were new professional tasks in the engineering company, certificate of life-cycle management for housing condominiums [27] and the strategy of renovation in Finland 2007-2017 [28]. The interviewees had expected more radical implementations of the process innovation but development had proved to be a more complicated task than what was anticipated.

The Ministry of the Environment co-funded the project IKE with the engineering company. The ministry was a governmental institution corresponding the preparation of readings regarding environmental and housing issues for the Council of State and the parliament. R&D was a functional tool for steering and promoting public development efforts. The ministry promoted the resident-orientation and life cycle management culture by launching the strategy of renovation in July 2007 [29], two years after the project IKE ended.

I believe that [the project IKE] cultivated the mindset and understanding about renovation. The resident orientation should be, and I think it is, emphasised in the strategy of renovation.
(Building Counsellor, the Ministry of the Environment)

The policy incorporated a vision of a systematic renovation culture where apartment owners would recognise opportunities to enhance living conditions via renovations. The policy vision stated that the housing property should be maintained, developed and renovated with expertise and an extensive set of services, prefabricated products, reliable information and functional state authority steering. The policy's principles were similar to the development proposals of the project IKE. For example, the proposal for developing a collaborative service process [30] embodies the similar basic idea to the strategy vision: the process would enable residents, a housing condominium and construction professionals to renovate buildings and enhance living experiences together. Well-defined roles and responsibilities would support the stakeholders to accomplish pre-defined tasks in a foreseeable process. Prefabricated products would streamline the renovation process and clarify the outcome for the residents. Research Manager at Movense Ltd. (a director at the Design University during the project IKE) remarked that a shared mindset between the policy-makers, citizens and companies was vital because "the public sector is an enabler". He referred to the public sector' role of highlighting public problems and by procuring R&D [more in 31].

The public efforts continued based on the strategy of renovation. The Council of State further applied it during the preparation of the Government Resolution of renovation [32], which represented the highest possible political support to the subject of Resident-Oriented Housing Modernisation. Also the new housing condominium law was published in December 2009 [33]. The ministry continued the collaboration with co-designers and invited the design university as its research partner in other connections [e.g. 34].

Also other partners awakened to alternative work styles. The engineering company realised that the expertise in engineering and architecture was no longer a sufficient resource. Before the project IKE, the engineering company staff had an impression that they mastered the renovation business because they had a long experience in renovating public buildings. By engaging with the residents in the project IKE, the engineering company staff realised that the housing renovation industry was not even technology-wise fully developed. They understood that the housing renovation had its own logic that would not easily adopt the public building technical know-how. It was not “business as usual” but offered opportunities to create new business models. The company hired three new professionals within two years the project IKE ended: public relations professional for renovation communications and researchers of sensory interior experience. Company networks, also to international partners, were expanded to strengthen the company’s expertise. The multidisciplinary approach became one of the central means after it was verified as an asset during the project IKE:

Multidisciplinary means that when executing apartment building renovations, we need all the target groups represented just like in the project IKE. It does not only include our customer [e.g. housing condominium] but also our customer’s customer [e.g. resident], the end user. [...] Plus widely speaking, all the stakeholders that relate to the service tray should be present. If we go for modernisation, it is not only about technology but we need to consider questions about healthy, safety and all of these kinds of issues. All the expertises need to be involved to cover the essentials. (CEO, Mikko Vahanen Engineering Ltd)

In parallel with implementations, the housing renovation industry faced complex challenges during the following two years after the project IKE ended. The balance between desired developments and uncontrolled changes was difficult to achieve. Rogers [35] calls this balance as an equilibrium that may be stable, dynamic or disequilibrium. The renovation industry was not anymore stable but dynamically changing and creating new solutions. The previously presented solutions inspired by the project IKE innovation show that concrete changes occurred. However, the disequilibrium, i.e. uncontrolled and too rapid changes, was a constant threat. The IKE activists used their opinion leadership to achieve a dynamic equilibrium that would lead to sustainable and profitable changes embracing the resident and inhabitation perspectives. Solutions for the housing renovation industry such as a collaborative service process between residents, a housing condominium and construction professionals would require further efforts, which would need to be coordinated in a national multi-stakeholder R&D project.

Discussion: Co-designing an industry

Co-designing in the project IKE generated an innovation that awakened the housing renovation industry. The process innovation was called Resident-Oriented Housing Modernisation. Co-designers facilitated co-creation of the innovation by engagement of

residents, renovation and communication professionals, and policy-makers, for example, in a series of workshops. The events were grounded on the residents' user experiences amidst inhabitation and renovations. The engagement made the stakeholders to situate the renovations along lifelong inhabitation: a renovation was not an all-embracing existence but a relatively short-term project having potential to improve living experience. They realised that they would need to find new practices meeting residents' needs and providing holistic renovation services.

The process innovation created a mental development platform. The IKE activists took inspiration from the innovation and contributed to the development of the industry. These actions led to consequences changing the industry. The industry:

- 1) awakened to the development,
- 2) created new solutions and
- 3) implemented new practices.

The interviewees expected that many changes would take decades to be implemented. The slowness of improvement showed the complexity of the design task. However, all the interviewees were determined that they were reaching their goals. The design outcome was not about isolated solutions but a multi-faceted and humane process innovation and also the consequences should interact with each other. The consequences should be guided to a self-nourishing loop to generate desirable and profound consequences. The interviewees looked for a change agent having a holistic resident-oriented and solution-driven approach to reach the dynamic equilibrium. A co-designer mastering, for example, designing complex systems, facilitating collaborative workshops, emphatic user studies, strategic thinking and dynamics of public-private partnerships could act in the position of a change agent to guide and provide tools for further development of the renovation industry.

In this paper, we looked beyond the process innovation to understand the value of co-design in the spirit of the Celtic metaphor. Co-design opened a path to an iterative development that was not looking for a fixed solution but increasing understanding between stakeholders. It was not about making compromises but created an opportunity for enhancing user experiences and generating businesses. Co-design looked for synergy and transformed stakeholders to empowered opinion leaders who contributed to fundamental changes themselves.

We should extend our view on co-design even further. Even though the engagement in the workshops was educative, many other aspects also contributed to the awakening, as the world is moving towards collaborative practices. Just to mention some examples, companies are investing to user studies and co-design to resonate with their customers [36]. The Land Use and Building Act in 2000 boosted communicative turn at housing by entitling citizens to participate in land use procedures in Finland [37]. And, the art world is embracing genres such as community art and dialogical aesthetics [38]. The project IKE related to and reflected this contemporary phenomenon. Even though co-design may be one of the leaders of the collaborative phenomenon, we should be more aware of other collaborative traditions. By looking beyond design thinking, we may extend our possibilities to increase the value of co-design within the society.

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Acknowledgments

The project IKE, Life Cycles of People and Property, was a collaborative project that involved 67 stakeholders of the housing renovation industry in Finland. We would like to thank all the participants for contributing to the project. Also our acknowledgements go for the Ministry of the Environment and Mikko Vahanen Engineering Ltd for co-funding the project, and Finnish Construction Communications for being the third project partner. We have had several inspiring discussions with our colleagues at the Aalto University: thank you all for sharing ideas.



Tales from the maker

Using tagging technologies to create digital makers' marks

Tales from the Maker

Using tagging technologies to create digital makers' marks

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Abstract

This paper explores the provenance of art and design objects through stories of the people who created them. It is part of TOTeM (Tales of Things and Electronic Memories) a £1.39M research project based around the "Internet of Things". Supported by the Digital Economy Research Councils UK, TOTeM opens up new ways of preserving people's stories through linking objects to the Internet via "tagging" technologies such as QR codes.

In this context, QR codes act as "digital makers' marks" with the potential to hold far richer information than traditional marks. Inspiration for the object's creation and its maker become the key focus, rather than facts about production and manufacturing. Collaborating with Dundee Contemporary Arts, a case study took place with print-based artists and curatorial staff to tag artworks with stories. These were showcased at Christie's Multiplied Contemporary Editions Fair in London during October 2010.

Drawing from historical references and practices identifying makers, this paper explores the future of tagging objects with stories at their point of inception. Discussion highlights how collecting and telling tales enables a more human and personal element to be attached to objects, where even QR codes themselves can provide a means of personal expression for the maker. With a focus on the human element, this paper seeks to examine how the tradition of makers' marks, and their association with finely crafted objects can be relocated to a digital platform which enables communication between the maker and their audience.

Introduction

Based on early research for the TOTeM (Tales of Things and Electronic Memories) project, the potentials for provenance in art and design objects is discussed through stories of the people who created them. This research utilises tagging technologies to create connections through the "Internet of Things", a term referring to the use of

digital tagging technologies to track physical objects in the real world by linking to online databases. Oyster cards for the London Underground or E-Toll tags for use on the Sydney Harbour Bridge are two examples.

TOTeM spans five UK institutions - the University of Dundee's Duncan of Jordanstone College of Art & Design (DJCAD), Edinburgh College of Art, (ECA) Brunel University, Salford University and University College London (UCL) with each UK institution responsible for different areas of the research. Research at Dundee is art- and design-based, focusing on "Platforms for Provenance", where storytelling methods are being examined for defining and capturing provenance. Looking back at the history of old objects, as well as forward to the possible futures of new objects, the Dundee team are also exploring new means of providing legacies of provenance for future generations.



Figure 1 – QR Code

Artworks, design and craft objects are linked (known as tagging) via a QR code to digital media content which can be played on a mobile phone. QR codes are two-dimensional barcodes which can be read by "scanning" the tag/code with the camera in a mobile phone. In most cases a web address is embedded in the tag, which links to a mobile-optimised website when scanned. Scanning codes is easily done with free software which can be easily downloaded if a device does not have a reader preinstalled. To make this process even easier, the TOTeM technical team at University College London have created free iPhone and Android apps. Using the public-facing website talesofthings.com (also developed by their UCL partners), researchers at the University of Dundee are working with art and design makers to "tag" their creations with stories in form of text, audio, images and video.

At this point in the research the TOTeM team has chosen to use QR code tagging technologies because they are accessible via mobile phone to wider audiences than other technologies which need specialised readers to "scan" the tag. By using mobile phones, which most people have, the aim is to democratise technology, rather than make it something only the elite can have access to. Internet use on mobile phones has reached such a critical mass that many people's experiences of the Internet are solely on mobile phones, and this is particularly true of developing countries (Tryhorn, 2009).

In the context of attaching QR codes to creative artefacts, they can act as "digital makers' marks" with the potential to hold far richer information than traditional marks. Inspiration for the object's creation and its maker become the key focus, rather than facts about production and manufacturing. Working in a similar way to social networking sites such as Flickr, users of talesofthings.com can comment and build upon stories of objects that have been tagged, with the potential to create a crowd-

sourced bank of knowledge about any individual object. This provides future generations with artworks, craft and design objects which have integrity and a traceable heritage.

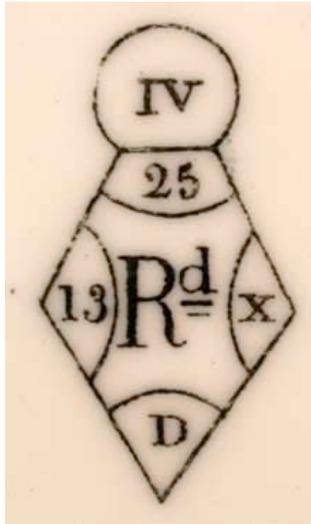
Authenticity: Provenance and Makers' Marks

An object's provenance can be as interesting a tale as the inspiration of its inception. How one comes to own certain objects or who owned those objects in the past can alter perceptions of their value. For example, a second-hand white suit dating from the 1970s, even if by an exclusive fashion house, is probably unlikely to attract an exceptionally high price tag in most cases. But, when it was *the* white suit worn by John Lennon on the album cover of *Abbey Road* by The Beatles, it was recently auctioned for USD\$46,000 (Burton, 2011).

In almost any art, design and craft discipline there are marks which identify a maker, production house, or factory: labels on textiles or logos on fashion items; backstamps for pottery; hallmarks and assay marks for precious metals; the artist's signature on a painting or print; red seals on Japanese woodblock prints; a furniture maker's initials or stamp; trademarks on many contemporary design objects, and the list goes on. Such marks have been around for thousands of years: even in Ancient Greek times, red Attic vases often had the names of two makers inscribed, that of the potter and that of the painter (Boardman, 1979). When examining identifying marks on objects, the details and sheer mass of information can be overwhelming, and even well-versed antique dealers need reference books to match an obscure mark back to the individual who made it. For the purposes of this paper, all such marks will be referred to generally as "makers' marks".

The tradition of the maker's mark is often associated with finely crafted objects. The idea that the maker would put their name to an artefact that they have crafted indicates a level of pride in the workmanship and implies that the work is authentic - in as much as that particular maker was the one who created it. Such marks are the starting point for discovering an object's provenance for if there is no documentation with an object, a makers' mark is the first thing that one would look for in identifying its origin.

Makers' marks for manufactured objects first appeared in continuous use in papermaking and printing, with the earliest examples dating from 1282 in Bologna (Caplan, 1966). The use of such marks stems from the direct links between producer and consumer being broken and the need to maintain the identity of the maker as the goods pass through the hands of third parties. In Britain in 1842, the Design Registration Mark came into widespread use after the Design Copyright Act of 1839, which protected designs in a way similar to patents. There were two types of diamond shaped insignias broken up into separate areas marked with alphanumeric characters: one from 1842 – 1867, then this changed in 1868 and was used until 1883. In 1884, this was simplified to a registration number, often abbreviated to "Rd No" (Collins, 2006). This system is still in use today, and unless one has a very good memory, an index is needed to decipher the details of either type of design registration mark. Added to this, the classes into which materials were organised could be misattributed by a clerk, leading to, for example, a piece of jewellery being filed as a printed shawl. The Trade Marks Act of 1875, meant that all manufactured goods could then be registered for a trademark.



[Figure 2 - Design registration mark from 1878, courtesy of Hampshire County Council's Museum Service](#)

The design of trademarks and makers' marks in terms of aesthetics has only really started to emerge as a field worthy of considered graphic design in the 20th century when schools such as the Bauhaus promoted awareness of what signs and symbols communicate to their audiences. Prior to this, trademark "design suffered from the conception that trademarks should score as guarantors of authenticity" (Caplan, 1966). Only since the 1960s - with graphic designers such as Paul Rand and the emergence of logo design and branding as specialised graphic design fields - has a stronger emphasis on conveying people-centred concepts such as brand personality and value developed. In today's convergent media, the boundaries between makers' marks, logos and trademarks are blurring, however none of these seem to really be able to give us the real stories behind those who make creative artefacts.

Provenance documentation for an object, if it exists, can provide an insight into its past, and a makers' mark can provide a starting point for further exploration about a work and stories of its maker, but all this information is scattered and quite often hard to piece together and verify. QR codes as digital makers' marks have the potential for greater richness which enables the human element to come through. By tagging an object with stories at the point of its inception, and then charting those and new stories as the object changes hands, and people add their own impressions, the provenance of the object is built up. Via a social networking channel (validated in a similar way to sites such as LinkedIn), peer review and visible, traceable networks between people become indicators of authenticity and an accessible means of verification.

Tagging art, design and craft objects in order to establish and maintain their provenance is not unique. The Fine Art Registry (fineartregistry.com, 2011) is an online database that does just this. However, this is more a tool for buyers and collectors, which focuses on provenance alone, rather than stories from the artists, or about the objects themselves. A random search on the site also brought up discrepancies that do lead to questions about the reliability of this service. An entry for a Paul Klee work was titled "Abstract Study. Gouache/mixed. media Signed "Klee"", had a valuation of \$105,000, was for sale for \$1000 and dated between 1900 - 99. It apparently was "only valued for insurance purposes" and supposedly does

come with all provenance documentation, but going on the dates and price discrepancies, one does suspect if this is perhaps a work of fiction in itself.

The “tamper-evident technology” used is a fairly simple acid-free holographic sticker with a number printed on it, which the user must then take to the Fine Art Registry website, log in and search for the item. From a user’s point of view this is much more arduous than being able to scan a code with one’s mobile phone and have all the information beamed back to them. The way in which art, design and craft objects are tagged with stories by the TOTeM research project creates a far more personal bond than any provenance records or traditional makers’ marks ever could. The stories that emerge allow for a deeper connection with the artist as well as a means of cross-referencing their tales with facts that may be known about an artwork or object’s provenance, making works like the Klee on the Fine Art Registry easier to authenticate.

The Maker’s Voice

Researchers in Dundee have been collaborating with Dundee Contemporary Arts (DCA) to gain insights and tales behind printmaking works created at the DCA Print Studio. Print-based artworks were tagged and some of these were showcased at Christie’s Multiplied Contemporary Editions Fair in London during October 2010. Implementing digital makers’ marks at an event run by one of the world’s most famous art and antique auction houses provided an excellent context for combining design research with a real-world application.

Two groups of print-based artists were involved in the case study. This was to enable comparison between two different ways of tagging the works, how this may or may not affect the artists’ practices, and monitoring whether tagging the works increased sales. Those whose works were showcased at Christie’s were artists whose work has been shown in the Main Gallery at Dundee Contemporary Arts (DCA) as part of the main exhibitions programme, and who then collaborate with the DCA Print Studio to produce print-based artworks for the DCA Editions programme. The works from the Editions Programme are then sold to high-profile museums, galleries and collectors. Each work is sold with provenance documentation and certification from the DCA Print Studio on the authenticity of the print in terms of artist, edition number and other editioning details. This provided an ideal group of makers where there was already a programme in place for provenance documentation, allowing researchers to follow the stories which it is hoped will build up over the coming years. The Editions Programme has been in place for 11 years, so the effects of tagging these artworks on sales can be measured against historical data. In this paper, this group is referred to as the “Editions Artists”.

Prints were tagged by the DCA Editions Co-ordinator. She set up an account in talesofthings.com and entered 13 artists in this account. In this case she contacted each of the artists, collected their stories and uploaded all the content to talesofthings.com. For some of the artists, such as Alex Frost and Chicks on Speed, she also attached videos of their work in the DCA’s main galleries to their entries on talesofthings.com. In this method, the artists went through an intermediary when attaching their stories to the artworks, but they also benefitted from the high production values that the DCA could provide in terms of digital content. This meant that for the Editions Artists the style of content was uniform, in anticipation of

maintaining consistency when presenting the works at Art Fairs, and measuring the success of tagging the works with stories in terms of sales.

There is the option for the artists to add more to the story in own words, as well as those written by the Editions Co-ordinator. Alex Frost is one example of the participating artists who chose to do this. Frost's work "Wi Fi ZONE" immediately suggests to the viewer that the artist is already engaging with the potentials of the digital platform through the medium of print, so of all the artists in this group, he was considered the most likely to follow through onto talesofthings.com. What is really interesting here is the marked difference in style and content in what he has written about his work and what someone else has written about his work. One gains professional and academic insight into the work from the Editions Co-ordinator. The meaning behind the work and the artist's successes make him appear invincible, informed and possibly even intimidating to those who aren't artists:

"Frost's work presents an awkward marriage of numerous distinct references: digital technology, food science, community craft workshops, speculative fiction and macro-economics. Works in The Connoisseurs exhibition examined seemingly disparate groupings. Referencing cultural sophistication or a refined taste through materials, execution or selection, each work borrowed an aspect of the classical art form: portrait or still-life image, the outdoor or the domestic scale object. Wi Fi ZONE represents the artist's investigations into areas in which technology and commerce sit alongside more traditional, handmade, means of production typically associated with the area of craft." (DeRycker, 2010)

This is a direct contrast to the feeling one gets when they read his own words. Suddenly one is aware that is a contemplative person exploring ideas and expressing them in a very personal way:

"The poster as a print format has purpose and place - as an advert or notice in a shop, bedroom or on the street. It is also a format that is still very much alive. The idea for this poster came about at a time when more and more places were offering free wifi access. There wasn't yet an agreed single graphical vocabulary for these wifi zones, hot spots or wireless access points. This seemed an interesting point in the development of a sign; one that mirrored the World Wide Web's own diversity whilst also seemingly contradicting the notion that the web is a homogenising tool. A little investigation showed that there was an official 'wifi zone' logo. This print is my own version of a wifi sign based on this official version of the logo." (Frost, 2010)

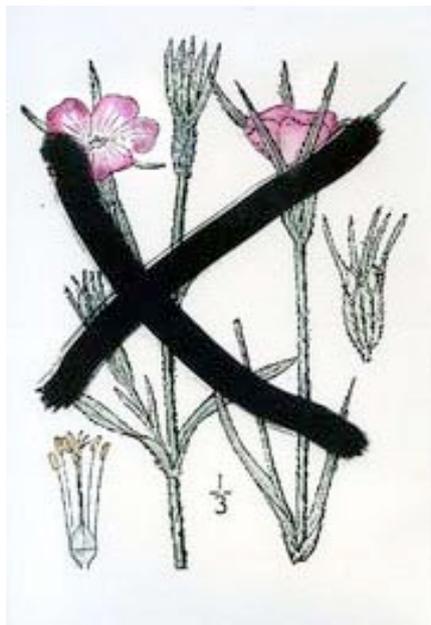
Having both the "official" version of the story of Alex Frost's print, plus words from the artist himself give a much broader and more engaging experience of the artwork, and one starts to see things a little more through the artists' eyes. Add to this the video of the work which people can view on their mobile phone when they scan the tag, and the experience of "Wi Fi ZONE" suddenly feels much more embedded within something far larger than just the print and the viewer.

During this time, the Multiplied Art Fair, organised by Christie's, took place in London (October 15th – 18th 2010). The reception of the tagged works of art was very positive from a wide range of audiences. Those visiting the Fair were intrigued by the codes and impressed by access to video content. Other exhibitors wanted to know more so they could use the same technology for their artists, whilst the Editions Co-ordinator (who was representing the works at the Fair) found the codes really useful as an icebreaker to introducing potential buyers and collectors to the works. She observed that many of the buyers had iPhones and this enabled her to encourage them to download the app, and play with it to learn more about the artworks, which they found fun. Engaging with the content about the artworks on their own mobile phones also made the experience take on a more personal dimension. This is because mobile phones are seen to be affective technologies (Lasen, 2004), ones through which we mediate emotion and become attached to. This use of an affective media when engaging with artwork creates a more intimate space between the viewer and the artist, with the potential for a deeper understanding of the work and a stronger connection to the work's origins.

The second group of artists comprises those who use the DCA Print Open Access Studio, which provides printmaking facilities for artists to come and use for modest membership and materials fees. In this paper, this group is referred to as the "Open Access Artists". In contrast, to the Editions Artists, the Open Access Artists each signed up to talesofthings.com as individual users. This meant that they were responsible for uploading their own stories and digital content, and for how they used the platform. By giving this group complete autonomy, researchers could see how they engaged with the technology, the types of stories they chose to tell and how often they visited the site.

Content such as the title of work, size, medium, paper and date were expected, as these are the key pieces of information that usually accompany artworks in gallery situations (on and offline). Stories of the works in terms of how they were made were expected, but what was not expected was how they highlighted the importance of technique and methods to the printmaker. The integrity of the artist as a printmaker is articulated through many of the artists' stories and is poignant in Annis Fitzhugh's entry *Cancellation Proof*:

“when a limited edition is completed, the plate or block is defaced, often with a cross, so that no more prints may be made from it. The plants represented are all on the Red List of endangered species.”(Fitzhugh, 2010)



[Figure 3 - Cancellation Proof, by Annis Fitzhugh, courtesy of the artist](#)

This entry implies that the edition is “authentic” because Annis created a cancellation print for her edition, a “proof” that the edition is limited. The content of the artwork, like the print itself, is endangered, rare and limited. Annis’ entry also explains printmaking processes to non-printmakers and the comment following up on this by a user called “frog” shows a discourse beginning to emerge about the work, and about printmaking practices, when they write: “That’s sad that a lot of nice images get defaced in such a way :(” (ibid) One can infer that frog is not a printmaker, but that they appreciate the print that was cancelled. This comment is also thought-provoking in how accepted norms and “good practices” in printmaking can be perceived as destructive by those outside the field, who are unaware of the critical debates surrounding authenticity and originality of the print.

The practice of using technology in ways unforeseen by the developers is what Adam Greenfield, a usability expert at Happy Cog Studios in New York, refers to as “fault lines”. He defines these as “places where emergent patterns of use expose incorrect assumptions on the part of the designers, imperfect models of the target audience on the part of the marketers, and social realities that might have otherwise remained latent”. (Greenfield, 2006)

One fault line that emerged in this study was the practice of creative practitioners using the site as a new type of sketchbook, or place to post up ideas and work in progress. One such artist to do this was printmaker Marianne Wilson, one of the Open Access Artists in this study, whose candid insights into her work give a real sense of the person behind the works, her thought processes and why she chooses certain ways to work in the studio. In October 2010, the co-operative WASPs (Workshop and Artists’ Studio Provision Scotland Ltd) where Marianne has her own studio had an Open Weekend. During this time, she chose to exhibit tagged works in her studio and then upload the process to talesofthings.com. This use of the technology, in terms of the artist’s choice to exhibit her tagged works in spaces where the public can view them was what researchers were hoping to see, but not so early on in the process, and again the stories provided much more insight than expected:

“This year I've avoided framing as a lot of the work is part of a thought process and as such unfinished. I have decided to create a display even though I have not really reached a conclusion to my research. I am hoping to create an atmosphere of time gone by and a sort of eclectic feeling within my space. I hope that people will react well to the work but it is a new venture and so I do feel fairly nervous and excited.” (Wilson, 2010)

This type of story shows the maker's vulnerabilities, exhibiting how a digital maker's mark can be far more revealing than any standard maker's mark could be. This very personal account is something that would never be gleaned from conventional provenance records without extensive research.

Conclusion

Collecting and telling tales enables a more human and personal element to be attached to objects, where even QR codes themselves provide a means of personal expression for the maker. Unlike traditional one-dimensional barcodes, QR codes can be personalised with logos, icons and experimental designs, providing the maker with a means of creating a strong visual identity with interactive functionality. Current research is in its early stages, and as the project develops, the emphasis from the design point of view is on exploring how to make such personalisation realisable for creative practitioners without having specialised technical knowledge of mobile technologies.



Figure 4 - QR code designed by Takashi Murakami for Louis Vuitton

Over time, as this research continues, the hope is for a critical mass of makers to start tagging their works with stories, including those who are not part of the case study, enabling cross-referencing and networks to develop. The tradition of maker's marks, has the potential to benefit from being relocated to a digital platform, enabling communication between the maker and their audience in a way that has previously not been possible with other forms of maker's marks. Not only do the stories that the object can be tagged with allow for strong connections with the maker, but easily accessed provenance and crowd-sourced information on authenticity can be embedded in the object right from its inception.

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Acknowledgements

This work was developed as part of the TOTeM research project whose Co-investigators are (in alphabetical order): Maria Burke, Andrew Hudson-Smith, Angelina Karpovich, Simone O'Callaghan, Jon Rogers, Chris Speed. (PI) Additional team members are: Ralph Barthel, Martin De Jode, Kerstin Leder, Arthi Manohar, [Jane McDonald](#), Duncan Shingleton.



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Abstract

There are new practices in the furniture design field that arise within the paradigm shift from mass production to mass customization. This recent economic framework is the motto to analyze the changes in the dynamics of the relations between designer, manufacturer and user.

As mass customization aims to provide goods and services to meet individual user needs, through efficiency comparable to mass production, there are some methodological transformations that need to be characterized and discussed.

The design process in the furniture industry does not occur in isolation: in the definition of the formal characteristics of the product / system, the designer must engage the manufacturers and the market. At the present time, in a transition period from mass production to mass customization, it is necessary to debate the impact of new variables in the design process and the redefinition of their performers' role.

This study examines technical issues of the design activity, mainly related to computer-assisted tools, and proposes different design methods to enhance its performance within the context of customizable furniture design. It is proposed a digital design process, where the designer performs design and production activities through computer-assisted tools. It is discussed the relevance and flexibility created by the process, from the perspective of the designer's activity, and as a mean conducive to the inclusion of the user as an active element in design activity.

In the context of practical application of this process, it is announced the end of the market studies as the archetype of the relationship between the designer and anonymous users, redefining the role of the user in the design activity, and consequently its increase of power in the construction of its identity through the co-design of customizable goods.

Introduction

The furniture design process does not occur in isolation: when defining formal characteristics of a product or system, the designer must work in close relation with both manufacturer and the market [1]. In the current business environment, in which mass customization is succeeding mass production [2] as a dominant model of manufacturing, it is necessary to reflect upon the impact of new variables in the design process. It is required to understand how the paradigm shift may be defined and how it affects the internal and transversal dimensions in the relations between designer, manufacturer and market, considering the furniture design field of study.

As digital design is increasing its impact among the design community, redefining design and production practices [3], it becomes important to assess its role as a domain to contribute to the establishment of mass customization in the furniture industry.

Macroeconomic scenario

Mass customization is an expression with a broad sense that embraces transformations in fabrication, distribution and delivery of manufactured goods according to the needs of a specific user [4]. Its meaning has evolved to describe a strategy that uses information technologies in order to produce customized goods at low cost, fast response through a pace comparable to industrial production, representing a discontinuity with the traditional methods of mass production and standardization, establishing itself as a new paradigm [2].

In furniture design, this business model became feasible during the 1990s as computer aided design and manufacturing (CAD-CAM) has streamlined the design process, particularly with the use of computer numerical controlled (CNC) machines and laser cut [5].

Designer and design tools

The use of digital design media in the process of designing has contributed to the redefinition of the role of the designer. Computers are no longer used only to provide accurate representation of a design, but also to generate, evaluate and provide information to automatically produce artifacts. These facts raise issues on the designer performance, particularly concerning the nature of interactivity with the media and type of control of design process [3].

In a broad sense, CAD allows the generation in a virtual environment of the different parts of the product, of their assembly; and it permits the simulation of its real aspect and the specification of how it will be manufactured, if the production is computer assisted. These functionalities require different modes of operation [6]. The translation of CAD data into a CAM file is made during the product engineering phase, sometimes separated from the design / conceptual phase. Usually done in different software, this procedure may be characterized by the conversion of CAD drawings into a neutral data format that can be read by CAM software in order to define the tool path that will direct the motion of the tool to machine the part. Sometimes it is necessary to redraw the

virtual model, due to errors that exist in converted data, which results in productivity loss in the global design process. The translation of computation to execution is an important issue that must be streamlined in order to optimize process' workflow.

The use of CAD as a valid tool in the design process, gradually replacing manual technical drawings, redefined furniture design's methodology as well as the shapes of the objects [7] [1] as designers creatively explored possibilities afforded by the tool. Similarly, it is defended in this paper, that CAM as a tool used by the furniture designer, may open new dimensions in the creation of customized furniture design by allowing a broader control over the process. The use of digital design tools as a holistic design process that redefines the path from conception to manufacture is also supported by Joshen Gros' argument:

“Introducing mass customization to the furniture industry has one definitive bottleneck: nearly all of our traditional and modern furniture was either designed for handicraft or industrial technologies. It was not, of course, designed for the Computer Numeric Controlled technologies like CNC milling or laser cutting which predate mass customization. So we have to develop a full range of new products and consequently replace the concept of industrial design with the concept of customization design.” [5]

Expanding the scope of the designer in the use of CAD-CAM skills may enhance its activity because it provides a closer understanding and contact with production. By consequence, the gap between idea and materialization decreases as the designer is able to explore more directly with fabrication processes.

One might believe that this kind of knowledge within the core competencies of the furniture designer may be over-technique. The faster pace of the process and the immateriality in the relation towards the object could be considered as *dromology* – Virilio's [8] term to define the pollution provided by the logic of speed of digital technologies – to the design culture. Although the digital design process is faster than an analogical one, we do not consider that we are facing a *design dromology*. The acceleration aims to strengthen the furniture designer competencies both in concept and manufacturing stages, providing an opportunity for users to become active players in the design process. The user's integration into the design process may be a step to provide the designer the ability to define and translate concrete needs into the furniture specification, and therefore provide a sustainable competitive advantage to the furniture industry.

According to Gros [5] the proximity between concept design and production within the digital design framework places this kind of process more closely related to pre-industrial arts and crafts than with mass production industrial design. Incorporating CAM in furniture design core competencies should not constitute a barrier in the material and product detailing process. Mastering the production tools usually increases the creativity of a designer, as it becomes possible to think and explore beyond the traditional modes of tool operation, due to practical knowledge of fabrication processes.

Historically, when a furniture designer extends its activity to become closer to production, there are interesting insights in product development: the partnership between Marcel Breuer and Junkers [9], the invention of *Kazam!* by Charles Eames [10] and successive prototypes of Verner Panton for the development of the Panton Chair

[11] represent significant advances in tubular steel, plywood, and plastics furniture, respectively. Such examples of closer relations between design and fabrication have proven that creativity often spans from well defined production frameworks.

User as an active player in the design process

Apart of the paradigm of production or the design tools used, the goal of furniture is to be used by a person. However, before becoming a user, an individual who is not a designer is a consumer.

In business, a consumer is characterized as a unit of a larger group, generally called market, whose purpose is to acquire an artifact in exchange for economic value. Throughout the evolution of capitalism, market has been increasingly divided into specific groups, defined according to similarity of characteristics, for the reason that to consummate the act of purchase, the individual must identify with the product as well as have the economic means to acquire it. According to Julier market segmentation occurs because:

“(...) principal goods and services are not produced to individual commission, rather they are produced to an imagined and unknown consumer.” [12]

Generally envisioned as part of an anonymous homogenous mass, the consumer is commonly described in the literature on consumption until the 1990's (Frankfurt School thinkers like Benjamin, Adorno, Horkheimer, Marcuse) as someone who is easily seduced by advertisement, taking a passive role in the act of purchasing.

Nevertheless, in material culture studies, Miller claims that the consumer is active during the act of purchase because the decision level is closer to its private sphere, and directly impact its everyday reality. During the purchase process there is an anticipation of the meaning that the object may have and how it will work or interact within the user's context.

“In a sense the shopper may “dress” in the shop, trying out a persona or style of behavior.” [13]

The preview of functionality and meaning, as well as the anticipation of the relationship with other elements can be considered as part of design thinking. Therefore, there should be a closer relationship between individual and object in the design phase, while this usually only occurs later in the market.

The preview the functionality and meaning performs another important function, related to the construction of self identity: consumers purchase commodities with the intention of having the artifacts participating in the construction of his/her selfhood, both personally and socially. Beside functional aspects, people use objects due to their communication skills that replace language [14] and because of the emotional meaning they bring to their lives [15]. In the process of identity construction, objects are used to express values.

The concept of mass customization assumes an active attitude of consumers and includes them in the product design process. This may be considered an increase of

power in the construction of their identity and lifestyle, as they participate in the design *below the line* [16]. Opening the design process to individuals that may become users increase the level of engagement before the object exists and, in theory, supports the development of a more personal-effective solution, thereby achieving greater symbolic significance.

Although there is a closer gap in terms of participation between the user and the furniture to be developed, comparing to direct purchase on the market, there is an indirect relationship supported by the use of digital media to visualize how the object might look. In this framework of co-design the user starts to relate to furniture design from the perspective of service design rather than traditional commodity, due to the possibility of defining, configuring and modifying aspects in a virtual model, prior to its manufacture. Because services are not tangible like products, effective communication methods must be designed to create positive relationships between service suppliers and service users.

The redefinition of furniture design process proposed above bestows a new dynamics between designer – manufacturer – market that can be summarized as: designers enhance their activity through computer aided design and manufacturing skills and through a direct contact with a specific user; and market reaches its maximum segmentation when in each segment there is only one person. The gap in the information flow and trade between user-designer and designer-production becomes closer (Figure 1).

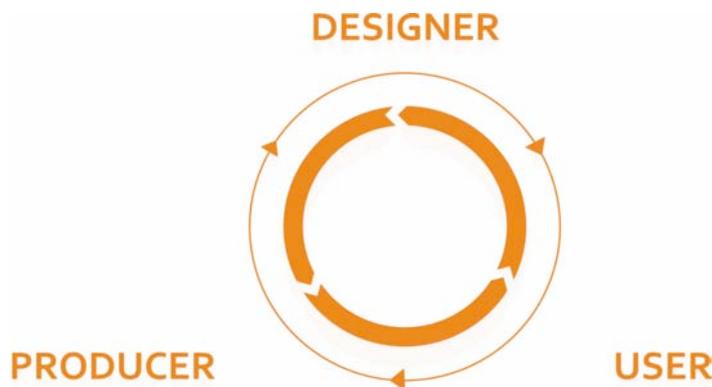


Figure 1 – Information and product dynamics in the design process

Design model

There are several companies, mainly in the clothing sector, automotive and electronics [2] that currently operate in the economic framework set out above. Their products are designed through modular based product architecture as opposed to integral architectures [17]. As components can be assembled in different ways, providing product variants [2], consumers have the chance to choose some product's features like size, color, texture. The scope of choice is always based on preprogrammed matrices defined by designers and producers.

In the mass customization framework, modular based product architecture is considered opposite to integral based and provides a path to turn this business concept viable. From the perspective of the design process' features, it can be considered a fixed constrain.

When interacting with aspects provided by a digital design process, both in CAD and in CAM, the furniture designer may transform its role as a creator, becoming more a process designer, rather than a traditional product designer: the designer designs the rules of the process and evaluates the produced designs with future user cooperation. In this methodology, CAD tools are used not only for representation purposes but also - and maybe primarily- as generative tools to find form. They must be linked to evaluation systems to analyze the objects' performance and to CAM systems in order to produce them. In figure 2 is outlined a schema of the purposed digital design process, in which the dot square represents the design / concept phase and the filled square the manufacture phase. In this design process the use of computer tools aims to enable both the generation and production of mass-customized furniture. The variations of the filled square in the right side of the schema represent objects' versions variations provided by digital design system. The parameters of choice allow variations on material, color and size, but also shape variation, which represents a step further towards the mass customization of furniture.

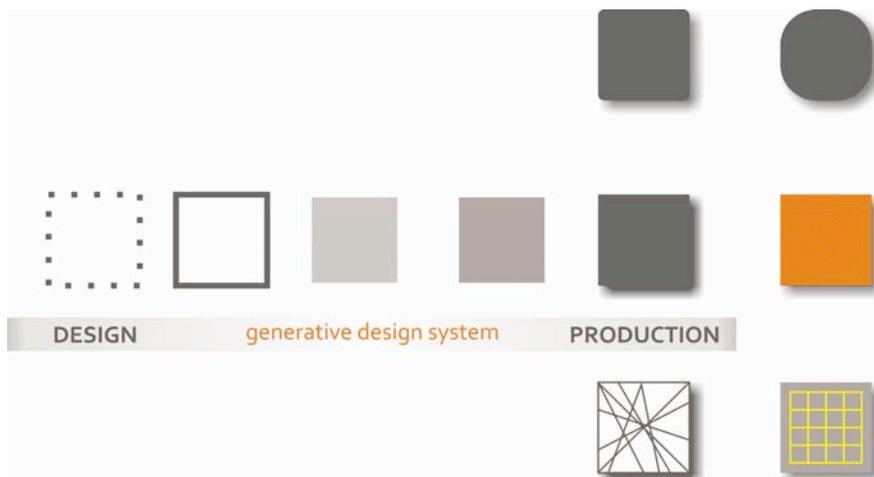


Figure 2 – Digital design process

According to the ideas presented, the integration of CAM skills in the furniture designer praxis, the use of a generative design system and a closer relation with the future user, it is defended that is possible to establish another step in mass customization in the furniture design field, allowing a wider scope of choice for both the designer and the user. In this framework modularity, should not be considered a fixed constrain: the digital process allows greater variability, feasibility and quicker response when compared to the modular based and the more traditional design processes. Based on the assumption that CAD-CAM tools are not going to become obsolete in the short term and function as integrative media, they can improve the work of a furniture designer in developing mass customized goods in a second digital age.

In the last years, some experimentation with the use of digital tools has been made, supporting new roles of the furniture designer. While some of these developments are

centered in the use of generative features, others include digital fabrication as the output of a digital media based process. The “Solid” collection designed in 2004 by Patrick Jouin and produced by Materialise.MGX was the first use of rapid prototyping beyond small-scaled objects. “Solid C2” chair (Figure 3) using stereolithography is a good example of how these transformations may help redefine furniture design.



Figure 3 – “Solid C2” chair, Patrick Jouin (770 x 400 x 540 mm)

To redefine furniture design’s process with the use of computer assisted tools, it becomes necessary to the study design methods that include accurate and systematic knowledge on CAD-CAM operations; namely, knowledge about different kinds of materials such as wood, wood composites, polymer composites and metals suitable to different additive and subtractive CNC tools. To become effective, a suitable methodology for designing according to the mass customization paradigm, should propose recommendations for optimizing machining strategies, such as order of operations, movements, tools, and appropriate speeds, as well as material and geometric constraints.

This holistic approach to the digital design process in the paradigm of mass customization is not limited to optimizing the solution of technical problems when the designer interacts with the tools: it aims to provide the designer with a knowledge-base to make possible including the user as an active member of the design process.

The flexibility of the process, the freedom of the designer to be able to produce furniture with a production rate comparable to industrial, and user involvement in design process could transform the field of furniture design practice. It can position furniture design as a direct customer service with specific requirements.

System's sustainability

According to the digital process outlined above, the gap between *design – user – producer* is reduced.

Opening the process to enhanced user participation does not mean that the user will design and the furniture designer will be a skilled technician introducing data. When interacting with the user, the designer should exercise its activity in solving problems that require professional knowledge and are core skills of its activity, especially those relating to ergonomic requirements, function optimization, adaptation to economical, cultural, and technological constraints [18]. Concept generation is also predominantly the domain of the designer, due to the fact that users generally know best what is familiar [12] and don't have the same knack for innovation.

The collaboration between user and designer is a defining factor in the success of the framework outlined in the present paper. Even in the proposition of a general framework, there are two moments of *user – designer* interaction that must be further explained. The first is characterized by defining the goals that a particular piece of furniture or system should attend. While users provide information to the designer, especially related to general requirements concerning to the use of space, living habits, furniture's function, emotional aspects, affordable costs, among others; the designer's task will be to transform the abstract and functional inputs into feasible furniture solutions, designing for the task, for usability, using *digital design thinking* [3]. In this phase the designer may create or refine a generative design system in order to permit future choices for users. The second moment is characterized by the design and production of the furniture. In this stage user can choose from an established configuration system, customizing the object; or directly collaborate with the designer, personalizing a unique solution.

This conceptual framework aims to widen the possibilities of customization and personalization, becoming more dynamic and creative for the user and the designer alike, rather than the features' selection in modular products. The integration of users in the process transforms them into *prosumers* [19] – allies of the organization / company and then as consumers – by buying products designed in accordance with their own specific needs. It is expected that furniture may increase the fulfillment of the user due to the bonds created in the co-design process and the added value of having a unique personalized solution.

“Mass customization refers to a business strategy that conciliates two different business practices, which are mass production and craft production.” [20]

Due to this feature, several approaches can be developed that fit in this activity of designing furniture to specific people. The framework presented is suitable to small workshops and design studios, which can provide a quick market response, have a strong presence in the internet through website and social networks to create bonds with potential users.

“(…) if the market is just one person, then the prototype is the product.” [6]

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Acknowledgments

The authors thank José Pinto Duarte and Leonor Ferrão for their feedback on the work. Mário Barros' research is supported by Fundação para a Ciência e Tecnologia with grant SFRH/PROTEC/67509/2010.

6 MAY
Friday
11 am

Involvement



Values and Qualities in Interaction Design Meetings

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Abstract

How are values and qualities expressed in interaction design? Previous research into this topic has largely been conceptual. How interaction designers and clients actually reason has only been touched upon in empirical studies. The research question for this paper is how interaction designers, as a collective and in an unfolding design process, concretize values and qualities in meetings with clients. By way of video recordings, we have analyzed two interaction design workshops. The analysis indicated that values were concretized top-down, from general conceptions and the design brief given, while also explored bottom-up. Several kinds of communicative means (e.g. talk, gestures, whiteboards, post-it notes) were used to animate values and design visions. Mixing a top-down and bottom-up approach allowed the designers to be both prescriptive and sensitive to the uniqueness of the design situation. The differences in communicative means did not really matter for how values and qualities were made concrete. What mattered was that people really started talking with each other.

Introduction

The overarching area of interest for this paper is development of criteria for interaction design. The paper contributes to an awareness of how values and qualities are expressed in design meetings, where clients involve interaction designers as a catalyst for change and progress in their business. Such awareness can facilitate a broad understanding of the values and qualities of design solutions [1]. In the long run, it contributes to knowledge on how to improve multidisciplinary teamwork in co-design.

Interaction design—like so many other work practices—involve multi-modal and embodied means of communication throughout everyday work [2]. When addressing more traditional design areas, as for example product design, it is easy to imagine a concrete thing-like end-result. When it comes to design for user interaction, however, the design object is much more

abstract. Interaction design is just as much about social interaction and molding of organizational values, as it is about deciding particular layouts of interfaces.

Before continuing, we need to define what we mean by the most central terms we use in this paper design:

Design values. By design values we refer to values that stakeholders have, and they guide prioritization and selection, which leads to inherited values in the designed product [3].

Design qualities. By design qualities we denote characteristics of the design solution. To highlight that interaction design concerns how people experience interactive systems during usage, the terms interaction design qualities, experiential qualities, and use-qualities are sometimes used [1, 4-6].

Design quality. We rely on Volker's [7, pp. 307–308] definition for the concept of design quality: “an overall value judgement of an individual stakeholder that is based on the interaction between the person and an (representation of an) object [and it] is always accompanied by an affective response and an assessment about the level of quality or value of a product”.

There are different ways to conceptualize what the core values and qualities are in interaction design. The following section will give a background to our perspective on the field.

Background

Previous research in the area of qualities and values in interaction design has largely been conceptual, i.e. focusing on quality and value models rather than on unfolding design processes [8]. Although several methods for exploring design values and qualities have been suggested, earlier research has seldom focused on how designers (as a collective) utilize and communicate values in design. However, in an earlier study aiming to put quality models to test, a list of value and quality perspectives for interaction design was developed [4]:

The practical perspective. The interactive system is seen as a tool for mediating instrumental action and attention directed at a material object. For example, a photo editor is primarily a tool used to manipulate a pixel-based image. The photo editor itself is not in focus of attention, but the image is. At least as long as everything goes well, but when something goes wrong, the editor itself is focused instead.

The communicational perspective. The interactive system is seen as a sign or medium, mediating social or communicative action and attention directed at other people. For example, a user may directly upload photos from a photo editor to a website for others to view and comment on. Having an elegant and personal website for one's photos can be meaningful for oneself and signal one's personality and group belonging to others.

The organizational perspective. The interactive system is seen as a business component mediating social or societal action directed at a community of people, its division of labor and its rules. The community of people can either be internal or external to the organization. For example, with the advent of the photo editor on personal computers the working and business conditions for professional photographers and others who develop and process photos was dramatically changed. The development of online photo printing changed their conditions again.

The aesthetic perspective. The interactive system is seen as an objectified form, mediating action and attention directed at the user's own experience of the interactive system. This goes beyond appearance to include the overall experience of using, for instance a photo editor. It also includes the non-instrumental playful activities people engage in, with photos for example.

The technical perspective. The interactive system is seen as an objectified structure, mediating action and attention directed at the construction or material of the interactive system. For example, when a filter in a photo editor produces an unexpected effect, the attention may turn towards how the photo editor in itself works; and when a user do not find a specific function, he or she, focus particularly on navigating the structure of the user interface.

The ethical perspective. The interactive system is seen as objectified concept, mediating action and attention directed at ethical concerns. This includes political issues such as power relations, normative structures, but also more moral concerns such as how a particular design affect the habits and interaction patterns of people.

If we turn from the conceptual models to the empirical research, the focus has been on conceptions interaction designers have of values and design quality. How they really use these conceptions has not been investigated. The conceptions they have of design quality basically have to do with assessing peoples' and business' ways of working in relation to their motives and purposes. Design quality is, for interaction designers, also about assessing ways of interacting with form and behavior of interactive systems, and the qualities of experiencing that form and behavior. Furthermore it has to do with the qualities of using functions and contents of the interactive systems. Considerations also need to be made in relation to the conditions and contexts of technologies and organizations. [9]

There are basically two approaches to defining design qualities [5]. The first is top-down, as in usability engineering, where you start with general qualities like effectiveness, efficiency, and satisfaction and break down quality criteria in the form of specific usability goals, as for example a specific time to complete a task. The other approach is to work bottom-up, much in the same way as envisioned in early work on contextual usability [10]. Here one instead starts with the values that stakeholders have and the motivations that drive them. With the values as a basis design qualities for the future design are developed. From these more specific criteria can be decided.

A top-down approach can also be mixed with a bottom-up approach. This means that the order in which values, qualities and criteria are traversed and developed is not pre-established [5]. However, we do not know how interaction designers actually work. This leads us to the research question for this paper.

Research Question

The research question is how interaction designers, as a collective and in an unfolding design process, concretize values and qualities in meetings with clients.

Method

By way of video recordings, we have analyzed how values were communicated between pairs of designers and pairs of client representatives in two interaction design workshops with different participants in each workshop. The clients representatives worked at the Swedish Enforcement Authority, and were involved in a project focusing on developing a design-oriented IT procurement organization. The workshops were part of a series of workshop with the aim of getting different competencies to work collaboratively to define problems, specify possible solutions, and make use of methods put forth by interaction designers to capture problems and important design qualities. The same workshops have previously been analyzed from other perspectives [2, 11].

Prior to the workshops the client representatives and the interaction designers were given documents describing parts of the client's future work processes, and a brief for an interactive system for supporting the handling of applications for debt restructuring. Debt restructuring is a process to help Swedish citizens in serious financial problems to avoid personal bankruptcy. This was the first time the designers and clients met.

Field notes were taken during the workshops and video was recorded. Materials produced during the workshops were also saved for later use and analysis. Video transcription was analyzed from a dialogical and conversation analysis-inspired perspective using a transcription key similar to Jefferson's [12]. The key is described in Table 1. The focus has been on unfolding dialogical relations and division of labor.

Results and Analysis

The two meetings between designers and clients could be divided into three phases. First, there was an 'orientation phase' during which the participants got to know the task and each other. In this stage of design, there were many discussions about general ideals and design values. Then, there was the actual 'design phase', where the participants discussed and made proposals for specific interactive systems. Thirdly, we had the 'end phase', which was the stage where they rounded-up what had been done, and discussed forthcoming events.

The following sections will show that the two groups shared general ideas and values as common ground, and that they actually had a similar design work despite apparent differences in the use of communicative means. We will start with the differences.

Differences in Design Tools and Communicative Means

Values were concretized in multi-modal interaction among participants. Several kinds of communicative means (e.g. talk, gestures, whiteboards, sticky notes) were used to animate shifting values and design visions.

Symbol	Meaning
Xxx	Emphasis (part of utterance)
XXX	Increased emphasis or voice volume
°xxx°	Decreased voice volume
>xxx<	Increased speech tempo
>>xxx<<	Additionally increased speech tempo
<xxx>	Decreased speech tempo
.h	Inhalation
xxx	Smile voice (or while smiling)
#xxx#	Significantly Lower pitch
§xxx§	Mumbling voice
xxx-	Cut off word or utterance
xxx:::	Lengthening or fading utterance
[xxx]	Overlapping talk
(xxx)	Uncertain or inaudible speech
(.)	Micro pause below 0.25 seconds
(..)	Pause around 0.5 seconds
((xxx))	Transcriber's comment

Table 1 – Transcription key.

In the first workshop, we observed how the designers asked the clients' for expected end-use and needs of the clients' clients (indebted people and creditors). Many questions concerned more or less abstract or fictive events (although they may seem concrete), as for example "how would you react in that situation" and "what is the best practice in that situation". Questions such as these are important to know the answer to, but they are impossible to answer completely truly. The designers wrote down new suggestions in their protocols, and put sticky notes on the table to sort out the various design ideas.



Figure 1 – Communicative means and design tools in Workshop 1.

In the second workshop, a quite different way to co-operate unfolded. Here, the design team was more driven by the tools available. At first they used a laptop to sketch the initial structures, but quite soon they got up and went to the whiteboard. A more open interaction followed. They went back and forth between design suggestions and evaluation with the clients and they used different means in different stages of the workshops. Figure 1 depicts the main communicative means used in the two workshops.

Common Socio-Technical Practices and Values

If we had stopped the analysis at this point, we could have concluded that the different communicative means afforded different kinds of co-operation. However, they shared tools such as pen and papers, computer software, and common values about the end-result. They also shared responsibilities of overall system efficiency and knowledge about technical structures. It was therefore not that surprising to see, in both workshops, that one designer (D1) was the most verbal one (the leader if you will). Then there was the supporting designer (D2), or the one who made most of design notes. On the other side, there was one more active or verbal client (C1), who made most contributions to the overall design process, and a more supporting client (C2), who had the role of technical consultant.



Figure 2 – Communicative means and design tools in Workshop 2.

This very early and seemingly given division of labor did not change during the workshops. On the contrary, it became even more apparent in the design phase. There was, however, a few minutes of interdisciplinary conversations during the first minutes or so and during coffee breaks.

In the first workshop, we could see that the design conversation focused on making decisions on constraints and objectives, rather than development of design ideas.

In the second workshop, we could see how the designers continued to guide the clients and use them as informants. Although they did shift communicative means, from notes and laptops to whiteboard, the objects of design were not really shared between designers and clients. They created instead a kind of front-stage where they could perform their design for the clients. In addition to the sketching in front of the whiteboard, the division of labor was

enacted via talk, gestures and writing. Consider the following talk excerpt as an example of how a strict division of labor was not just a visual effect, but inherent in the way they talked to each other. Before the excerpt, D1 and D2 had placed themselves in front of the board, in a relatively open position, and partly turned to their audience (C1 and C2).

Excerpt: Whiteboard as design tool and communicative device

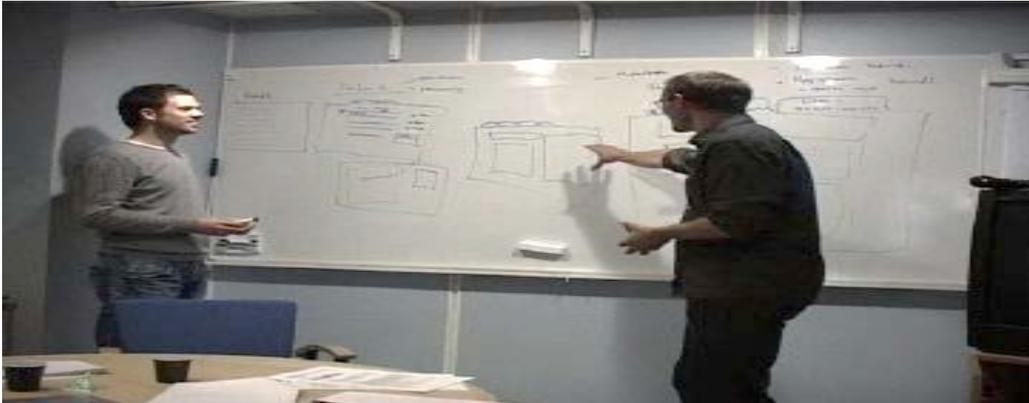


Figure 2 – Beginning of excerpt.

1. D2: >but can- um play with the thought at least<
 2. D1: [a while
 3. C1: y
 4. C2: >yeah but<] it's true
 5. C1: it seems pretty silly that you shou um be guided by such a thing
 6. D1: yeah yeah yeah
 7. C1: compared to getting- something really Good and work with- you know
 8. D2: a::: exactly- >cause its §their§ tool- that §(sit with)§ all day<
 9. C2: a (.) nah so I dont see that as a limitation
 10. D2: nah
- ((..))
11. D1: and we dont have to specify the Pixel size [°(exactly)°
 12. D2: *Nah*
 13. C1: ((laughs))
 14. D1: *at- at this [stage its not*
 15. C2: ((laughs))
 16. C1: ((laughs))
 17. D2: ((laughs))
 18. D1: we re Play:ing that we can fit ((points at the board)) TH:at in
 19. D2: Yeah (.) (as long as) we can fit All in in some way ((waves arms))
 20. D1: a:
 21. D2: .h (.) >yeah: but then we can actually start< detailing- feels like- we know that they are connected- in some way ((points)) (.) you can open several documents (.) know that its this view:(.) and then its tha:t ((looks at D1)) summery view (.) and then its this Schitt °then (shown) there° ((moves the hand over the board))
 22. D1: yeah That- is not That
 23. D2: Yes
 24. D1: Thats thumbnail of That ((points))

25. D2: Yes

((..))

26. D1: *With more tabs you can fit into the thumbnai(l)* ((smiles))

27. D2: *Yes he (.) [Many more* ((laughs))

28. D1: ((laughs))] >right<- but i draw those into this document

29. D2: yes

30. D1: here

31. D1: yes

32. D1: °so°

((they continue to draw and erase))



Figure 3 – End of excerpt.

As seen in the excerpt, the designers did not really display their design rationale, and they did not invite the clients to define design values. The clients, in turn, did not give away all about the current practices. This indicated that the collaboration was not that strong. The designers rather proposed a general design scheme and let the customers react *to some selected aspects* of that design.

Top-Down and Bottom-Up Work

The video analysis indicated that values were concretized top-down, i.e. from general conceptions and the design brief given, while also explored bottom-up.

All participants did talk about ‘electronic solutions’, in the general sense, but the designers talked about how they put a category at the ‘wrong’ place. They thus assessed their own ongoing performance. The customers rather decided what was worthwhile re-designing or re-thinking to the next phase.

Overall, there was an interdisciplinary conversation about design values that were already pre-established, but not yet understood. It was a conversation about things like about ‘correctness’, ‘division of labor’, ‘openness’, ‘electronic systems’ etc.

There was no given phase for values or evaluations in the workshops. Instead, each workshop started with the already pre-established ideas and values. Another pre-established aspect was

the working order that was there already from the very beginning of the workshops. Generally speaking, there was one verbal designer who took the role as design coordinator, another designer who took the role of designing by drawing or writing. Then there was one customer in each workshop who acted as the main representative, and another one who acted as technical consultant.

The design phase was not collaboration in the strong sense. The designers decided what was going to be designed and the clients set the constraints. The participants also proposed and developed their own future participation in forthcoming stages of design (e.g. ideation, prototyping, and user-tests). What they all had in common and displayed for each other was a trust in that there would be some kind of IT-system in the future, and that interaction design would be one of many steps towards organizational change.

Conclusions

What does it mean when we say that they approached the design values and qualities in a top-down fashion? Well, it does not mean that they started with a clear set of perspectives on design values and qualities, as the ones provided by Arvola [4] or Boztepe [8]. They started with loosely defined but shared conceptions of values and qualities for the IT-system, similar to the set of identified by Arvola (2010a). They also had the brief as a starting point. They used this common ground to jointly explore what the general conceptions meant for the current design situation. In this way the work can be characterized as top-down, but it was not top-down in an engineering style of work, using hierarchical breakdown of a clear definition, as depicted by Holmlid [5]. It was grounded in the specifics of this particular situation [10]. That is, design values and qualities were concretized as the workshops progressed, and as the top-down preconceived ideas met the bottom-up conversation between designers and clients. These empirical results thus qualify Holmid's [5] line of reasoning where he argues that the order of how values, qualities and criteria are traversed and developed need not be pre-established.

We have also seen that the communicative means, tools and methods the designers used did not have any large impact on how values and qualities were made concrete. What was important was that people really started talking. It was the conversations they had that mattered. The representations the designers developed were conversation pieces and they did not speak for themselves. It was the conversation the participants had that animated the representations with the kind of insights that the designers needed to gear in and connect with the clients.

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Acknowledgments

This analysis was made possible through a grant from Stiftelsen för forskning inom områden med anknytning till Östersjöregionen och Östeuropa (The Foundation for Baltic and East European Studies), in the project "Appreciation Practices Among Digital Creatives". Data collection was supported by a grant from VINNOVA (The Swedish innovation agency), in the project "Enabling technology through usability and organizational change with focus on the procurers terms" (2001-05131). We wish to thank Per Addenbrook, Henrik Artman, Stefan Holmlid and Ann Lantz for contributing to data collection and their other efforts in the project.

Rebranding Mergers: examining consumer brand identity preferences

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Abstract

Purpose- The purpose of this study is to investigate reactions to the various name and logo redeployment alternatives available in the context of a merger.

Design/methodology/approach - This study develops a typology of the alternative visual identity structures that may be assumed in the context of a brand merger by drawing on literature review and secondary data, as well as an exploratory study (n = 467) analysing consumers' preferences regarding the alternative brand identity strategies.

Findings – Results suggest that there is a clear preference for figurative brand logos. Furthermore, we found evidence that the brand logo may play a role as important as the name in a merger, ensuring consumers that there will be a connection with the brand's past. Another interesting finding was that the choice of the logo reflects consumers' aesthetic responses, whereas the choice of the name reflects consumers' evaluation of the brand's offer or off the brand's presence in the market.

Originality/value – The paper uses an innovative research design which gives respondents freedom to choose their preferred solution, hence the richness of results is much greater. These results should guide managers in the evaluation and choice of the post-merger branding strategy.

1. Introduction

Name and logo are key components of corporate identity, since they are the most pervasive elements in corporate and brand communications, and play a crucial role in the communication of the organisational characteristics (Henderson & Cote, 1998; Van Riel & Van den Ban, 2001).

The reasons for changes in corporate brand name and logo are numerous, nevertheless mergers are one of the main events leading to the necessity for a new name and logo (Muzellec & Lambkin, 2006). Furthermore, the building of a strong and clear visual identity is critical for the successful implementation of a merger (Balmer & Dinnie, 1999; Melewar, 2001). However, relatively little academic attention has been paid to the different name and logo options available to the new corporate entity, and to our knowledge no empirical research has addressed the branding strategies from the perspective of individual consumers. This paper seeks to address this research gap, by developing a model of consumers' brand identity preferences, in the context of a merger. Specifically, it considers the degree to which name and logo characteristics influence consumer responses.

The paper is set out as follows: we begin by reviewing relevant branding and brand identity literature, and discuss specifically the impact of a merger on corporate name and logo. Then, the study is described, the research results are presented and discussed, limitations noted and research directions outlined.

2. Literature Review

Branding is a central concept in marketing, and the particular importance of corporate branding has been highlighted by a number of writers (Keller & Richey, 2006; Merriles & Miller, 2008).

In the search of an holistic conceptualization, we assume a semiotics based conceptual model for branding, according to which the brand is founded on three fundamental pillars: the identity pillar, which includes the sign or signs that identify the brand and the brands associated to it; the object pillar, which includes the different offers of the brand together with the organization and the marketing activities which support them; the market pillar, which includes the brand's stakeholders and their different responses to the brand at a cognitive, affective and behavioural level (Lencastre & Côte-Real, 2010).

Name and logo are generally considered the main brand identity signs, since they are critical communication cues (Henderson *et al*, 2003; Pittard *et al*, 2007; Van den Bosch & de Jong, 2005). Development of a strong logo is particularly relevant for services organizations, because of the intangible nature of their offerings (Berry, 2000; De Chenatony & Segal-Horn, 2003, Devlin & McKechnie, 2008). Several marketing scholars have underlined the need to link intangible service offers to tangible logos in order to convey appropriate meanings (Miller *et al*, 2007).

The term "logo" can refer to a variety of graphic or typeface elements, ranging from word-driven, word marks or stylized letter marks, through to image-driven, pictorial marks (Henderson & Cote, 1998; Wheeler, 2003). In this study, the word logo refers to the graphic design that a company uses to identify itself.

Theorists agree that well-designed logos should be recognizable, evoke positive affect and allow the transmission of a set of shared associations (Henderson & Cote, 1998; Henderson *et al*, 2003; Janiszewski & Meyvis, 2001; Klink, 2001 and 2003; Kohli *et al*, 2002).

Affective reactions to the logo are critical, because affect can transfer from the identity signs to the product or company with little or no processing (Henderson & Cote, 1998; Schecther, 1993). Furthermore, in low involvement settings, the affect attached to the logo is one of the few cues that differentiate the offering (Hoyer & Brown, 1990; Leong, 1993). As design

evolves to become an essential component of corporate marketing, it is important to determine the extent to which design elements like figurativeness create a positive affect.

Figurative and its opposite endpoint, abstract, capture the extent to which a sign is related to the natural and sensitive world: the sign is abstract when there are no links to the sensitive world; in the opposite situation we say this sign is figurative (Greimas & Courtés, 1993). Logos depicting characters, places, animals, fruits or any other objects of the real world, that have familiar and widely held meanings, demand a lower learning effort and are better recognized (Henderson & Cote, 1998). Recognition for abstract and meaningless logos may be poor, and abstract designs are more difficult to interpret (Koen, 1969; Nelson, 1971; Seifert, 1992). Empirical research further shows that figurative identity signs can enhance brand memorization and contribute to the formation of brand associations (Henderson & Cote, 1998; Hynes, 2009).

Thus, from a design perspective, we decided to focus on this particular logo element, and to examine reactions to figurativeness in the specific context of a brand merger.

3. Typology of the corporate identity structures that may be assumed in the context of a merger

Based on the literature review and on a documental analysis of recent mergers, this study develops a typology of the corporate identity structures that may be assumed in the context of a merger, and which may closer to a monolithic identity (one single brand) or to differentiated identity (two or more independent brands). Next each one of the alternatives is described.

One of the corporate brands name and visual identity

According to the results of previous research (Ettenson and Knowles 2006; Rosson and Brooks, 2004), in the majority of the deals, the merged entity adopts immediately the name and visual identity of the lead organization. This is usual in mergers involving organizations with very a diverse dimension/power, and when the leading organization pursues a monolithic politic. This alternative allows to communicate explicitly who will be in charge after the merger. The use of one name and one visual identity provides visibility to the brand (Olins, 1990), and enables synergies in what regards the marketing activities (Keller, 1999).

Sometimes, the new organization adopts temporarily a hybrid solution, in which the name and visual identity of the lead brand cover the identity of the target brand. Relatively to the former alternative, this solution allows clients to adjust gradually to the new brand while maintaining their relationship to the disappearing brand. Moreover, this alternative permits the equity of the target brand to be absorbed gradually by the lead brand.

Another possibility is for the new organization to adopt the name and the visual identity of the target organization. This may be the case, when the target brand is a leading brand in its market, and has a high level of awareness and a set of strong, favourable and unique associations.

One of the two corporate brands' name and new visual identity

This solution enables the new brand to inherit the history and attributes of the original brand. Moreover, the adoption of a new visual identity can allow the signalling of a brand repositioning, of a fresh beginning.

New name and visual identity

The decision to create an entirely new identity can signal a new beginning, and help communicate the changes in the corporate structure and positioning strategy. Though, this is the most risky strategy, since the loss of equity associated with the two corporate brands is more significant (Jaju, Joyner and Reddy, 2006). Also, this drastic change may generate feelings of uncertainty, insurance and resistance among the different publics (Ettenson and Knowles, 2006).

Combination of the two corporate brands' names and a new visual identity

The solutions that combine elements of both identities can capitalize on the value of the two corporate brands (Keller, 1999). The option to combine the names can enable a connection to the familiar, while the creation of a new visual identity can signal a fresh start (Ettenson and Knowles, 2006). Still, these options may difficult the definition of the new brand's positioning strategy. The simple combination of the two names may not express an attractive promise, and it is fundamental to communicate the idea that the organization resulting from the merger is greater than the parts (Rao and Rukert, 1994).

Combination of the two corporate brands' name and visual identities

The combination of the two central brand identity elements may be adequate when one of the corporate brands involved has a distinctive name and the other a symbol rich in meaning. If the symbol communicates the target brand's name visually, its name does not need to be mentioned. On the other hand, the use of a highly symbolic logo can compensate a more abstract name. Also, the inclusion of identity signs of the two brands can be interpreted as a sign of continuity, of respect for the brands' heritage (Ettenson and Knowles, 2006; Spaeth, 1999).

One of the two corporate brands covers the other with its name and visual identity

By covering with its name and identity the acquired corporate brand, the organization expects to benefit from the value of the two corporate brands. The endorsing brand provides credibility and trust to consumers, assuring that the endorsed brand is up to its standards of quality and performance. Furthermore, this alternative can increase consumers' perceptions of the endorsed brand and preferences for it (Aaker and Joachimstaler, 2000; Saunders and Guoqun, 1997). Another motivation to endorse the target brand is to provide useful associations to the endorsing brand, since a leading brand in its market segment can enhance corporate image (Kumar and Blomqvist, 2004). Though, this option can create some confusion about the meaning of the corporate brand, if it endorses several individual brands and if there is no explicit coherence between them.

Two independent corporate brands

The adoption of a differentiated identity structure enables the organization to position its brands clearly according to their specific benefits and, thus, allows for optimum market coverage (Aaker and Joachimstaler, 2000). Moreover, the multiple brand strategy enables retaining the value associated to the target brand's name and avoids the new offers from acquiring incompatible associations. However, this strategy does not allow taking advantage of scale economies and synergies concerning brands communication. Also, this solution may be extremely costly, because to leverage the brands' equity it is necessary to support them continuously (Olins, 1990).

The seven options typified are illustrated in Table 1 through real cases of brands' mergers (see Attachments –Table 1).

4. Research method

In the main study a survey questionnaire was administrated to measure consumer's attitude towards the corporate brands being studied and their preferences regarding the different corporate identity redeployment alternatives. This research used fictional scenarios involving six real banking brands (Caixa, Millennium, BES, BPI, Barclays and Banco Popular).

Respondents (n=467) were postgraduate students from a major university, and were assigned randomly to 1 of the 15 versions of the brand merger. Each independent group of respondents (composed by at least 30 elements) evaluated one corporate brand pair.

Respondents first answered a series of questions regarding their cognitive answer (recall and recognition) towards the banking brands and their identities signs. Then they were asked to

rank the logos under study from one through to seven, where one was the respondents “most pleasing” and seven the “least pleasing”.

In the following part of the questionnaire a series of questions were included to evaluate the cognitive (familiarity), affective and behavioural response towards the two brands under study¹. Finally, respondents were presented with the target stimulus depicting the corporate brands’ merger scenario, and then answered questions concerning the corporate identity redeployment alternative that they prefer.

Participants were given three cards depicting the different alternatives in terms of the new brand’s name – name of Brand A, name of Brand B or a new name² - and three cards depicting the different alternatives in terms of the new brand’s logo - logo of Brand A, of Brand B, or a new logo - and were asked to form on the presented booklet their preferred corporate identity redeployment alternative (see Attachments - Figure 1). Respondents had to use at least one card with a name and one card with a logo and could not use more than 4 cards.

5. Results

5.2 Revision of the typology of identity options

The analysis of consumers’ preferences led to a revision of the typology of corporate identity redeployment alternatives previously developed, since new monolithic and combined redeployment alternatives were found.

In respect to the monolithic alternatives, four different response typologies were identified, instead of the three options initially typified (see Attachments - Table 2). The option to choose the logo of one of the two brands and a new name was not previewed in the literature and is not usual in the practice. This new monolithic option transforms the brand’s logo in the stability element whenever there is a rupture with the past in terms of name.

In regard to the redeployment alternatives that combine elements of both brands’ identities, a wide range of response typologies was found besides the three options previously typified (see Attachments -Table 3). The option to combine the two brands’ logos with a new name is a variation of the alternative to combine both brands’ names with a new logo, and contributes again to underlining the importance of the logo as the stability element in a merger context. In respect to the option of choosing the logos of the two brands associated to the name of one of the brands, it can be considered as an example of an endorsement solution, and it confers the logo the endorsement role that is typically attributed to the name.

Results indicate that almost half of participants preferred monolithic redeployment strategies (47.5%). However, the analysis of the different monolithic response typologies shows that the creation of a new brand outperforms the preservation of the brands involved in the merger.

Moreover, redeployment alternatives that combine elements of both brands identities are also very often chosen. On the other hand, differentiated alternatives are very rarely selected.

It was decided to call “dictators” to the respondents that prefer the creation of a monolithic structure, “ethicals” to the ones that always choose a combination of both brands’ identities,

¹ Familiarity with the brand was measured through a seven-point semantic differential scale assessing the degree to which the respondent was familiar/unfamiliar, recognized/did not recognize, and has heard/has not heard of the brand before (Simonin and Ruth, 1998). Affect was evaluated through a seven-point semantic differential scale, which allowed to access the feelings that the brands inspire (unpleasant/pleasant; uninteresting/interesting; unfavourable/favourable; dislike/like; bad/good; negative/positive) (Henderson and Cote, 1998; Grossman and Till, 1998; Kim, Allen and Kardes, 1996; Park, Jun and Schocker, 1996; Milberg, Park and McCarthy, 1997; Rodrigue and Biswas, 2004; Samu, Krishnan and Smith, 1999; Simonin and Ruth, 1998). Behavioral response was measured by asking respondents to identify with which banking banks they work and which is their main bank.

² The names were written in the original lettering to reinforce the maintenance option (or the change option in the case of the new name), when the name is chosen.

and “reluctants” to the ones that consider that, despite of the merger, the two brands should remain completely independent.

5.3 Relation between the typology of identity options and the brand pillars

The different response typologies (dictators, ethicals, reluctants) were crossed with the response to the three brand pillars (identity, object, market) suggested by the analysis of the justifications of the respondents choices. The dictators and the ethicals tend to justify the corporate identity alternative chosen with the actual brands’ image or with the impact that this alternative might have on the image of the newly formed organization (response to the market). On the other hand, the ones that are reluctant, explain their resistance to the merger essentially with the personal appropriation they make about the brands offerings (response to the object) (see Attachments - Table 4).

5.4 Relation between logo design and the identity options

The two figurative logos, BPI’s orange flower and Barclays’s eagle, are the ones most often chosen, although they don’t belong to leading banks. On the contrary, Caixa’s abstract logo or Millennium’s and BES’s abstract monograms are considerably less chosen, even though they are the identity signs of the three biggest banks.

In regard to the choice of the logo, we may conclude that the distinction between abstract and figurative has a significant influence in consumer preferences in a merger situation, and can be even more important than brand’s antiquity or brand’s position in the market. Thus, the choice of the logo tends to reflect consumers’ evaluation of its aesthetic qualities, and to confirm previous findings in the logo strategy literature (see Attachments - Table 5).

In respect to the choice of the brand’s name, very close results were obtained for the four biggest brands studied. Furthermore, the preference ranking for the brands’ names reflects clearly the market share ranking. Therefore, it may be conclude that the qualities of the different names do not have a determinant influence on consumers’ preferences in a merger situation. Hence, the choice of the name tends to reflect consumers’ evaluation of the brand’s offer or of the brand’s presence in the market.

6. Discussion and conclusions

Managers should be aware that in a merger situation, the creation of an entirely new identity may be preferred by consumers. In fact, within the monolithic response typologies, the solution most often chosen was the creation of a new name and a new logo. This solution can send a very strong message to the market, signalling that the merger is an important corporate transformation with a new vision and direction. However, these findings should be analyzed with some caution.

Overall results confirm that monolithic redeployment strategies are favoured by consumers subsequent to a brand merger, but there is not a significant discrepancy between the monolithic redeployment alternatives and those that combine elements of both brands’ identities.

On the other hand, preliminary findings indicate that the preference for a monolithic redeployment strategy, suggested in the study developed by Jaju *et al* (2006), is only clearly supported when one of the partners in the merger is a weak partner. Whenever the corporate brands involved in a merger are two highly familiar brands, there is a tendency among respondents to preserve elements of both brands’ identities (combined identity).

Results suggest that in a merger involving two notorious and very familiar brands, respondents feel that elements of the two brands’ identities should be preserved. This reflects a tendency to consider that in a merger “elements of both brands should be kept”.

Finally, there is evidence that the brand’s logo may play a role as important as the name (or even more important) in a brand merger, ensuring consumers that there will be a connection with the brand’s past.

Another interesting finding was that the choice of the logo reflects consumers' evaluation of the brand's identity – and in particular figurativeness, and the choice of the name reflects consumers' response to the brand's object or to the market. Thus, results suggest that when the consumer does not want to assume a monolithic behaviour, he will tend to choose a figurative symbol and the name(s) of the brand(s) that is more highly valued by himself or by the market. Managers should be conscious of the advantages associated to a figurative brand logo.

Finally, this research presents a strong case for the need to create a genuine and affective relationship with the brand's clients, in order to ensure stronger loyalty behaviours towards the brand and its identity signs in a merger situation.

7. Limitations and directions for further research

The findings regarding consumer logo preferences should be analysed more thoroughly in a confirmatory study that addresses the research gaps. First, this study used real brand logos which were familiar to our subjects. In future research novel logos will be used, so that it is possible to assess the effects of initial design on responses and thereby minimize the effects of usage variables. Additionally, logos will be designed in black and white to minimize the presence of colour.

Previous research has demonstrated the universal preference for divine proportion³ in figurative logo designs. Preference for more abstract logos tends to favour the 1:1 ratio (Pittard *et al*, 2007). Based on these results, it is recommended that future research includes abstract and figurative logos which conform to the preferred ratios.

This research focused on a very specific product category, namely banking services, thus the generalisability of the findings may be questionable. However it should be noted, that the financial service context has been used with success to investigate branding issues. Nevertheless, future research should explore similar matters in other product markets, to prove that the findings of this study are pertinent in a broad range of contexts.

The fact that this study used a student sample may also limit the degree of generalisability of the results. However, using student respondents to test brand identity or aesthetic preference is consistent with prior research (Henderson *et al*, 2003; Pittard *et al*, 2007). Additional studies on consumer brand identity preferences will be designed to address these limitations.

8. Managerial implications

This study should guide managers in the evaluation and choice of post-merger branding strategy. Brand managers should be aware that the brand logo may play a role as important as the name in a merger, ensuring consumers that there will be a connection with the brand's past. Moreover, this study confirms that logo design characteristics influence significantly consumer responses. For maximum positive affect and increased brand strength it is suggested that figurative logos be chosen over more abstract designs.

9. Originality/value

The marketing literature contains little systematic research on the effect of logo design on consumer preference. In particular, the evaluation of logo designs in a merger context is significantly under-researched. As a result this paper provides valuable insights. Importantly, this study uses an innovative research design which gives respondents freedom to choose their preferred solution. Hence the richness of results is much greater.

³ The "divine proportion hypothesis" states that a visual form is most aesthetically pleasing when the ratio of its larger to smaller dimensions is 1.618.

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Attachments

	Tipology	Brand 1	Brand 2	Merger	
Monolithic Identity	1. One of the brands' name and logo				
	2. One of the brands' name and a new logo				
	3. New name and logo		GRAND METROPOLITAN		
Combined Identity	4. Combination of the two brands' names and a new logo				
	5. Combination of the two brands' name and logo				
	6. One of the brands endorses the other with its name and logo				
Differentiated Identities	7. Two independent brands				

Table 1- Typology of the corporate identity structures that may be assumed in the context of a merger

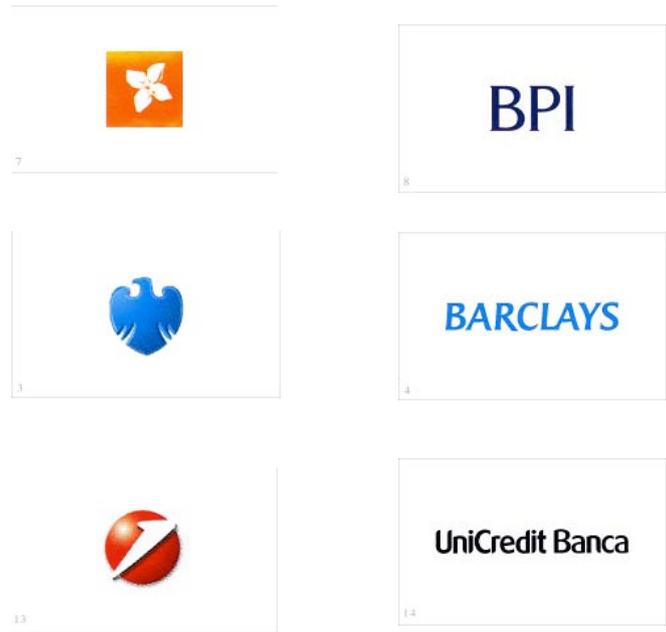


Figure 1 – Example of questionnaire cards in the merger scenario between BPI and Barclays

Options presented in the Literature Review and Documental Analysis	Variants resulting from the Experimental Study
<p>1. One of the brands' name and logo</p> 	
<p>2.1 One of the brands' name and a new logo</p> 	<p>2.2 One of the brands' logo and a new name</p> 
<p>3. New name and logo</p> 	

Table 2 – Monolithic redeployment options

Options presented in the Literature Review and Documental Analysis	Variants resulting from the Experimental Study
4.1 Combination of the two brands' names and a new logo 	4.2 Combination of the two brands' logos and a new name 
5.1 Combination of two brands' name and logo 	5.2 Combination of the two brands' names and logos 
	5.3 Combination of the two brands' names 
6.1 One of the brands endorses the other with its name 	6.2 1 One of the brands endorses the other with its logo 

Table 3 – Redeployment options that combine elements of both brands' identities

Responses to the Merger	Responses to the Brand's Pillars				Total
	Response to the Identity	Response to the Object	Response to the Market	Others	
Dictators	31,5%	17,1%	41,4%	9,9%	47,5%
Ethicals	38,0%	4,8%	48,1%	9,2%	44,5%
Reluctants	0,0%	64,9%	29,7%	5,4%	7,9%
Total	31,9%	15,4%	43,5%	9,2%	100%

Table 4 *The dictators, the ethicals and the reluctants and their response to the brand's pillars*

Market Share	Names Ranking	Logos Ranking
23,4%	 22,9%	 20,8%
22,2%	 20,8%	 15,8%
16,0%	 20,8%	 14,6%
9,3%	 20,1%	 13,7%
2,2%	 18,8%	 13,7%
2,3%	 10,5%	 4,9%

Table 5 *The choice of the identity signs*



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Abstract

From the boom of corporate identity in the 50s, 60 years have passed, and we now see picture marks become more complex and question axioms of identity design, like simplicity or bidimensionality. In these changing times, where access to technology and to information makes it possible for one to see the world as a ‘flat’ place [1], where virtually anyone with a computer can create, it is worth considering how much has changed and how much remains the same in picture marks design. Are the silent designers [2] — the technology and software — growing louder? Are picture marks mimicking each other? Are graphic marks following trendy solutions?

It is clear the change of paradigms the new technologies have over the graphic *zeitgeist*. However, what are the consequences of the transformation in the *modus operandi* and its result in picture marks evolving solutions? And what does this evolution say about us? Being both a condensation of meaning about a corporation or institution and a rhetorical instrument by which to persuade an audience that a product or entity has distinctive and desirable qualities, picture marks are, therefore, a condensed representation of social identity. They are signs full of signification beyond themselves, representing ourselves and our world and by means of its analysis we can learn a bit more about our role as designers, our relation towards new technologies and foresee our role as designers in the future.

Keywords

Identity design, picture marks, visual analysis, meme, myth, hero.

¹ A big thank you to my tutor Prof. Eduardo Aires, to Prof. Heitor Alvelos, to Prof. Diniz Cayolla and to the reviewer.

1. Introduction

This analysis, part of an ongoing PhD research, will be made firstly, from a visual selection of recently updated picture marks from Mollerup's work *Marks of Excellence* [3]². I will compare these recent changes to their previous versions and assess the various new versions amongst each other in order to find out if there is a pattern or tendency that is emerging.

Afterwards, I will approach these transformations in the light of the concepts of hot and cool from McLuhan, and the concept of 'Meme' from Richard Dawkins [4]; and 'Teme' from Susan Blackmore (2008) as virals, in order to bring a social explanation to picture mark creation in the present and envision our role as designers in the future.

Before presenting the selected picture marks recently changed from their rational look, influenced by the International Style, it is worth considering why the study of picture marks is important today. When identity design blossomed in the 1950's, Swiss design had made a benchmark that would become a model for corporate and institutional identity designers, which consisted of rationality, proportion, geometry, with the aim of transcending passing tendencies or fashion, in order to continue over time [5][6][7].

In contrast, it might seem odd at a first glance, to speak about picture marks when we are in the middle of the worst global economic crisis the world has faced for 80 years. However, a more attentive look will note that in fact, in these challenging times, it is even more necessary to produce excellence in one's area of expertise and produce efficient picture marks as they are key elements in the recognition, differentiation and profitability of an entity³, in order to augment competitiveness, productivity and efficiency. Through the analysis of the picture marks evolution, we can obtain guidelines by which to contribute to a more efficient model of designing picture marks, one that is aware of a social theory and its practical consequences.

2. Materials and Methods

The corpus of analysis is composed by the picture marks that have changed since the publication of Mollerup's *Marks of Excellence* [3]. From those, we will analyze, in the course of this paper, and in more detail, a selection made to illustrate a variety of entities of different sectors of industry. Those selected marks are: UPS (changed in 2003), Apple (changed in 1999), At&T (changed in 2005) and Peugeot (changed in 2010). I'm going to analyze these picture marks through categories that I adapted from the categories of Jacques Bertin [8], Donis A. Dondis [9] and Kimberly Elam [10] and synthesized into three categories – value, direction and shape; and through the trinomial hero, conflict and purpose⁴. Qualitative methods were the basis for this study, particularly, visual analysis according to the grid based on those 3x2 categories from the

² *Marks of Excellence* by Mollerup was chosen as the corpus of our ongoing analysis because it represents the development of trademarks through more than 5,000 years and has become an international reference book, being, still today, a best seller in the field.

³ On the 05.11.2010 conference in New York, *Brand New Conference* [11], which I assisted via webcast, Connie Birdsall from Lippincott (USA), and Tom Dorresteyn from Studio Dumbar (The Netherlands) stated evidence in the correlation between a company's identity design and its profits.

⁴ Characteristics of any narrative

synthesis of Bertin's, Dondis' and Elam's categories, and using semiotics as a technique.

However, the quantification of the different changes observed proved necessary to the ongoing results of our research: from the 257 picture marks presented and analyzed by Mollerup, 147 (57%) of them today remain the same. Amongst them are *Deutsche Bank*, created by Anton Stankowsky in 1974, *Lufthansa* designed by Otto Firlie in collaboration with Walther Mackenthun in 1918, *KLM* created by F.H.K. Henrion in 1961, *Electrolux* done by Carlo Vivarelli in 1963 or *Mitsubishi* done by Yataro Iwasaki in 1870⁵. However, 52 (20%) changed significantly and more than half of those changes (29 of them, 11,3%) have incorporated what seems to be the same solution: a third dimension and a gradient. In this next part we will advance an analysis and interpretation of this phenomenon, considering 3x2 categories: *value*, *direction* and *shape*; the *hero*, *conflict* and *purpose* of each picture mark.

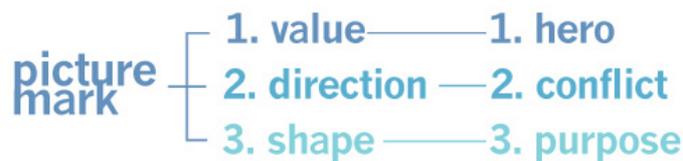


Figure1 – (From the author.) The components of this analysis. In the first column are the categories inspired by the synthesis of Donis, Bertin and Elam's categories; in the second column are the categories of a narrative.

Donis A. Dondis (1974) suggests 10 categories to analyse visual materials:

- dot
- line
- shape
- direction
- tone
- color
- texture
- scale
- dimension
- movement

Jacques Bertin (1983) suggests 8 categories to analyse the semiology of graphics:

- 2 dimensions of the plane: x and y
- size
- value
- texture
- color
- direction
- shape

Kimberly Elam (2001) suggests 2 to analyse design:

- proportion
- regulating lines

⁵ Even though these marks have been steadily updated since, the changes in the picture mark have been subtle enough not to be perceived by the average user.

Here I synthesize those categories into 3 to analyse picture marks:

1 - *value*: means the hierarchy or the relative importance of elements in comparison to each other – therefore, it includes size, color and texture that influence the value (or the *hero*, the most important element or message);

2 - *direction*: this category can be influenced by the most important elements and it can imply movement. It is suggested by the regulating lines of the composition and it may be horizontal, vertical, diagonal or irregular (or *conflict*, the stress, the dynamic movement);

3 - *shape*: it is the totality of the form (or *purpose*, the entirety of the picture).

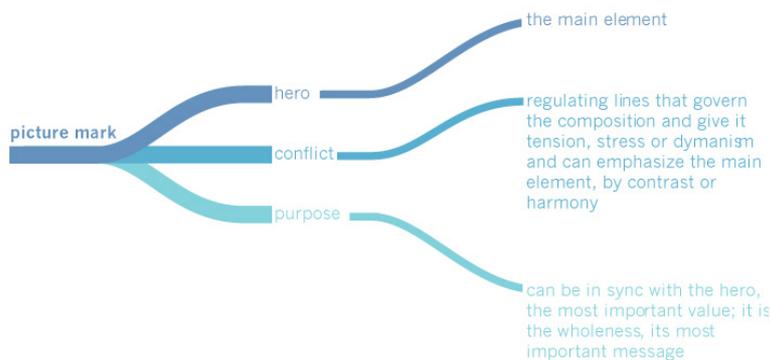
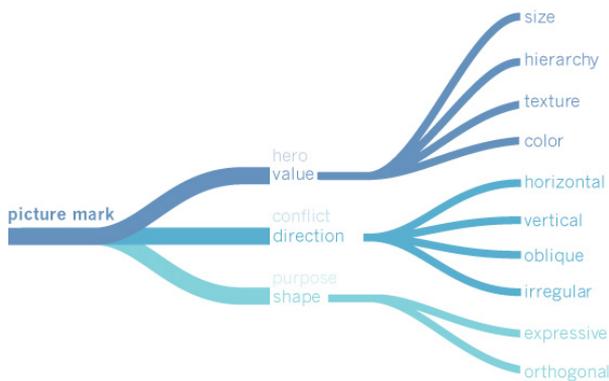


Figure 2 – (From the author.) The components of this analysis: value, direction and shape; hero, conflict and purpose.

3.1. Visual analysis of Ups, Apple, AT&T and Peugeot



Figure3 – UPS (1961). The rectangle format is divided into 4 equal horizontal parts: the top one being divided by its vertical and horizontal medians, showing in its center the ribbon, an important focal point conveying the message.



Figure 4 – UPS (2003). In comparison to the previous version, the format is slightly wider. Again, the large rectangle of the format is divided into 4 equal horizontal parts. The circle that forms the lower curves of the shield is centered with the height of the letter p.



Figure 5 – UPS (Paul Rand, 1961).

VALUE//HERO

Apart from typography (which is, as known, not the research focus of this work) the main element is the ribbon on top: it is a focal point not only because it is centered on the top rectangle, but also because that centre is represented by its perpendicular medians. The bottom angle of the shield reflects that top focal point, giving it importance by allowing it with white space. The idea of a gift, of a present, is the hero of this story.

DIRECTION//CONFLICT

The implied lines of this picture mark are actually shown in it: the rectangle, the vertical and horizontal medians make a perpendicular tension, only softened by the two diagonals on the bottom of the shield.

SHAPE//PURPOSE

The shape is clean, rational and straight.



Figure 6 – UPS (Futurebrand, 2003).

VALUE//HERO

Besides typography, the form of the shield is the most important element. The treatment in the contrast between light and dark gives a sense of a third dimension. It is noticeable the brighter curve on top.

DIRECTION//CONFLICT

The conflict is now lessened because the angles and also the curves have been softened. Due to the bright yellow curve on top, the most important lines in the composition are oblique, rather than the perpendicularity of the previous version.

SHAPE//PURPOSE

The shape is still clean, but less straight and curvier.

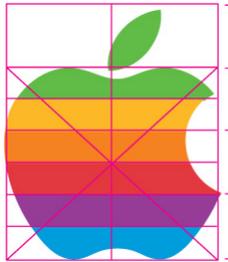


Figure 7 – Apple (1977). The square format is divided into 6 equal parts. Two of them are added on top to make the height of the leaf. The stripes were a playful contrast to the competitor IBM

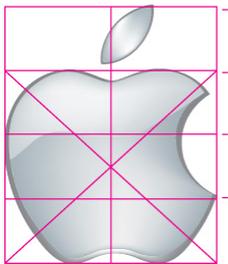


Figure 8 – Apple (1999). The format remains the same: the square is divided into 3 equal parts, one of them being added on top to make the height of the leaf and the total height of the format. The stripes disappear from inside the shape in favor of a grey gradient.



Figure 9 – Apple (Rob Janoff, 1977. New version from 1999).

VALUE//HERO

Thanks to the silvery grey and the 3D slick feel in this latest version, the hero or what stands out more are the form's connotations linked with elegance and enlightenment, like knowledge, curiosity, challenge (associated with the notion of sin, but now with a glamorous twist), freshness, originality.

DIRECTION//CONFLICT

The curvilinear form is counterbalanced by the apple's bite and the tilted leaf which is common in both versions. The conflict or dynamism that the colored stripes represented is now gone thanks to a softer treatment of light and dark.

SHAPE//PURPOSE

The curvy lines of the form are emphasized by the glare the mark now features in 3D. Shape, direction and value are in unison to underline its primary value or hero: its glamorous, enlightened connotations.

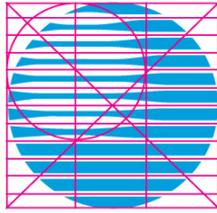


Figure 10 – AT&T (1983). The circle is divided into 12 equal parts by equidistant horizontal lines.

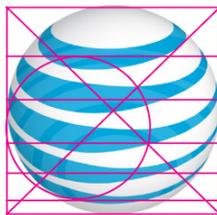


Figure 11 – AT&T (2005). The sphere is divided into 5 equal parts, which become proportionally smaller parts divided not by lines anymore, but curves. The transparency of the blue allows us to see the back of the globe and accentuates its three dimensionality.



Figure 12 – AT&T (Saul Bass, 1983. Interbrand, 2005).

VALUE//HERO

In contrast to the previous version, in which the most important elements were the white stripes given by the texture of lines, particularly on the top left part of the circle, representing light, this newer version has fewer wavy blue lines. The elements that stand out are the fewer blue curving lines on the left lower part of the circle that become narrower as they ascend to the right. The hero is thus accentuated by the wide, curvier lines: it is the 3D of the globe. The color blue remains, only brighter.

DIRECTION//CONFLICT

The curving lines embrace the sphere and are more dynamic now. The stress given by the texture of lines is lessened even though the curves bring dynamism.

SHAPE//PURPOSE

The spherical illusion given in the previous version is now accentuated through the curving lines and the light treatment. The purpose is in sync with the hero: the three dimensional globe.

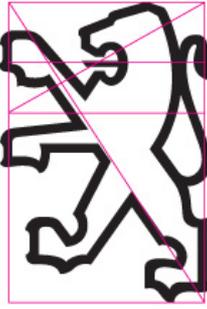


Figure 13 – Peugeot (1980). In this version we can see that the format is approximately the golden rectangle and that many of the angles disappear or were smoothed into curves in today's update.

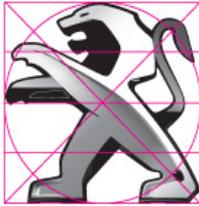


Figure 14 – Peugeot (2010). The softening of the angles and the embodiment of a third dimension is part of the mark's evolution.

As the brand evolves, it loses its 'masculine' features, if we see it from a Baudrillard's point of view [12]: it loses height and its face leans more forward, losing some haughtiness; the shape becomes more curved and less angular, more blunt and, finally, the angles and variations in its silhouette (that previously represented claws, tongue, and a more ferocious look) are now lessened, contributing to a form that is more synthetic and fluid. It evolves from the smoothening of fright into a Teddy.

Peugeot leaves the golden rectangle to lose height and approximate the square format.



Figure 15 – Peugeot (From Signe & Fonction, 1980 to Betc Design, 2010)

VALUE//HERO

The brand's value as hero becomes more accentuated by its 3D look, and its shine. Its slick appearance connotes quality, richness, elegance and boldness.

DIRECTION//CONFLICT

The conflict is now lessened because of the absence of pointy angles, through their smoothening into curves. There is not so much conflict anymore, even though the diagonal formed by the two left claws has been accentuated through light and shade contrast.

SHAPE//PURPOSE

The form has now smoothed curves. This less threatening form, with less angles, becomes an easier and more accessible connecting point between the picture mark and its user, serving the purpose of showcasing both of them as heroes.

3.2. Visual Analysis Summary

As if they were trying to compensate for global warming, picture marks are in fact becoming ‘cooler’ [13]. This McLuhan-esque progression of picture marks from hot to cool can be explained because they now are quicker to assimilate and comprehend, they require less participation and time to absorb. Furthermore, cool seems to be this tendency towards three-dimensionality and light as we see it in 29 out of the 52 (11,3%) changed picture marks since the publishing of Mollerup’s work, analyzed in the course of this ongoing research.

It is no surprise technology influences the style and visual rhetoric of corporate identity: from protecting properties by nomads and signaling tombstones in Egypt, to registering authorship in the middle ages with stone, fire, wax or wood, to gaining a greater formal rigidity with the advent of press, to its consolidation amongst a visual identity system with the Industrial Revolution and now, with the computer and the World Wide Web, picture marks have been side by side in a close relationship with the advents of technology. After all, *Media is the Massage* [14], as McLuhan puts it. — Backlit screens with high definition and moving images? There you go, flexible, transitory picture marks, with flares, 3D, light and all the colors of the rainbow that will keep you surprised.

Nonetheless, picture marks condensate in themselves something greater than them⁶, a piece of reality where we can read ourselves, our relationship towards new technologies and our values in society. What do these changes mean in light of a social theory? What do they say about us?

It must be pointed out that more than half of the changed picture marks from Mollerup’s *Marks of Excellence* gained light, 3D and that 8 out of the 52 altered marks changed from a synthetic, almost abstract appearance into a solution that mimics reality more closely⁷. Could this latter solution predict a direction towards a cycle from realism to abstraction, and then back to realism? With the invention of photography it became possible for us to distance from a realistic representation of reality and move closer to abstraction – does this indicate that for some reason (lack of time or will power) we are growing tired of abstract thinking? Lipovetsky and Serroy [15] state that hyper-modernity – the times we live in today – does not punctuate with vast amounts of time

⁶ ‘A sign is something by knowing which we know something more.’ Charles Sanders Peirce (in Mollerup, 1997: 1)

⁷ Like United Airlines, designed by Saul Bass back in 1976 and changed last year in 2010, or the American company Prudential designed by Lee & Young in 1984 and recently updated into a more realistic image. Adams Trucking, designed by Almanac Advertising in 1981 has recently been changed into a blatant picture of a truck. Tomato Bank, designed by Shigeo Katsuoka in 1989 and newly changed is another example of a more easy to understand paradigm, as well as the previously designed by Alan Fletcher in 1995, The International Society for Heart Research, that has been updated into a more in-your-face clip-art look.



Figure 16 – United Airlines, Prudential, Adams Trucking, Tomato Bank and The International Society for Heart Research.

for abstract analysis. Picture marks hold the axiom of synthesis in their form: great impact with few elements. But those fewer, later examples show a direction from metaphorical, allegorical or connotative signs that share conceptual qualities with the object or idea – icons, indexes and abstract symbols – to more highly representational images. This tendency is also in tune with our contemporary times in which anyone with a computer can create [16] and virtually everyone has access to information. Therefore, those 8 picture marks reformulate their solution within a context that seeks to be closer to the great masses.

From this ongoing reading and analysis of the 52 recently updated picture marks based on this 3x2 categories, we can say that, in the previous version, the one mentioned in Mollerup’s book, the hero seemed to be the concept connoted by the form and the mark itself would pass more unnoticeably. The picture marks were the concept’s sublimation and synthesis into visual rhetoric. Now it is the picture mark itself that has not only a body, but also light and shine: it is, in itself the hero; its purpose is the picture mark showing itself as the hero of the story. Subsequently, this tendency can be seen as an attempt to go global, in a present era when all time is scarce and the mark needs to show itself more evidently, with an ease that imprints our ‘hyper-modern’ world [15].

This direction towards a greater shine, light and 3D is moving together with globalization that is done with a bit of differentiation, but also with similitude [15], and the preconization of material comfort⁸. In the dark downfall of the hyper-capitalism, we still believe in the self validation that the *bling-bling* can bring. Hence the 3D and the shiny light.

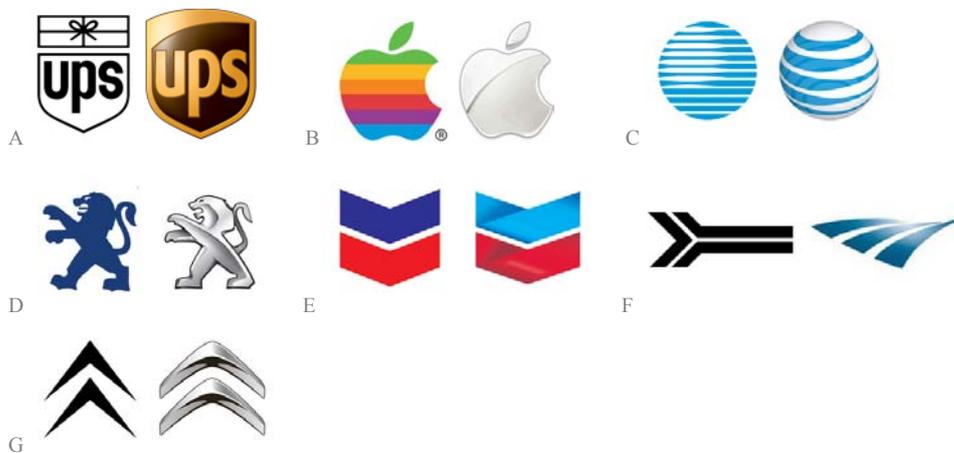


Figure 17 – A selection of the changed picture marks from 2D to 3D with light. The version on the left is the one represented at Mollerup’s publication in 1997, and the one on the right is its update.

- A. UPS: 1961 – 2003 B. Apple: 1977 – 1999 C. AT&T: 1983 – 2005
D. Peugeot: 1998 – 2010 E. Chevron: 1960 – 2005 F. Amtrak: 1971 – 1999
G. Citroën: 1903 – 1999

⁸ ‘This American dream fascinated and continues to fascinate millions of people. It brings strong values and, firstly, a freedom of initiative in which anyone can achieve success; this dream represented, especially for the poor and underprivileged from across the globe, an idea of comfort and wealth symbolised in the dollar, at the same time as it brought along an ideal, especially a cinematographic ideal, of sublime stars and triumphant heroes.’ [13] [Free translation from author.]

Light connotes spiritual elevation and dignity (the Enlightenment, the Divine light), as well as prestige and well being [15]. 3D on the other hand, represents a broader and clearer manifestation of a material object, something to *possess*. This is in line with our theory of the picture mark as being now the hero in itself.

4. Picture marks: From Myth to Hero

Roland Barthes, when discussing ‘Myth Today’ in his *Mythologies* [17] mentions that myth carries with itself an ideology, visually forming an idea before our eyes⁹ and underlines that, consequently, myth is an ideographic structure where the form is derived from its signification but doesn’t cover all its possibilities of representation. Myth is an idea carrier that forms the way we see a picture.

‘Myth is a pure ideographic system, where the forms are still motivated by the concept which they represent while not yet, by a long way, covering the sum of its possibilities for representation.’ [17]

This philosopher and semiotician also states that myth works better with what he calls ‘poor images’, incomplete images that are more open to being filled with ideas: images relieved from anything that is not essential:

‘(...) myth prefers to work with poor, incomplete images, where the meaning is already relieved of its fat, and ready for signification, such as caricatures, pastiches, symbols, etc.’ [17]

We can therefore conclude, that the more condensed these pictures are, the more succinct they are, the more lessened in form and simplified they are, the more compressed with ideas they will be and the better myth will work through them. Consequently, we can integrate picture marks in this concept of ‘incomplete images’, relieved from excess, left with the essential, without superfluous elements, being, therefore, permeated with metaphorical, allegorical connotations [5][6].

Nevertheless, these ‘poor images’, as we’ve seen, are getting fatter and richer. Full of needless gradients, shades, light and a third dimension, one can wonder now if there is enough space for myth to work in. An attentive observation of the obsolete versions in the corpus of Mollerup’s work – 52 out of 257 according to our research – will point out that that openness to signification and association is no longer as wide as it was before: in comparison to its previous versions, to its more abstract versions, do current versions, with all the glare and 3D, have the same stamina for myth as they previously had? On the other hand, I would suggest that these recently updated picture marks compensate this change by the incorporation of light, gradient and three-dimensionality so as to embody an idea-carrier that is more accessible and approachable than myth. Again, we can call it here the hero – a concept and connotation carrier that pushes our reading of the form into something greater than itself, but is not as far out or universal as myth, still having a great power, even though it is more accessible.

⁹ Barthes emphasizes that the reading of the concept and myth is essentially a relation of deformation. I would put it in other words, not a deformation in a negative sense but literally a formation: the signification is something ethereal that conditions our perception of the form. So in that sense, there is in myth some physicality in the signified that conditions the signifier.

5. 'Memes' and 'Temes' as Silent Designers

If it is true that picture marks have the goal to contribute to a corporation's reputation, to attribute it with originality, memorization, and differentiation from its competitors or market rivals, how can we understand this herd thinking in heroic picture marks creation?

'Meme' is a concept originally published by biologist Richard Dawkins [4] which means a replicator, being an alternative explanation for the world's evolution (that doesn't rely on genes, but rather on imitation: ideas that replicate themselves from brain to brain like a virus). The concept comes from the Greek word *Mimeme* and signifies 'that which is imitated'. This concept has been further developed by Susan Blackmore on the book *The Meme Machine* [18] and more recently, this author introduces the idea of 'Teme' – the technological meme [19]¹⁰.

This explains this tendency that we have noticed in the picture marks evolution in 29 out of the 52 changed picture marks with light and 3D. Now new technologies have made 3D simulation easier, more accessible and more powerful than ever and common applications – the 'silent designers'[2], the ones that design quietly – like Photoshop or Adobe Illustrator incorporate the possibility to render 3D simulation resulting in similar solutions by the use of the same *modus operandi*¹¹.

6. Discussion

If the biologist Richard Dawkins or Susan Blackmore had a particular interest in graphic design and were shown this evolution in picture marks, they could say memes and temes love picture marks and that they are taking us over through them in order to replicate. Is it either that or are we just getting lazy?

There is, however, a third way to look at it. This can also be proof, as we've seen, of a clearer aspect of the picture mark as a being a hero: that is to say, the mark as dignity, as a quality seal, as a stamp in an era when it's not so much the quantity of products or services you use but their *quality*. Psychologically, light, gradient and the fact that it is three-dimensional give the picture mark that sense of empowerment – and, consequently, its user – of being even more than a hero than before. Now with all its brightness and 3D, a super-hero is embodied in the picture mark. This movement shows the birth of a glowing mark that doesn't resign to work undercover anymore: it does not settle in the corner of a printed ad as a little icon as it happened before, but is now trying to show itself on the spotlight, moving on the screen and in 3D. What does this say about us, the creators, replicators and users of these heroes? What do they say about our society and the times we live in? Will they say we need them? And if so, how long will we need super-hero picture marks? — How long do super-heroes live?

¹⁰ There are various examples on Mollerup's work that have the same tendency, recurrently exploring similar solutions, like At&T, by Saul Bass (1984) that created a benchmark for other designers; Statkraft, by Anisdahl/Christensen (1985); Den Norske Bank, by Skaara & Partners (1990); USA Today, by Mutsuo Yasumura (1982); Coloplast, by Hans Due (1988); Scanticon, by Peter Jensen / Pind Marketing (1989) or Cable & Wireless by Lock / Pettersen (1992).

¹¹ We can also see this theory in action when we look at websites that offer or sell in very low prices (or for free) ready-made picture marks that permeate with a very low interest in adjusting themselves to a client's unique briefing but are quick and easy to use. Ready-made picture marks and visual identities can be seen at: www.logomaid.com or www.heroturko.org.

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Design and durability: a contribution to sustainable development

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Abstract

There is growing awareness that the planet we live in cannot support many more years of intensive use such as that which took place in the twentieth century. Having accepted that fact, the major question now is how to invert the situation, how to continue to satisfy today's needs and aspirations without jeopardizing the needs of future generations. The environmental impacts aggravated in recent decades by uncontrolled production and consumption have caused damage, some of it irreversible, to the planet and its populations. It is in this context that researchers and various organizations call on producers and consumers for an urgent change in behaviour. The United Nations has already warned of the need to change our consumption patterns or else we will leave a costly inheritance to the next generation. Environmental and social sustainability requires the transition from a society where the growth of production and material consumption were factors of progress to a society able to develop based on other factors. In this process, design can play an important role in defining sustainable solutions, ideas of well-being that allow us to live with a better conscience, consuming less and regenerating our physical and social environment, including the idea of social and environmental sustainability based on ethical principles. It is necessary to produce and consume differently, have more and better information about products – their social costs and environmental impacts. We sought to create guidelines for this new form of action. We researched the origin of the idea of sustainable development and the concept of durability, and then present an alternative path to the creation of more products, which implies increasing products' life-cycle as an important contribution to reducing the environmental impact, diminishing the waste and energy consumption almost always caused by the design of new products.

Introduction

The investigatory work to be developed in collaboration with companies and centres of investigation is set in the context of investigation applied in design which began in connection with the Doctorate in Design at the University of Aveiro and is currently in progress within the new Doctoral Programme in Design at the same university. Concerning practical results, it is hoped to be able to show construction of a model for the development of products with low environmental impact based on the theoretical hypothesis that long-lasting products will be better for the environment. Increased durability and the consequent extension of useful life could contribute to diminishing the impact caused by premature elimination (waste production) and new conception (consumption of raw material and energy).

The aim is to explore, consider, demonstrate and disseminate contents related to the investigation hypothesis, culminating in the design or redesign of products that synthesize the idea/concept and can be stated in the national and international context in order to promote Portuguese design with characteristics of innovation and ecological concerns. This work sets out from the principle that the focus will be limited by the set of project activities directly linked to design practice, "... understood in its broadest and most current sense, which applies not only apply to a physical product but to an integrated set of product, service and communication which companies present to the market" (Manzini and Vezzoli, 2002, p.19)¹.

Background

The January 2011 edition of National Geographic magazine estimates that in 2045 the world population will be nine thousand million, and asks if the planet will be able to cope with the pressure, forecasting that in the coming decades, despite the falling birthrate, the population will continue to grow. "If the thousands of millions of people who want to break out of poverty follow the path taken by the inhabitants of rich countries, this will have serious repercussions for the planet's resources" (Kunzig, 2011, p. 8)².

Since the period following the Second World War, the consumer society has become more pronounced. First in the USA and then in other countries, the model of mass consumption was stimulated by the improved living conditions of the middle classes, by the abundance of goods and services and by the immediate availability of credit (Whiteley, 1993, p. 15)³. At that time, Lebow (1955)⁴ called for consumption to be society's way of life, and for the rate of elimination, substitution and disposal to be ever faster. "As consumption took root in one culture after another over the last fifty years, it became a strong stimulus for the relentless increase in the demand for resources and the production of waste(...) (Assadourian et al., 2010, p. XXII)⁵. The frantic desire for possession that current society seems to have voluntarily cultivated, becoming more pronounced in the second half of the twentieth century, and characterized by Lipovetsky (2008, p. 73)⁶ as "... a wave of phenomena of excess and lack of control, unstructured behaviours and pathological and compulsive consumption", has had damaging consequences for the environment. Climate change is perhaps the most debated consequence of recent years. The 4th Report from the Intergovernmental Panel on Climate Change, "Climate Change 2007", forecasts the consequences of climate changes up to 2100. Among them will be a higher average air temperature, rising sea-levels, the disappearing Arctic ice-cap, greater concentration of moisture and precipitation in some regions of the world, more frequent extreme climatic phenomena, increased threat of extinction of plants and animals, increased risk of large-scale

impacts with irreversible effects associated with changes in maritime currents, and increased risk of social conflict and population migration. According to Orsenna (2008, p. 45)⁷ “up to now, industrialized countries have been largely responsible for the high rates of greenhouse gases found so far stored in the atmosphere”. We gather, therefore, that concentrated effort by those countries to reduce the emission of polluting gases would help to solve the problem and would be a step along the path towards sustainable development, that is to say, “development that seeks to satisfy the needs of the current generation, without jeopardizing future generations’ ability to satisfy their needs” (WCED, 1987)⁸.

The environmental problem is undeniably associated with the question of waste, which has been highlighted by environmentalists as one of the most serious environmental problems nowadays, to the extent of being the subject of environmental education campaigns and programmes. In the case of urban solid waste, generally called urban waste, resulting from societies’ domestic and commercial activities, many objects acquired for their functional, esthetic or symbolic attributes at a certain moment, are thrown away after some time. Average use of certain material goods has been diminishing in so-called developed societies. In the USA, for example, 99% of products acquired in global terms end up in the rubbish after only six months (Leonard and Conrad, 2010)⁹. Let us suppose that the same amount again is acquired to replace them. This represents an efficiency rate of 1%. Various reasons explain the elimination of products. Manzini and Vezzoli (2002, p. 182)¹ highlight as the main ones, reduced properties or structural fatigue caused by extensive use; damage, due to natural or chemical causes; damage caused by accidents or inappropriate use and technological obsolescence, for products incorporating mechanical or electronic devices which are frequently updated, but also cultural esthetic obsolescence for fashion products, for example. Kazazian (2005, p. 45)¹⁰ also states that programmed obsolescence, where some products or components are projected aiming to influence their durability, with a view to their end and exchange for others with or without improvements in their attributes. Cooper (2004)¹¹ refers to two types of obsolescence: “relative obsolescence” (throwing away products that still function properly at the time of disposal) and “absolute obsolescence” (disposal of products due to breakdown). This waste has three major results: recycling, dumping or incineration. On this subject, Brown (2001)¹², states that “.....waste is the manifestation of a more fundamental problem – the development of the world’s throwaway economy. (...) The challenge we face today is to replace the throwaway economy with the economy of reduction/reuse/recycling.

From the point of view of environmental sustainability, a high volume of waste caused by product elimination is more and more undesirable. But the multiplication of objects in our immediate environment seems set to increasingly reduce the duration of their use and increase the need to acquire. Contributing to this is the quantity and variety of articles currently available on the market. “Until the 70s, acquired goods and symbols of consumerism were above all for family use (...). Ultramodern times are characterized in turn by a new consumer revolution where equipment is essentially individual (...)” (Lipovetsky, 2008, p. 70)⁶. Included here are necessarily products that in general are disposed of sooner or later to be replaced by new ones such as the personal computer, mobile phone, i-pod, portable GPS, smartphone or games console.

Subject of study

Most acquisitions of goods are replacement purchases; new products are acquired to substitute those we have (van Nes and Cramer, 2005)¹³. We know empirically that replacement is not necessarily motivated by irreparable breakdown of the product we own. Witness the case of computers that are generally replaced by others which are faster, mobile phones that began to be replaced by smaller models are now replaced by versions with more functions, or coffee machines that we tend to replace with more esthetically pleasing ones. Here, it becomes necessary to differentiate the duration of a product's life or its life-cycle, from the duration of its use (Kazazian, 2005, p. 45)¹⁰. The former concerns a product's capacity to last over time, while the latter allows it to respond to users' needs and desires. In this context, what will be the role of designers in reinforcing consumption standards that take a more sustainable direction? That is to say, will it be possible to influence positively the frequency of substitution through product design and in this way reduce the environmental impact caused by elimination or the placing of new products on the market?

Different design strategies have been proposed to reduce products' environmental impact. Among the classifications of the strategic calls for eco-design described in the bibliography (Manzini and Vezzoli, 2002¹, Fuad-Luke, 2004¹⁴, Lindbeck and Wygant, 1995¹⁵, Yeang and Woo, 2010¹⁶), the optimization of product life is one which objectively approaches the subject of durability. Towards that optimization, two routes can be taken: increasing product durability or intensifying product use. A product which lasts longer than another which is identical generally has a lower environmental impact. If a product lasts less time, not only does it prematurely create more waste, but also creates indirect impacts from the need for it to be replaced by another, with environmental implications in production and distribution. It is nevertheless recognized that in some cases, the reduction of a product's lifetime is environmentally preferable. This is the case, for example, where a new product is more efficient in terms of energy consumption; it consumes less during its use or maintenance than the product we own. Intensive use of a certain product can also mean reduced environmental impact. As for products that fulfil their purpose just once, such as packaging, increasing their useful life can be an important strategy, with a view, for example, to their reuse.

Study objectives

With the general objective of contributing to the field of technical-scientific knowledge in the area of design, with development of products with a high potential for durability in a defined social, cultural and economic context, supported in design methodology and contributing to diminished environmental impact, the investigation hopes to achieve the following:

- Characterize the current social, cultural, technological and economic context and hypothetical future scenarios where design will act;
- Identification, referencing and reflection on investigation already carried out in the field of the stated topics (state-of-the-art);
- Analyze the theoretical framework of reference on sustainable development and design's contributions;
- Analyze studies made of the environmental impact of certain industrial products and design's proportion of responsibility;

- Identify methodological and process questions that contribute to affirming and valuing design as a driving force for sustainable economic, social and environmental development;
- Identify the factors (human, technological, cultural, social, economic...) that frame needs and determine choices for consumption of material goods; the importance of the brand (culture, attributes, benefits...)
- Construct a measuring instrument of reference/table for converting the durability of industrial products; recognize and classify long-lasting products;
- Develop methodology for assessing industrial products, aiming to identify the causes/reasons for extending their useful life, serving as inputs for conception of a model stimulating new product durability and serving as a work instrument for designers and industries;
- Conceive one or more products with high potential for durability in industrial areas to be defined (furniture, metallurgy, electronics, others) with application of the conceived model;
- Develop methodology for assessing and checking the suitability and effectiveness of the product(s) and the model applied;
- Make the project(s) and results known.

Methodology

The investigation methodology was based, at the first stage, on gathering bibliographic material on the development of environmental concern in the world and empirical material related to production and consumption options, and models of sustainable development.

So as to establish a theoretical reference framework, the aim is to carry out a literature review, aiming to update and systematize distinct concepts: sustainable development, environmental impact, sustainable design or eco-design, product durability, innovation and consumption. Once this stage is complete, we propose to systematize information referring to design and industrial production in different countries, in order to analyze international case studies related to long-lasting products or product system. This systemization should give rise to instruments of analysis that help to define properties for new products.

In the case of finding insufficiencies resulting from these approaches with regard to the aims proposed, we foresee opening up new areas of work identified as appropriate, based on a new selection of bibliography, instruments and methods. We also foresee the carrying out of a series of surveys and interviews with specialists in areas involved in the design process, so as to gather information of a qualitative and quantitative nature.

Based on the case studies, the instruments constructed and on relationships with industrial partners, a methodology will be put into practice with a view to obtaining orientation for design or redesign of products in certain industrial area(s). Assessment and interpretation of the results obtained will allow us to review the questions for investigation and make final conclusions.

Conclusion

If we accept that the consumer society gives rise to social and environmental imbalances, it is also true that consumption is inevitable and even necessary for the dynamics and maintenance of economic systems. In this context, the solution of this apparent paradox can appear at various levels and at various stages, from product conception to their production, consumption and disposal. From the preliminary study, we conclude that the idea stage is one of the most important, since it is here we start to trace behaviours and handling strategies, and product use and duration. This does not exclude, however, knowledge of the various types of intervention taking place at later stages. As for consumption, there seems to be consensus about the need for programmes to educate and mobilize societies towards change in consumption habits which should be more responsible, critical and demanding. It is hoped that actions of various types encourage consumers, for example, to find out more about the environmental impacts of their choices and behaviour, which may result in acquisitions that promise greater durability, reducing consumption and choosing sufficiency rather than efficiency.

Durability is a strategy that allows the extension of products' useful life, less renewal and therefore conservation of natural resources, in this way limiting the negative impacts of products on the environment. Durability, a characteristic that describes the length of the relationship between the user and the product can originate a relationship of trust between the user and the product, between the user and the company. To increase product durability, different approaches seem possible according to the stages of its life-cycle: seeking appearances that are less subject to fashion, using materials that age well, favouring repair and maintenance, proposing updating to delay obsolescence or creating an affective relationship between the user and the object. Understanding of the various types of obsolescence may lead to better project decisions and influence the durability of products in design.

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design & citizenship

designers' social responsibility, designing citizenship
or designing social effects with citizenship?

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Abstract

At the time that design seeks to increase its relevance in face of other human activities and get more focused on solving global issues (Frascara, 2002), an interesting analysis to be made is based on the relation between design and citizenship. Interested in studying this connection and based on the perception that it can be seen from very different perspectives, this article presents and comments recent publications that dealt with the theme. From there, it tries to emphasize both their encounters as their disagreements

At the time that design seeks to increase its relevance in face of other human activities and get more focused on solving global issues (Frascara, 2002), an interesting analysis to be made is based on the relation between design and citizenship. The project that should, according to the Argentinean designer and professor of Visual Communication at the University of Alberta (Canada), Jorge Frascara (2002, p. 35), “work in those areas where design could actually make a difference for the better”, for example, is directed to a design that uses the strategic ability of the activity to make more than just products, but also positive effects, which perfectly situates citizen stamp issues in the context of the design practice.

To better understand this vision and based on the perception that the relation between design and citizenship can be seen from very different “views”, this essay presents and comments recent publications that dealt with this topic. From there, it tries to emphasize both their encounters as their disagreements.

Chosen “views”

The first chosen “view” to integrate this work is about social responsibility and it is based on the content presented in a work entitled *Citizen Designer: Perspectives on*

Design Responsibility (2003), a compilation of forty articles edited by the graphic designer and writer Steven Heller and by the writer Veronique Vienne. In this work, its introduction by Steven Heller and the article *Good Citizenship: Design as a Social and Political Force* (1993), by the graphic designer Katherine McCoy, were selected to be studied.

Subsequently, the final report of an English collaborative design project *Touching the State* (2004), done through a partnership between the public funded UK Design Council and the independent think tank the Institute for Public Policy Research (IPPR), as well as the text *Introduction: Design and citizenship* (2010), by the then professor of the Department of Politics and International Relations of Lancaster University, UK, Cynthia Weber, were selected as representative of the second “view”: designing citizenship.

Representing the third “view”, two articles of the Argentinean designer Jorge Frascara, were selected: *Communications for Change: Strategies and Difficulties* (1996) and *People-centered design - Complexities and Uncertainties* (2002). These texts were relevant on this research because they brought the same ideas presented in the texts above – about social responsibility and social effects design – and also the idea that citizenship can be seen as a mean for social design projects.

First “view” - social responsibility

As explained above, the two texts that are shown below - both the introduction of Steven Heller, as the article *Good Citizenship: Design as a Social and Political Force* -, are part of the book *Citizen Designer Perspectives on Design Responsibility*.

Let us begin with the introduction. Steven Heller's text begins by quoting the renowned graphic designer Milton Glaser who says: “Good design is good citizenship” (n.d. cited in Heller, 2003, p. ix). Heller examines the relation between design and citizenship, arguing:

But does this mean making good design is an indispensable obligation to the society and culture in which designers are citizens? Or does it suggest that design has inherent properties that when applied in a responsible manner contribute to a well-being that enhances everyone's life as a citizen? (2003, p.ix).

Heller questions form, aesthetics and usability to understand what this “good design” would be. And, from this point on, it is easy to realize that the definition suggested by Glaser and used by Heller not only departs from the perfectly conceptual design, but also become closer to a design made by a critical attitude, which defines the bad design as the uncritical one or an irresponsible one.

[...] “goodness” is subjective and one can be a good (or great) designer without necessarily being a good citizen. But if good design (regardless of style or mannerism) adds value to a society, by either pushing the cultural environment or maintaining the status quo at a high level, then design and citizenship must go hand in hand (2003, p.ix).

At this juncture, Heller exposes the difficulties of relating the central issue of *Citizen Designer* - the designer social responsibility in conceptualizing products - with the business market. He also points out the inability of designers to investigate whether its clients are correct or not.

A designer must be, professionally, culturally and socially responsible for the impact his or her design has on the citizenry. Indeed, every good citizen must understand that his or her respective actions will have reactions (2003, p.x).

Even inside the point of view of the designer's social responsibility, let us follow to the text of Katherine McCoy, in which the relation between design and citizenship is observed through the lens of education.

In her article, McCoy criticizes the lack of social involvement of the contemporary American designers, defending the flag that design is not a neutral process.

It is disheartening to see the vast number of undergraduate projects dedicated to selling goods and services in the market devoid of any mission beyond business success. Undoubtedly, all students need to experience this type of message and purpose. But cannot projects cover a broad mix of content, including issues beyond business? Social issues, cultural and political subjects make excellent communications challenges for student designers (2003, p.7).

Another interesting point in McCoy's text is her suggestion for a design that is not only worried in the creation of not harmful products, through responsible attitudes, but also a design that prioritizes effects, creating products/services that encourage its users in responsible processes.

We cannot afford to be passive anymore. Designers must be good citizens and participate in the shaping of our government and society. As designers, we can use our particular talents and skills to encourage others to wake up and participate as well. (2003, p.2)

Second "view" - designing social effects: citizenship

Here the discussion happens through the analysis of a design project fairly representative for the idea mentioned at the end of the previous "view": the idea of a design that prioritizes social effects in detriment of tangible products. The two texts chosen for this "view": *Touching the State* report and *Introduction: Design and citizenship*, describe and analyze the design project *Touching the State*, once it had citizenship as a goal.

First of all, analyzing *Touching the State* report, it can be seen how this project tried, through design, to enhance the English sense of citizenship. The disseminated idea was that it is necessary to involve people in State processes, not only to legitimate the State, but also for people's needs.

The project involved the collaboration of eight English citizens who reported - through interviews - their journeys on one of the three encounters between the State and its citizens offered by the program: voting, jury service, and the new citizenship ceremony. The result - in addition to the reflection upon the relation between design and citizenship - were prototypes¹ of design products and services, which proposed improvements in the processes of each one of the encounters.

¹ The prototypes were designed by designers, through challenge during the implementation of *Touching the State*.

Some examples of these prototypes were the State loyalty card², where citizens could accumulate points through actions such as voting, providing a community service or spending the holiday in their country; besides the irreverent light signal, in the greater Batman style, which would encourage voters to vote on election day.



Figure 1 – Light Signal, in the Batman style, proposed in *Touching the State* (2004).

Secondly, the *Touching the State* project is also observed in *Introduction: Design and citizenship*, written by Cynthia Weber. However, her text compares the project with another design project called *Casa Segura* (Safe House), a project that thought about the problem of immigrants who try to cross the Arizona Desert, in the USA. The *Casa Segura* idea was to reduce the number of deaths - from hunger and thirst - of these Mexican immigrants, to protect the landowners from immigrant's invasions and also to promote feelings of recognition between immigrants and local inhabitants.

Casa Segura was nothing more than a cabin - stocked with water, non-perishable food and a computer touch screen linked to the Internet. It was designed to be installed in one of the private properties along the border, serving as a shelter to those who need it. With a concept somewhat naive, but full of good intentions, *Casa Segura* saves, protects and even encourages those who receive charity to tell their story and thank the person who helped them, as the internet connection is used in order to have this interaction.

² The State loyalty card proposed that the points accumulated by the citizens in their actions “for the State” could be used to obtain tax rebates.



Figure 2 - *Casa Segura*, by the artist and designer Robert Ransick (2007).

Once *Casa Segura* results of an artistic expression and not of a trade request, the project was seen by Weber with better eyes than *Touching the State*.

As a professor in the department of Politics and International Relations, Weber questions the State action in promoting citizenship and criticizes the British design project *Touching the State*. From her point of view, the project, which aimed to expand the British sense of citizenship, only engaged in solving the problem of lack of citizen participation in the UK. In addition, she reckons this project tried to pacify citizens. Thus, it was a design improvement of State's products/services, which only sought to legitimize it. According to Weber:

[...] how specific *Touching the State* designs do as much to pacify citizens as they do to involve them, and how citizen participation enables a State to claim legitimacy that might well be the State's only real concern about a lack of citizen participation (2010, p.2).

Weber's criticizes about *Touching the State* based on the fact that it has served primarily the interests of the State. Having had the State as the customer and having reduced the meaning of citizenship to the State/citizen relations.

In her critique, she cites the Thomas Heatherwick's contrary declarations to the premise of *Touching the State*. The renowned English designer, who took part in the committee of designers of the project, said in the own *Touching the State's* official report:

Can design create or enhance a sense of citizenship? The answer is no. Design can only improve the quality of some of the experiences one has as a citizen – having better signposting to the polling station being an example (Heatherwick, 2004, p. 53).

In Weber's analysis of the *Casa Segura* project, though, it is said that it was a truly project about citizenship, although it has not focused on "formal meetings between State and its citizens" (2010, p. 5) and it has not aimed to improve these meetings.

Casa Segura is certainly not the sort of design project that *Touching the State* is. It does not focus on formal encounters between the State and its citizens like voting or jury service. It does not ask how State/citizen encounters may be designed differently to increase engagement and a sense of citizenship. [...] I would strongly argue that Ransick's project is about citizenship [...] (2010, p.5).

The author questions the power of analysis and problem-solving ability of the designers in *Touching the State* saying that they had not realized that the project was tied to government interests. She talked about the problem of the designers' professional performance in relation to the desire of the customers, saying that in *Touching the State*, the designers only worried about improving the image of their customer.

From the perspective of generating citizenship, inside the State/citizen relation, however, *Touching the State* can be seen as a success, since it amplifies the sense of citizenship (State/citizen) of the participants. For instance, could it not be called an "act of citizen" either the act of voting or serving on a jury?

Third "view": designing social effects - citizenship as a mean

Firstly, we will begin with the analysis of Frascara's texts by his article *Communication for Change: strategies and difficulties*. Here, he discusses the current puzzle of irresponsible consumption of resources - problem that surrounds both the relation State/citizen as well as citizen/citizen - and presents the communication/design as a potential activity for the generation of behavioral changes.

Frascara talks about communication ethics and his principle of communicating with someone about something and not communicating something to someone, respecting diversity and seeing the "receiver" as a subject. Then, he follows the motto of the importance of the user participation - an active citizen - on projects that think of the generation of responsible conduct.

Using the language of the public is not enough. The public has to have voice. [...]. The passive spectator is the communication counterpart of the passive citizen. Without attentive audience there can be no active citizens, there can be no understanding of responsibilities and rights and there can be no active understanding of a review of use (1996, p.29).

At this point, the author cites Robyn Penman, from the Institute for Research and Communication in Australia, to speak of citizenship as something broader than what is constitute only as a "mere expression of nationality" (Penman, 1994 cited in Frascara, 1996, p. 29). Bringing then, a concept from the founding editor of the journal *Citizenship Studies* and professor from the University of New York in the USA, Bryan Turner:

Citizenship shall be defined as a set of practices - legal, political, economic and cultural - that define an individual as a competent member of society and as such, forms the flow of resources between individuals and social groups (Turner, 1993 cited in Frascara, 1996, p. 29).

Returning to Penman, Frascara cites the author's sentence that says:

[...] one of the key ingredients for the practice of citizenship is participation in public life. And the act of participation is a communicative act. It is in our processes of public communication that practices gain the law force and that define a person as more or less a citizen. It is the quality of practices that account. Good practice shows good citizens (Penman, 1994 cited in Frascara, 1996, p. 30).

In the second Frascara's text chosen to integrate this work, *People-centered design. Complexities and Uncertainties*, the author is more explicit in his design view as a mean to mediate human relationships. The author also mentions the designer social responsibility, but places it beyond the act of just designing in a critical way. The Argentinean professor points out the designers' social responsibility as a mean of creating objects/services that input social effects.

Frascara suggests the interdisciplinary and the problem-solving abilities as skills that enable designers to work with global problems. "We have to stop thinking of design as the construction of graphics, products, services, systems and environments, and think about those as means for people to act, to realize their wishes and satisfy their needs (Frascara, 2002, p.33).

About the "views"

The first "view" related to the relation between design and citizenship presented in this article is anchored in the figure of a citizen designer: a critical/responsible professional. Despite thinking about his products social effects, this professional doesn't design social effects itself.

The second "view" presented, already fits the Frascara's idea of designing social effects rather than designing tangible products. This outlook also considered the importance of a critical professional and the importance of the users' participation in the processes of creation. However, it focused on generating citizenship, which was projected. In *Touching the State*, citizenship represented the own social effect desired.

The third "view", represented by Frascara's texts, also explains about a critical and participatory design focused on the social effects. Nevertheless, it is the relation between the project with each sphere - participation, citizenship and desired social effect - that changes. In this "view", the term "citizenship" is only used in order to represent the importance of participation, besides generating other social effects. The idea is not to generate citizenship or legitimize the State in its processes, but to use citizenship for other social purposes.

Final considerations

From the analysis of different discourses on the theme "design and citizenship", not to mention other matters already related to these terms, it was possible to raise questions of great relevance for understanding the subject. An example is the question that emerges from the texts of *Citizen Designer*: Should the relation "design and citizenship" only be established based on the designers' social responsibility?

Relating the *Citizen Designer* content with the content designed by Frascara, another interesting theme would be the connection between the designers' social responsibility

with the production of social effects. Could they walk apart? Would it be possible, for example, to a non-critical designer, to focus on producing social effects? These questions are also related to the problem identified by Weber in *Touching the State*.

Thinking of the *Touching the State* project, questions based on the purpose of a design that focused on citizenship - having citizenship as a unilateral State/citizen relation - are also established. What kind of improvements, specifically, these kind of projects would bring to the world? Is it really in this place where this relation should be anchored? Should these advantages come specifically from the feeling of extending citizenship - in the State/citizen relation - or should these advantages come from the consequences of this citizen feeling: as the awareness of citizens' rights and duties?

Frascara, in his two texts presented in this paper does not point specifically citizenship as a result generated by the attitude change proposal by him. As *Casa Segura*, the author does not think of generating citizenship, especially in the sense of "nationality". This is not the projects purpose that he craves. In fact, he has citizenship as a means to achieve social purposes. In case of *Communication for Change: strategies and difficulties*, the effect would be the changing consumption behavior.

Another issue that supports the criticism made by Weber in *Touching the State* project is the notion that projects that aim social effects should emerge from popular innovative initiatives. As in the *Casa Segura* project, these initiatives must be modified by users, shaped by the participation of people and, if possible, they should come from the *bottom-up* style rather than *top-down* style (Freire, 2010, p.6). The *bottom-up* style vision meets the ideas propagated by one of the pioneers of the service design focused on social innovation, Ezio Manzini.

But is it this view really possible? Or would not interests always be present in any type of project?

As we see, the association of broad terms as citizenship with the design activity has extensive borders. But the establishment of a coherent study on the effects of a design practice directed at the citizenship issue goes beyond subjects such as designers' social responsibility, pointing to a participatory design and to a social effects design.

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Acknowledgments

This work was developed in order to help the theoretic framework of one of the six perspectives on Emotional Design create by LABMEMO, the Design Memory and Emotion Laboratory, of Pontificia Universidade: Design & Citizenship or “Doing the Right Thing” Design. Thank you for all time!

Liquidity

Managing Design

Designing Managers

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Abstract

During the last century, design as a discipline has significantly evolved. The design process fundamentally is a user-centred creative and pragmatic problem solving activity. This user centred process is essential to find innovative solutions, because in the end it is the client who decides on the company's sustainability. When the needs of users and society change, designers will try to respond to these changes. And since the demands of society have considerably changed in the last century, the output of the design process has altered with it.

Once, great aesthetics could be enough to distinguish a product. With demanding consumers this notion of design, based on styling purely, is no longer valued. A mix of aesthetics, technology, ergonomics, price, brand identity, green and social issues might be needed to create a truly appealing solution. As a consequence, the design activity has become more complex. In such a competitive context, multiple professions - designers, engineers, marketers, sociologists - need to co-operate to create an appropriate answer to user needs. With this development, design has become an activity involved in multidisciplinary co-operation.

More recently new boundaries were crossed by utilizing design skills to a wider spectrum of business issues. The design agency IDEO and the Stanford D-school use the design methodology to re-design services or to solve a variety of business issues. Applying the design process in a broader sense than the traditional domains such as product or graphic design is an expansion of the long-established design territory. The design and the business community need to evaluate the recent practices in design thinking and assess possible limits. A methodical, academic verification of the benefits of design thinking appears desirable.

It is no wonder that the changing character of design plus its expanding domain lead to a certain ambiguity what design is and can do. Is design dealing with aesthetics or far more? Is design a result ... a great product / or is it a process? And when talking about design thinking ... in which area's can we apply the design thinking process?

These recent changes have, in some cases, resulted to a co-operation between design and business schools. The partnership of the French business school, Grenoble Ecole de Management, and the design school, Strate Collège Designers, is one example of this development. This cooperation was established in 2008 and aims to improve co-operation between the disciplines, to develop design awareness and creativity and to educate students both in marketing and in innovative, sustainable product development. Somewhere this design and business school partnership has started “designing”, not designing products, but designing with a much wider scope ... aiming to design truly creative, innovative managers and specialists in innovation.

“It is amazing to see how much we've become designers in our way of thinking”
Baptiste Mours, business student from the Grenoble Ecole de Management after one year of full integration at the Paris-based design school Strate Collège Designers

Introduction

Design is an analytical, creative and at the same time pragmatic business-oriented process, that puts the user in the centre of its attention. A focus on the users' needs and his silent aspirations lead to an understanding of possible improvements. Hence, this is a starting point for the development of appealing new products and services. Unfortunately many managers are not at ease with designers' more intuitive approach, thereby not using design at its full capacity. Finding common ground between disciplines is not automatic.

Chris Bangle, global chief of design for the car producer BMW describes the designers of the BMW organisation as more emotional, sensitive and sometimes ego-centric artists. He often needs to mediate between corporate and artistic mindsets and states that their fanaticism about design excellence is only matched by the company's desire to remain profitable¹. However, even when companies are aware of the economic benefits of design, they still need “soft skills”, an innovative culture and a well working team to create the best possible solution. This is where the educational system can have a contribution, by making students from different disciplines – design, business and engineering - study and work on projects together.

This article first analyses the historical development of the design discipline, leading to design expanding to new areas, such as service design and design thinking for other issues than the traditional areas. The article then specifically highlights the user-centred approach as a constant objective in the design process to develop products, but also to make services more user-friendly and to solve other organisational, environmental or social problems. Thirdly implications for companies, as well as implications for business- and design education institutes are discussed. To conclude the first experiences of the partnership between Strate Collège Designers and the Grenoble Ecole de Management are described.

Design's evolution - from aesthetic improvements to design thinking

During the last 100 years, the connection between design and business has evolved to respond to new challenges and needs of society². In the early days of the design profession, great aesthetics could be enough to obtain a commercial successful product. At present, with though competition and demanding consumers the days of quick aesthetic improvements have long been gone.

Design driven culture

Our consumer society demands more and more competitive solutions. For true product appeal, a right combination of aspects such as brand identity, new technology, ergonomics, price and environmental friendliness is needed, going much further than product "looks" only. In design oriented companies, such as Apple, Alessi and Bang & Olufsen, the company's strategic position has been reinforced through dedicated attention to product design.

The extent to which design can contribute to a company's innovative process highly depends on its management's vision regarding design. By highlighting the strategic importance of design, managers play an essential role in creating a positive environment for design activities³. One key ingredient appears to be the presence of both an innovative CEO and a design manager or consultant who can place the value of design at the centre of the company⁴. Companies that use the possibilities of design more extensively are highly likely to integrate designers in the development team right from the start of the development process. Design driven companies also appear to be more quality-oriented, daring to use intuition, emotion and gut feeling during the development process⁵.

New challenges

The race for competitive products and production has come with a price. The industrial revolution did not imagine the possible limits of natural resources and did not take human values into account. We are now seeing the limits of this "take, make and waste approach" on which our current industrial model is based. It is becoming clear that we have to move towards a more sustainable model respecting both the natural and social environment⁶.

Most designers solve traditional design issues, such as developing product and packaging as requested by companies. With a voluntary approach designers create better products that are affordable to many people. However by doing so, designers also contribute to the negative sides of our consumer society, causing pollution and exhausting the planet's natural resources. As a design community it is an uncomfortable feeling to be a part of this "catastrophic machine"⁷. More and more designers are therefore devoting some of their time to more serious matters, like repairing environmental damage. The same creative skills that have shaped mass-produced products can be used to change the world, creating solutions better for the environment and bringing social change⁸. This means that we may somehow be moving towards a redefinition of the profession⁹.

Design thinking

The design methodology does not need to be reserved to product or graphic design. Designers essentially solve problems or otherwise take the current situation and try to improve this¹⁰. A recent evolution in the design discipline concerns using the design process as a problem solving tool for a wider range of questions in other fields¹¹. Companies are learning that design is more than aesthetics and that design thinking is complementary to the analytical methods taught by most business disciplines¹². David Kelley, founder of the design firm IDEO, was the main force behind the Hasso Plattner Institute of Design, or D-school at Stanford University, where business students take elective classes in “design thinking”¹³. Tim Brown, the current CEO of IDEO states;

“Thinking like a designer can transform the way you develop products, services and processes – and even strategy”¹⁴.

Our society is changing from a production to a service society and companies need a creative approach to respond to these transformations. These required adaptations stimulate the search for an innovative approach. Critical thinking, identification of the true problem spots, and asking both fundamental and naive questions, lead to understanding what is really needed. If this is combined with creativity, flexibility and the objective to create unexpected solutions, this may become a core competitive asset for a company.

Empathy for users as a Constant Objective

Companies use the design process at various degrees, varying from an aesthetic face-lift to using design thinking to solve other business issues. In this flexible spectrum of applying design skills, one aspect has remained constant over time; user-satisfaction or delight, because without enchanted users no sales no sustainable position for the company.

Placing the user central¹⁵, understanding his motivations, values, preferences, priorities and finding the weak spots in existing solutions creates the foundation for the development of a desirable solution. This is the “design research phase” before the actual development project starts.

Observations of users using products or services in the real life context¹⁶, which are in fact ethnographic techniques and the visual analysis of trends in society are ways to better understand users. It creates the possibility to discover poorly solved or unarticulated consumers’ needs and preferences. This process comes down to observing the world in fine detail and using this insight for inspiration.

On its website, the design consultancy firm ZIBA highlights the importance for design research for the understanding of the user and the integration of the company’s brand identity;

“It comes as a boom ... The moment your customer realizes your idea is a great one. These are moments that make markets, destroy competition. At the heart of

that moment is a meaningful idea, the result of an insane research to understand the customer, company and brand”.

High consumer expectations and severe competition have made it even more important to understand what a consumer wants, hence the integration of new specialists from human sciences, such as anthropologists and sociologists, in development teams. Philips design department uses this multi-disciplinary approach. Stefano Maranon, CEO and chief creative director of Philips Design, clearly expresses the importance of a user-centred design research in an interview;

*“The high design process focuses on people. We look at people as the centre, the core and the drive of what we are doing. And if we do it right, we are going to be rewarded. ...”*¹⁷.

To create real opportunities and break away from competitors, the observation of hidden needs and risk taking is needed. Bill Ford, the present CEO of the Ford Motor Company, expresses the need to thoroughly understand users. In January 2006, he communicated the following intention in a company meeting;

*“My great-grandfather once said of the first car he ever built: If I’d asked my customers what they wanted, they would have said a faster horse. ... At Ford, we’re going to figure out what people want before they even know it – and then we’re going to give it to them. It’s where we began and it’s where we must go”*¹⁸.

Implications for Companies

In many consumer products, design aspects have become crucial, since it allows differentiating from competitors by offering user-friendly, ergonomic, aesthetic and / or eco-friendly solutions in coherence with the brand identity. However according to a study by the European Commission, small companies in particular have little experience with design. Specifically when working with a designer for the first time, the results of design services are difficult to estimate in advance¹⁹. Even when companies are interested, they do not really know how to work with design in the best possible way - at the end of the development process to improve aesthetics, right at the start of development or in a design research phase to better understand customers? An insufficient number of managers in commercial organisations have adequate experience with design to create the innovative, open-minded culture to use design skills at its best. Moreover, the nature of design is related with intuition and risk taking, which is uncomfortable for a manager.

Companies, therefore have to go through a learning curve to integrate design well. When seeing other more design-mature companies succeed and additionally having success with design projects in their own company, they are more likely to give the design function a more prominent role.

Cooperation between marketing and design

Severe competition, demanding customers and the increased complexity of products and services amplify the pressure on development teams. It leads to a need for the integration of designers at the start of product development. The more design is

integrated in the development process, the better managers, engineers, marketers, designers and researchers need to understand each other in order to work together. Mutual respect, pleasure, the ability to work together and the drive to accomplish something outstanding as a team are important for success. Due to the different culture, languages and approaches of design and marketing, this co-operation can be challenging.

The work organisation of marketing is more formalised than the informal “organic” work organisation of designers. Marketing delivers verbal and written analysis and recommendations. Designers deliver models and visual representations²⁰. Managers avoid working on “wicked” problems, where designers embrace problems as a challenge²¹. With an optimism, designers do not worry too much about constraints, assuming no matter how challenging constraints at least one solution will be better than the existing one²².

Due to the necessity to innovate efficiently, the role of designers and others involved in the development process has evolved. From the designers’ side it means understanding how design fits into the business context and being able to integrate information from diverse - maybe not traditional sources - inside and outside the company. It also means teamwork and as a consequence diminishes the designer’s individual approach and independence. Some designers can act as a bridge between functions – as a kind of project manager. This demands managerial skills and business knowledge next to creativity.

Strong competition means that companies need to get a complete mix of organisational aspects right: culture, drive, organisation, designers, respect and co-operation between the disciplines, and inspirational managers / leaders. Innovative processes are the lifeblood of the organisation, but are risky. Nevertheless a stronger voice of creative, pragmatic people in the organisation, combined with an user focused approach finally limit the risks for the organisation.

Implication for business and design education

In few business schools courses on innovation through design are an indisputable part of their program. However, business schools are in a good position to educate future managers on multiple crucial aspects of design innovation, such as;

- Awareness of design’s economical impact
- Design culture and co-operation between disciplines
- Learning about design process and design thinking
- Sustainability

Awareness of design’s economic impact

It is important to inform managers on the economic potential of design. In a high tech environment, design transforms expensive research into products and services that are closer to user needs, hence adding value by design is important. In a low tech environment design also has the potential to differentiate and valorise the company’s

offer. With creative thinking it is possible to lower the costs of production, assembly and packaging.

Not only is it essential to inform those future executives in marketing and product management about the strategic importance of design, but also those working in finance need to be informed to make the right decisions regarding the attribution of budgets for design innovation.

Design culture and co-operation between disciplines

Case-studies related to successful design-mature companies allow learning about the impact of design and the organisation of these companies. A more pragmatic approach about “how to work with design” follows this design awareness. Specifically for an understanding of the design process and collaboration between disciplines it makes a sense to make design and business students work together on a company projects.

Making the student populations from the business and design discipline work together will help business students to develop a taste and sensitivity for creative processes and make design students gain further knowledge and comprehension of business constraints. In an “ideal world”, students from design and business schools should have learned to work together on a project basis before entering the job market.

Learning about design process & thinking

Learning about the design process has two advantages for business students and companies. Obviously, it helps in the first place to be better prepared for product development processes. Additionally Roger Martin, Dean of the University of Toronto believes that Design thinking - approaching management problems as designers approach design problems - may have important implications for management education and states:

*“Today’s business people don’t need to understand designers better, they need to become designers”.*²³

Business students have to go deeper in understanding the user and the user experience than done at present. It also implies an attitude of curiosity, listening carefully to others, integrative thinking and creative attitude, and embracing constraints as a momentum to creative solutions. User-centred creative thinking can be applied to other business issues than product development. Asking the right questions, critical thinking, and the objective to create solutions in valuable and possibly unexpected ways is not the privileged domain of designers.

Clearly, creativity is a main asset for a company and in this aspect business schools can learn from design schools.

Sustainability

Last but not least, in the future, companies will probably be forced by the market and government regulations to take environment and ethical constraints more seriously into

account when developing their activities. Design and business schools can certainly have a significant contribution in this development by training students from different disciplines to tackle sustainability issues, such as cradle to cradle development²⁴. Embracing sustainability could not only be a necessity, but also be a great opportunity for business²⁵.

Strate Collège Designers and the Grenoble Ecole de Management

Design-awareness, a strengthening of user-focus in development activities, an improvement on co-operating between disciplines, creative thinking and know-how on sustainability issues should start at the educational level. Design- and business schools are able to learn from each other, while each keeping their own characteristics.

Spring 2008, Strate Collège Designers and Grenoble Ecole de Management signed a protocol defining a framework of the collaboration between both institutes. Strate Collège Designers is specialised in design education and already had strong links with engineering institutes, but was finding it more difficult to work with business schools. Grenoble Ecole de Management delivers business studies from bachelor to doctoral level and has made Technology Management and Innovation a principle axe of its development since its foundation in 1984. With these values in its organisation, courses on design innovation have been part of its curriculum for almost 20 years.

For both Grenoble Ecole de Management and Strate Collège Designers, it was the right moment to work together and it did not take long to turn an initial interest and willingness into concrete projects. The cooperation is based on exchanges between the two schools and the creation of a double diploma. The objective is to respond to the needs of companies by creating “graduates having a profile with a double competence being knowledgeable about marketing techniques, innovation and the development of durable differentiation products and services”.

Business students from the Grenoble Ecole de Management have two possibilities to complement their studies at Strate Collège Designers. They have the possibility to either study one semester at Strate Collège Designers or study for a longer period of one year and a half at Strate Collège Designers. This second options adds an additional year to the total lengths of their studies. If the planning allows it, students follow training during the summer period at Strate Collège Designers to improve their visualisation skills before starting at Strate Collège Designers.

During the semester at Strate Collège Designers, the design and business students work in teams on company projects. When students after this first semester have a positive advice from Strate Collège Designers and wish to specialise further, they continue for another year at Strate Collège Designers. After having qualified at Strate Collège Designers they re-integrate the Grenoble Ecole de Management to achieve their last year of business studies and also obtain the diploma from the Grenoble Ecole de Management. Internships in product management or at a design consultancy firm are very likely to complement this education.

Design students from Strate Collège Designers have the possibility to follow business studies for one semester or for a longer period at the Grenoble Ecole of Management.

They can integrate the specialisations at the Grenoble Ecole de Management by selecting courses out of a portfolio of proposed options during one semester. Alternatively, they can stay for a longer period and complement their already finalised studies at Strate Collège Designers with for example a Master Spécialisé en entrepreneurship. Successful completion of this second option also leads to a diploma from both institutes.

Our first educational experiences

Students are selected before either integrating Strate Collège Designers or the Grenoble Ecole de Management. This is done to make sure the complementary design or business study matches their profile and professional project. The first feedback from the business students, having integrated Strate Collège Designers is very encouraging.

“It is a fantastic experience. Coming from a business school, I had to change my perception on many aspects of project management. The interactions between students are completely different, more focused on visuals and communicative aspects. The level of implication in projects is also higher”. (Ugo Coppela, business student after one year at Strate Collège Designers)

The business students from the Grenoble Ecole de Management had the following reasons and motivations to integrate Strate Collège Designers;

- a belief in a double competence in marketing & design
- a wish to communicate well with designers in order to better integrate design strategy and innovation
- a wish to work in a design, innovative environment and to differentiate from others with a business study background
- a wish to develop their creative capacities and
- some students had even consider to follow design studies before integration the Grenoble Ecole de Management and are now in the position to combine both design and business studies

The business students appear very motivated to understand and integrate a “design culture”. This should facilitate their future co-operation with designers.

“I wanted to confront myself to a universe that I did not know, the universe of designers. I knew that by embedding myself in their environment and culture, I would learn enormously, both from a technical viewpoint and a human viewpoint. This is exactly what happened”. (Celine Vo, after her first semester at Strate Collège Designers)

“Learning the methods and the language of industrial designers, to integrate this culture and to be able to communicate efficiently with designers were my most important pre-occupation. Thanks to the projects followed by professionals, I succeeded in improving know how in the co-operation with designer students”. (Gildas Fremont, after his first semester at Strate Collège Designers)

Conclusion

The experience design and business students get while working together on projects during their studies, should contribute to more creativity in companies and also help integrating more design awareness in companies. The students in the double degree program have not reached the job market yet. After their experience at Strate Collège Designers, these students return to the Grenoble Ecole de Management to finalise their last year of business studies. However as a first feedback, the type of internships these students are doing are on the interface between Marketing, Innovation and Design, for example in communication agencies, upfront in marketing, trend analysis, working in the creative music industry, product concept development (half marketing and half design). In the near future the first double degree students will enter the job market and this needs further evaluation.

Due to their program structure, the design students from Strate Collège Designers started integrating the Grenoble Ecole of Business a year later after the initial start of the double degree program. For this reason, insufficient feedback is available at the moment about their learning. We will look into this when these students have sufficiently advanced in their studies.

As a conclusion, the whole design-business education process needs to be carefully assessed to measure the integration in the job market and career development for those students having followed the double competency design-business study program. Both institutes are also learning and improving while walking this exciting path.

For companies it is important to be able to recruit young people having experience in both the design and business field, speaking the language and having similar enthusiasm and motivation. So at present, we are in the process of developing creative, innovative managers that value design and the way designers think. Equally we are training designers with a thorough sense and understanding of business. In a design mind-set, we are following our intuition, confident that the pieces of this play will match beautifully and bring improvements to the existing situation.

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**When to
evaluate**

**Where to
evaluate**

**How to
evaluate**

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Abstract

Small Medium Enterprises (SMEs) developing assistive technology products and telematics need to understand the needs of a diverse range of users to ensure that their systems and products match user needs and requirements. This requires the careful elicitation of user requirements and design of evaluation studies. SMEs, comprising designers and technology developers, although acknowledging the importance of continuous user engagement, may lack the skills in-house to engage users productively. A survey of such SMEs revealed that companies rely on a limited set of methods, are unsure about how to design valid evaluations and use the outputs, or are dependent on third parties gathering information for them. A generic system was developed to support the planning of evaluations at any stage of the product development lifecycle. With little time overheads and an on-line help system describing the evaluation methods, the toolset aims to increase the validity and rigour of product evaluation.

Introduction

This paper describes the development of a computer based system to support SMEs in product evaluation. Although developed for the assistive technology sector, it is expected that the Assistive Technology Toolset (ATT) will benefit a wider group of designers. The paper commences with a description of the rationale and context of development. Section 2, describes a survey of current approaches to evaluation used by SMEs. The last sections describe the ATT and its evaluation.

Context of Development

The ATT was developed in the TSB/EPSRC funded, i-DEAL project. The academic partners work with SMEs at the cutting edge of new product development in the areas of assisted living and telemedicine. The overall aims being to develop generic tools and processes to assist SMEs ensure that their products meet end user needs. User evaluation is very demanding in this sector. Challenges include a lack of understanding of the methods that can be employed to conduct evaluations, lack of resources, access to end users and the required expertise to apply evaluation techniques.

The academic partners have assisted the early evaluation of a number of products generated by the SMEs. These have resulted in significant product design changes, with at least one product not being developed further because of feedback from a focus group. Such decisions are vital to get right given the levels of investment required and resources available. As this work has progressed, a need to formalise the landscape of assistive technology evaluation techniques and methods was recognised. This has led to the development of a computer based ATT.

Evaluation of Assistive Technology Products

Design, even in SMEs is complex requiring clear communication between the design team, clients and end-users. Eight semi structured interviews were conducted to understand when, how and where evaluation is conducted, who it is conducted with, and what the barriers to evaluation are.

Telephone interviews were undertaken with i-DEAL project partners, a design consultancy and SMEs/LMEs developing assistive technology and telematics products. Those interviewed either oversaw all functions or were directly involved in product development. The participating companies were:

1. A hospital based, medical technology company of 12-15 employees having good relations with the clinicians and medical professionals designing products for clinicians and patients to monitor longterm medical condition.
2. A company with an annual turnover of £400, 000 designing circuit boards for AT applications, employing four people and three graduate engineers.
3. A 2 year old company of four people, specializing in ‘cognitive support’ technology.
4. A design consultancy attached to the university with 3 industrial designers designing a range of products on a contract basis.
5. Larger design and manufacturing company employing 70 staff, with a turnover of £7 million specialising in telecare.
6. Product development and sales company employing 20 people developing medical devices
7. Large organization with 1000 employees which is a market leader in telecare and assistive technology, manufacturing predominantly in the UK, but with global coverage.
8. SME with eight employees specialising in systems to measure gait analysis.

Although the companies varied in size, little difference was found in the way in which design, or user involvement took place. Companies working on EU contracts did not conduct initial research, but their experience of user involvement was not significantly different. The consultancy firm did not build up long term relationships with end users or service providers. End users included commissioning organisations, monitoring managers, service telecare providers, housing associations, local councils, operators of telecare services, carers and primary end users.

The need to consider overall usability and involve users was mentioned by most companies. Commitment to user involvement was evidenced in general comments throughout the interviews – though this did not necessarily mean the ‘patient’. Quotes from respondents are provided where appropriate. *‘The issues are really usability; whether it’s any benefit to them at all, whether the look and feel of the device felt ok, whether they thought it was too heavy/ too light, whether the user interface is easy to navigate through? And that the functionality we are offering; because we are providing a wider and wider range of functionalities are worthwhile? And would they find them beneficial.’* Evaluations considered aesthetics, interface design (screen layout, design, size, number and shape of buttons, colour, font size, screen layout), operation in the home, portability, handlability, simplicity.

‘At the end of the day we are making products for the care of the elderly and disabled and if the products are not practical for those people to use you might as well not develop the product in the first place. You may have all the nicest fancy features but if there not practical for an elderly or disabled person to use then it’s a waste of a design.’

‘An engineer designs what he thinks is the best display or keypad in the world, but when it goes out to the elderly to use who may have visual impairments, arthritis issues, hearing, so you have to be aware of all of these factors whenever your designing a product.’

‘The whole process involved the user of the product right the way through to the final signing off of the production version of the product’.

Table 1 provides an overview of the most common evaluation methods, user groups, issues considered against stage of development.

Stage of user involvement	Type of user	Nature of involvement	Method	Type of issues discussed
Pre brief and user requirements	Sales team, customer base, employees		Listen	Understand the market and its gaps
Pre concept	Care professionals	Looking at existing and future scenarios	Presentations	<i>‘Often we say that this is just coming, how do you feel about this so they can see it for real.’</i>
	Clients	Functionality not aesthetics		<i>We tend to create a form in order to get them to talk about it or to understand what we are doing so, as long as they are briefed well before hand, we do tell them to ignore the shape, that’s</i>

				<i>not really important</i> '.
Concept design	Employees	Evaluation		Technical trials
	In-house	Evaluation		electronic performance
Prototype testing	Monitoring centre personnel	testing	In the field	The best way to display messages to suit the most specific requirements of the operation.
	End users	evaluation	Focus groups	Defining where the buttons and keys go and the look and feel of the product
	Expert users who will use the product every day	Semi functional prototypes	Watch a couple of people, do not record anything	
Concept designs	Monitoring sensor personnel Sales reps	Mock up designs with different types of plastics	Outside organisation	Product benchmarking
Final designs	Real end users		User groups	All aspects of usability and functionality
	Product end users		1-8 months	
	Employees	Validation of product in context	Field trials, 1-3 months	Only after the product has been tested in the company, and they are sure it will work. Back up systems need to be in place to ensure in case new product fails in an emergency.
	Customers			
Post launch	Customer base who in effect represent the end user in those meetings.		User forums	
	Customers		Regular meetings	

Table 1 – Methods used at different stages of the design process

Table 1 illustrates that SMEs rely on a small range of qualitative, informal methods to develop a dialogue with their end users. However, in some cases just one user may be studied, without formal records being kept. User forums were rated as the preferred method by one SME. *'It is the best to get a number of users together to discuss their needs and how they would interact with the product to get value from that situation and value from the feedback that you're getting. You tend to get more feedback from that setting'*. In some instances evaluation is just with representatives.

A wide range of stakeholder groups are included such as service providers. Different evaluation methods could be used with each user group. For example, the clinician will be more tolerant of, and expect more controlled user trials; different categories of users have different relationships with the product, different needs and will comment on different aspects of the product.

User involvement included evaluation, discovering requirements, markets for new products and relationship building, *'a complete dialog process, it's a whole process from start to finish.'* Use of such methods aimed to discover *'what are their feelings and what are the important things for them. Yes it's a constant review of the model as we develop it with contacts and customers.'*

There is a gulf between methods used by SMEs and those developed by researchers. The SMEs believe that their current methods were sufficient, so introducing new ones may meet with resistance. However, alternative methods may provide richer material and opportunities for greater engagement. Therefore, there is a need to both inform SMEs about other methods and to provide guidelines on how to design trials that are valid, robust and reliable.

Continual, iterative development, based on informal conversations with existing and potential new clients characterized the work of the SMEs, except those working on discrete EU funded projects. The design consultants maintained a close dialogue with their clients for the life of the project. *'Fundamentally we need to just talk to people before we do something and keep talking to them while we are doing it, but they can often give a very subtle hint at something which you might be able to latch onto and that could be the big one that swings it one way or another. It could be the key factor that makes that product really really successful, so it's a real benefit to have good positive input from end users'*

Feedback allowed designers to understand the perspective of end users and understand their perspective. *'Users are normally a part of the process. Because we are designing this to be used, there is no point thinking of the most brilliant design in the world and then it actually being completely unusable'*. However, in some cases this information was not recorded, but was kept in the heads of the developers, *'as a sort of picture'* or in note form. This may become problematic if key personnel leave.

'So perhaps it may be useful to have a couple of people and do the same again and again and then that's also easier for us to manage. So you can sit in front of somebody and say I will think I will watch and see how they behave, we don't record it, we don't have to go to that extent because we would then spend so much time reviewing the recorded evidence. So it just a matter of having to use a bit of common sense and a bit of initiative to try and absorb the information from it and write as quickly as possible and to make a note of anything they suggest.'

Problems associated with the involvement of users included:

1. Finding and accessing representative end users with certain medical conditions.
2. Managing end users expectations, especially in the early stages of concept development *'Users have to understand that the prototypes may not work,'*
3. Relationship management and education - building trust with end users, so that the right level of information is provided, design limitations understood and users trusts designers not to 'steal ideas'
4. Costs of running evaluation and management of user groups
5. Perception of the value of end user contributions *'I can't think of an innovation that came direct from an end user',* or *'Well that's pretty difficult; we are dealing with elderly and disabled section of the population so some of them are extremely bright,*

but the vast majority are being looked after for one reason or another and the very fact that they're being looked after implies that they wouldn't necessarily contribute a great deal to the design process. When you're dealing with people who are already not in the best state of health then that type of feedback is not really forthcoming.'

In summary, the interviews showed that SMEs in this sector:

- Appreciate the need for continual user involvement
- Engage with different categories of users
- Evaluation concerns more factors than just aesthetics and usability
- Employ few, qualitative, evaluation methods
- May not collect, record and analyse data
- Seek to build dialogues with end users and clients.

Additionally new methods are needed that allow disabled or elderly end users to communicate their requirements and feelings.

The Assistive Technology Toolset

The aims of the ATT were to provide:

- 1 a support system to guide the selection of evaluation methods taking into account product and user characteristics, stage of the design process and resource availability etc
1. details of different evaluation methods
2. assistance in locating accredited evaluation services
3. an overview of issues to be considered in planning an evaluation.

The need for such systems has been recognized in the field of software design. Karwoski (p3253, 2006) commented, that difficulties associated with software evaluation required '*A computer aided method selection system, which compares the general conditions of and demands on the evaluation (e.g. finance budget, target criteria, user participation and many more) with the characteristic attributes of the methods and suggests an optimised selection of evaluation methods (mixed method) would seem to be advantageous.*'

Work with SMEs and previous research [8], has established that the ATT should be fast (so it does not delay the design process), easy to use, provide the right level of information to enable action to be taken, designer/user friendly (avoiding jargon and technical terms), provide added value, not require duplication of work or extensive form filling, not make any preconceptions about the design process and be flexible enough to accommodate a wide variety of products and solutions.

The ATT will comprise four separate sections:

1: Evaluation method selection. A structured question and answer interface elicits information about the nature of the product, type and availability of end users, stage of

the design process, resource availability etc. From this 40 research methods are ranked ordered in terms of their suitability.

2: A list of accredited evaluation service providers for cases where products require evaluation by external agencies

3: Evaluation method descriptions and examples of their application to assistive technology product evaluation.

4. Walkthrough of how to conduct an evaluation study to guarantee valid and reliable results.

The rest of the paper will focus on the development and evaluation of Part 1 of the toolset.

Development of the ATT

Factors which need to be considered in the design of evaluation studies were collated from the literature [1,4,6] and the experiences of the project team. This resulted in a set of general questions relating to stages of the development process, purpose of the evaluation, resource availability, end user accessibility, form of the product to be evaluated etc.

Additional questions focused on disability, tasks being supported (e.g. communication, movement), end user group. Potential answers were developed for each question. For example: the question relating to the length of time available to conduct the evaluation might have the answer set: one day, week, month, three months, longer. A further review produced a set of over 40 candidate research methods which could be potentially used to evaluate assistive technology products. Experienced researchers matched each research method to the questions.

Description of the ATT

The ATT is a standalone application, programmed using C-sharp in Microsoft Visual Studio. Its development occurred through the close working of the programmer with a human factor's expert. An iterative process allowed rapid changes and developments, e.g. enabling the testing of different weighting algorithms. Major changes in the interface and functionality were decided upon as a result of running the program and reflecting on the system performance.

The scores of the evaluation methods are derived from the answers provided by the SMEs. Each answer is matched against the research methods and a cumulative score developed. In some cases a particular answer may mean the exclusion of a research method. For example, if the designers have limited experience, end users are unavailable or the product is not sufficiently developed to test outside the laboratory.

Designed specifically for SMEs, recognition has been given to the shortage of time

available to learn how to use a system and that the SMEs may not have thought of all factors they need to consider in the evaluation. A simple, question and answer interface was developed. Responses for each question are either exclusive single choice, or inclusive multiple choice. Figure 2 shows version 1 of the ATT. The answers given to each question generate a positive, indifferent or negative score for each method. The scores are cumulative, so when all questions have been answered a ranked list of methods is produced. A further degree of discrimination has been introduced by attaching weightings to questions and responses. On completion of all questions the top five most appropriate evaluation methods are displayed.

Evaluation of the ATT

In terms of development, most effort has been placed on capturing expert knowledge, ensuring that questions are comprehensible and that final methods selected through use of the ATT are valid. Provision has been made to add additional questions, response categories and methods and relative weightings changed. With over 40 questions, multiple responses for each question, and each response matched to over 40 research methods some errors may creep in. No major problems have emerged in terms of the underlying algorithms.

Version 1 of the ATT has been evaluated to confirm the appropriateness of the methods when compared with those actually used in evaluation studies, and secondly to assess the appropriateness of the toolset for the SMEs. In the first study, the methods derived from using the system were compared to those actually used. A good match has led to confidence in the weighting scales and questions used in the system.

Usability testing

The aim of this evaluation was to identify usability problems and make recommendations for improvements. Seven participants from SMEs of assistive technology products took part. Companies were engaged in developing discrete AT products - a walking stick, independent living aid, exercise equipment for disabled users, health monitoring devices, mobility aids for children, environmental controls.

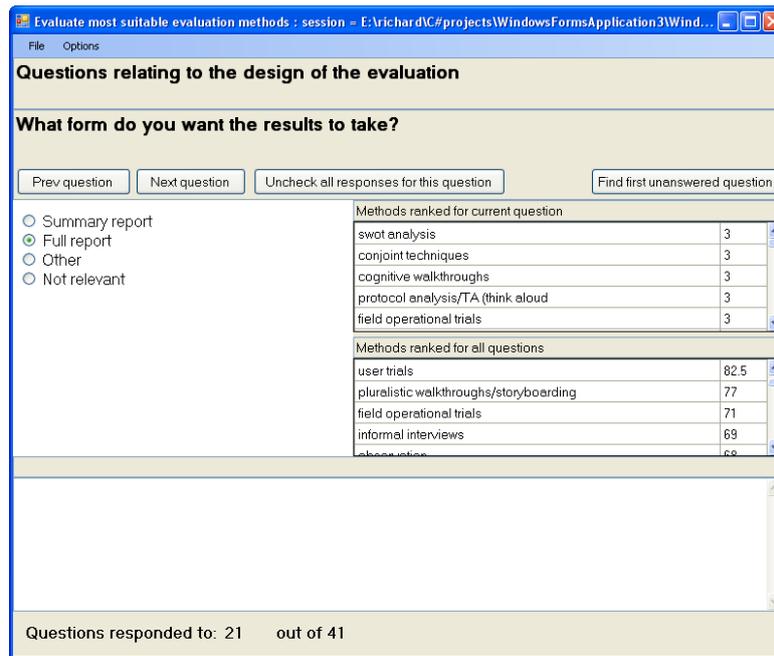


Figure 2 – Version 1 of the ATT

Participants described the product they were thinking of evaluating and then worked through the system. Walkthroughs [5] provide an indication of how easily users can perform tasks after little or no training. Observational studies can identify mismatches between the way in which designers think a system should work and users' actual experiences.

Participants were asked to comment on the usability of the toolset while they were using it. The method assumes verbal commentaries [3] reflect what participants are thinking and can help a researcher understand how a user interacts with a product [2]. Instances were identified where users experienced difficulties operating the toolset. Breakdown analysis [7] was used to rapidly identify and classify problems such as mismatches between users' and designers' expectations of how tasks should be carried out, misunderstandings of the terms used, layout of information and the type of feedback.

Results

No system crashes occurred, no further questions or research methods were suggested. At least one participant failed to understand that the system would only allow for the planning of evaluations with single user categories. However, most breakdowns occurred in the user-tool category, specifically in relation to the terminology in the questions and the responses. Terminology was considered inappropriate, ambiguous or unfamiliar (e.g. longitudinal, qualitative, quantitative, self actualization). Some response sets were inappropriate or incomplete response. In all such cases alternative wording was provided and definitions provided.

Little attention had been given to the design of the interface which was considered 'bland'. Suggestions were made for optimizing the position of buttons, including more visual feedback to prompt user actions and provide a progression toolbar. Although no

comments were provided about the need for system help, SMEs would need help defining their user groups, setting up an evaluation study and understanding different research methods.

The prototype system kept the cumulative scores on the screen at all times, so the effects of answering a question could be seen on the order of the research methods. It was felt that this might be of interest to SMEs and promote learning. It was not. Participants were only interested in the final scores and felt that this information would clutter the interface and bias their answers.

Additionally participants wanted specific details provided on how to design a bespoke evaluation study from the information they provided. It is unclear how a generic system could provide a specific evaluation plan. This is the role of a consultancy service.

The evaluation was therefore seen as immensely useful in helping tailor the ATT to the needs of the SMEs. Version 2 will incorporate all recommendations before being tested with design students.

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Acknowledgments

The research was supported by grants from the Technology Strategy Board and the Engineering and Physical Science Research Council

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Abstract

Future business solutions draw their value from the stakeholder networks they bring together. The design based INNOstudio® concept is a service and a teaching aid created by the D'ART Design Resource Centre in the North Karelia University of Applied Sciences. INNOstudio® practice has supported regional front end innovation processes for ten years. Innovation session and process facilitation for interdisciplinary communication, problem space definition and synthesis is provided by getting abstract thinking into external observables.

The successful design business value creation demands suitable, stakeholder network based business projects. Such cases have been e.g. various alimentary company cases, tourism related company and organisation networks, forest based production networks, e-portal collaboration for garden construction companies and social business branding with assistive devices. This paper presents analysis and examples of the design practice in the INNOstudio® innovation sessions. The examples provide tangible outcomes that have worked as efficient communication and creation aid for participants from different walks of life.

The analysis of the visual design tools in the INNOstudio® practice shows that design reaches tangible thinking and outcomes through visual ideation material, probes, sketches, situating strategies such as scenarios and storyboards, social pictures, service touch points, images describing the complex participant networks or different levels of prototypes and models. The produced tangible material cues, tryouts and synthesis results serve as collective external articulations for the multidisciplinary innovation teams. Work-in-progress in clear view and as different tangible outcomes prevents misunderstandings, helps building on the ideas of others, describes alternatives and variations, shows the missing parts or holes in the discussions, builds up joint synthesis of the different ideas, invites and fosters the practice of eliciting feedback and critique early and often. It encourages discourse and reflection with different experts and also users and make

stakeholder and user feedback possible for the purpose of informed further development decisions.

Visual design exploration supports the interdisciplinary communication, joint idea generation, opportunity search and evaluation of ideas, the interplay of divergent and convergent thinking. Building a joint rich problem space, synthesising elements from different expert and user perspectives into complex concept solutions requires externalisation. Design practice offers tools for making the world part of the cognition thus helping to form the important shared cognition for the interdisciplinary work. The visualisations, however, do not only support understanding each other but help joint motivation as the long term INNOstudio® practice has proved that the central problems in the interdisciplinary value creation are not project technical ones but concentrate on attitudes: getting the various participants to be real, openly sharing stakeholders with inner motivation to participate. Design tangibles can provide individual scaffolds for joint values, visions and goals for big diversity of participants.

1. Introduction

In the future business solutions value is created through multidisciplinary stakeholder network. Innovation support with the INNOstudio® concept has developed session facilitation for interdisciplinary communication, problem space definition and synthesis by getting abstract thinking into external observables. Analysis about the nature of the design process and meaning of the visualisations in the interdisciplinary innovation practice provides reasons why design works as an efficient communication and creation aid for participants from different walks of life.

2. Interdisciplinary stakeholder networks for value creation

Saturated, competitive markets require fresh ways of value creation. Novel business ideas arise from greater competences and experience than few individual ones [1]. Co-creation of brand platform, service platforms, design platforms and technological platforms demands multidisciplinary expert and stakeholder participation in the innovation process [2]. Stefik and Stefik suggest that cross-disciplinary viewpoints build new information and thinking paths into the development process leading to shortcuts such as solving a certain problem by analogy to a solution from a different field. Work groups with a mixture of cultural backgrounds, mental models, experience and functional levels generate innovative and relevant offering solutions delivering appropriateness of offerings, processes and systems for different cultures. [3] The significance of early integrated innovation in the value creation is based on the combination of the multidisciplinary perspectives and user insight in a cost effective way.

Creative innovation process is inherently social instead of individual genius work. With more perspectives, there is a consistent finding that teams generate more ideas. [4] Cross-disciplinary work avoids drawing conclusions about situations and people based on very “thin slices” of experience [5]. Cagan and Vogel see the right knowledge and timing in social meaningfulness, technical development and economic situation as requirements in breakthrough products [6]. Specialists are

pointed out by Kelley and Littman as feature creeps in their own interests instead of experts in the whole market situation and editors for unessential user features [7].

According to Hippel Product Development stage gate model concentrates innovation support resources on just a few pre-selected disciplines. This approach can be hugely inefficient as the capability and the information needed to innovate can be widely distributed [8]. Separation of the different process stages can lead to separating different disciplines from exploring in between areas, building the user experience process or complex concepts. The business stakeholders can be diverse users, organisations and companies that might have production or distribution possibilities or other profits in the solution network. The extra value can be found by spotting the structural holes between the different, even conflicting perspectives [9]. Healthcare services provides practical example of the new development teams. In addition to the engineering, design and business people the teams have participants form the public management, healthcare professionals and users.

In a saturated and proactive market situation customers and users are also active stakeholders and collaborative designers. Globalisation and the growth of Internet use have increased the consumer awareness and knowledge. User driven approaches are evident in the life style customised and interactive solutions where the consumer's role is to make the individual choices. The companies producing offerings can only build proposed value in their own processes. The perceived value for the end customer depends on the whole experience process including information about the offerings, sales situation, delivery, initial use and usefulness, guidance, complaint handling, repair and disposal. Walton promotes interaction in this whole user process as positive experience constructed through different stakeholder networking [10]. Successful companies have according to Stamm understood that thinking consciously about the products and services in real-use processes and situations is essential [11]. Value can be created through supporting processes, production networks, platforms for mass customisation, diverse delivery channels, relevant communication or interaction with the customer and innovating around holistic business concepts.

The continuous, iterative feedback loop characterises many companies' focus on their customers and end users [12]. Hippel emphasises Internet possibilities to involve and interact with the users on a global, open basis [13]. The development and use of social software for innovation community building is increasing, providing several aspects that are crucial for a good development processes: multidisciplinary input, open processes, ability to prototype, democratised dialogue, rapid development and improved timing in product launch [14].

The successful design business value creation demands suitable, stakeholder network based business projects. The design based INNOstudio® concept is a service and a teaching aid created by the D'ART Design Resource Centre in the North Karelia University of Applied Sciences. INNOstudio® practice has supported regional front end innovation processes for ten years. INNOstudio® consists of innovation session and process facilitation for interdisciplinary communication. Merely bringing diverse disciplinary specialists together working side by side is not enough. Leiviskä defines the word interdisciplinary to high levels of integration, dialogue and interaction in the team process [15]. Integrated collaboration uses in a constructive way the

participant strengths: the knowledge, insights, comments, questions, ideas and new perspectives to add richness to the joint efforts [16]. In the INNOstudio® practice stakeholder network cases have consisted of alimentary company cases, tourism related networks, forest based production networks, e-portal and branding collaboration for garden construction companies and social business branding with assistive devices company. The tangible design outcomes have worked as efficient communication and creation aid for participants from different walks of life.

3. Design thinking as an innovation tool

Innovation necessitates a balance between logical and illogical creativity. The approaches of scientists, researchers, and engineers are typically systematic and specialised. Designers as partners in the innovation process ensure also divergent, even radical spreading of ideas [17](Haythornthwaite 2005, 16; Walton 2004, 7). In the ample supply of information it is necessary to use the information not only rationally but in inventive and collaborative ways to compete with others who can acquire the same information. Creative jumps and daring attitude are required for picking up intriguing weak signals and building combinations from the knowledge available in different fields of life.

Feldmann and Boulton see designers as proficient at supporting multidisciplinary teams with low hierarchical structure [18]. Hargadon lists suitable design-based innovation methods including grounding of ideas and solutions in contextual observation, an objective of human-centred frameworks, and a bias towards holistic visualising and rapid prototyping [19]. Designers are described of being comfortable with fuzzy problems, unfamiliar concepts, high levels of ambiguity and experimentation. Designers look to the future, imagine what might be and stress opportunities [20]. Design is about building a rich enough opportunity spotting space with ideas that stem from a broad and deep understanding.

Divergent thinking is rooted in the use of subjective judgements and intuition and requires soft or qualitative thinking: dreaming, humour, ambiguity, play, paradox, diffusion, hunches, generalisations and analogy. Combining remote associates and unexpected information transformation produces answers that vary among participants but are of alternative, equal value. Divergent thinking idealises rather than satisfies or optimises. Convergent thinking is oriented towards deriving the correct answer to a clearly defined question. It is hard: logic, reason, precision, consistency, algorithms, efficiency, results, reality, analysis, specificity and abstraction. Rational approaches produce the best possible or optimal outcome with scientific or quantitative methods, reapply decision making techniques, and preserve the already known. [21] Innovating new combinations and complex solutions strict rational problem or focus definition does not help. The starting methods need to map complexity within stakeholder networks and needs in the future lives of clients and users. The front end should emphasise divergent thinking for the wide enough opportunity space. The next move is to switch to convergent problem solving for the usefulness and relevance of the solutions.

CPH127 web discussion about the socially complex and fast moving market situation analyses the situations as one that does not offer a definitive statement of the

problem, no definitive solution but competing solutions with subjective stakeholder perceptions [22]. The development practice needs to devise solutions even before the problems and see how they further knowledge of the problem. The explorative solutions shape the work forward at the same time as they provide the questions. Setting the rich enough problem space is described as the “Fuzzy Front End” and starting the process is about handling this ambiguous fuzzy front. Gedenryd explains that having diverse people and perspectives to tentatively set and vary the problems and to test them is to set the rich enough problem space [23]. Ideation methods produce arbitrary results, but they still get the inquiry process going. Stefik and Stefik describe feasible trial and error strategy to search lot of alternatives without fear of failure and to throw away the bad ones as most new ideas are bad [24]. The teams must have permission to fail especially in the cheap early stages as this supports ample idea generation and learning, and makes choosing from a wide range of solutions possible. Failing and having weak ideas requires enduring risk and ambiguity.

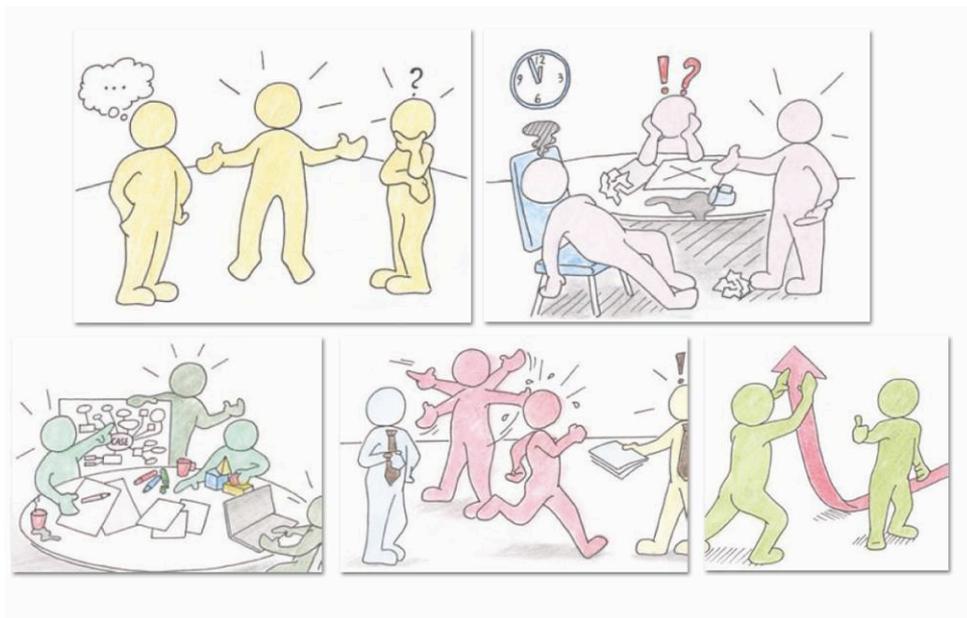


Figure 1. Cartoon about an innovation week work flow. Drawing Jari Ikonen.

Gedenryd mirrors design process to true cognitive inquiry process as it contains problem solving with practical skills and authentic activities [25]. According to him cognition should not be regarded as mere mental thinking process, but as an activity of inquiry with interaction between mind and physical environment. Internal mental processes require externalisations into tangible inquiry material. Designers explore the problem through a series of attempts to create solutions, articulating the problem space in a tangible way. Internal mental processes are externalised in an understandable way in the inquiry. Harmaakorpi and Melkas see the interaction challenges of individual-collective and abstract-tacit-explicit in knowledge creation requiring knowledge building and management support [26]. This means the conversion of self-transcending knowledge into tacit, embodied knowledge (imagination phase) and the reverse conversion of tacit knowledge into self-transcending knowledge (future orientated phase). The self-transcending knowledge is ideated from the abstract to visions, feelings, mental models, etc., and then the joint, tacit, ideation knowledge forms the basis of sensing the future potentials,

externalising what does not yet exist. The interplay in the knowledge creation of abstract, tacit and explicit knowledge can be supported by visual means of design.



Figure 2. Design studio table with typical visualization tools. Photo Harri Tuononen.

Each profession has its own vocabulary, concepts, theories and thinking styles. Making the world part of the cognition helps to form shared cognition. New-to-the-world concepts and the use situations need to be made concrete. The visualisations, however, do not only support understanding each other but help joint motivation. The INNOstudio® practice has showed central problems in the interdisciplinary value creation with getting the various participants to be openly sharing stakeholders through inner motivation to participate. Interdisciplinary work means for Leiviskä facing a challenge of interacting through even blocks and discrepancies with each other [27]. Fair amount of controversy in multidisciplinary groups seems to increase the range of ideas and achievements as negotiation situations support making new connections. Stefik and Stefik remind that explaining a problem to a different-minded person reveals unconscious assumptions [28]. In the interdisciplinary creation the different forms of externalisation play an important role in the motivation, joint goals and thinking out of the box.

4. Design visualisations as exploration, synthesis and delivery tool

Visual and other sensual work can be applied to innovation process as a means to support sharing values, feelings, experiences, ideas, mental images and maps, which are tools for the creative unconscious act, social discussion and interaction. For this, a wide range of stimulus materials, scaffolds or probes can be used. [29] Visuals provide means to test the mutual understanding and solutions with the participants with differing mental structures. Kälviäinen and Miller ground using visual and tangible discussion tools to psychological and sociological research methods for

product perception, understanding and pleasure [30]. As visual stimulus provokes intuitive emotional experiences and mental understanding it stresses the freeness of association and prevents the influence of too much reason. Visual information can cross professional language barriers and it is useful in exploring values and meanings, generating creativity, and prompting respondents to add ideas and details.

Kelley and Littman describe design studio environment as a tool for creative, collaborative and, most of all, highly material work where work-in-progress is in clear view. The space is dominated by collective memory surfaces for sharing ideas and inspiration, making ideas, activities and processes visible and tangible by means of physical materials such as Post-it notes, sketches, magazine scraps, models, and physical prototypes. All these tools support collaborative and interdisciplinary process and encourage discourse and reflection. The realization of the diverse mix of ideas from different participants makes building on the ideas of others easier. [31]

Our ideas and judgments reflect our unconscious mental map which is used to organise sensory experiences. This map is made up of iconic imagery not easy to describe in words. Most human meaning is shared nonverbally through intuitive emotional understanding involving interdependencies among cognitive, physiological, expressive, and phenomenological components. Verbal information scales cannot grasp all these components of emotional experience. [32] Kälviäinen points out how the same words turn to different images and carry various value based meanings for different people. It is possible to talk using the same words about certain issues with different understanding and appreciation. Visual and other sensual information helps the development team both to understand each other in a rational way and through intuitive, emotional understanding. [33]



Figure 3. Verbal mind map is supported by the use of drawings. Photo Harri Tuononen.

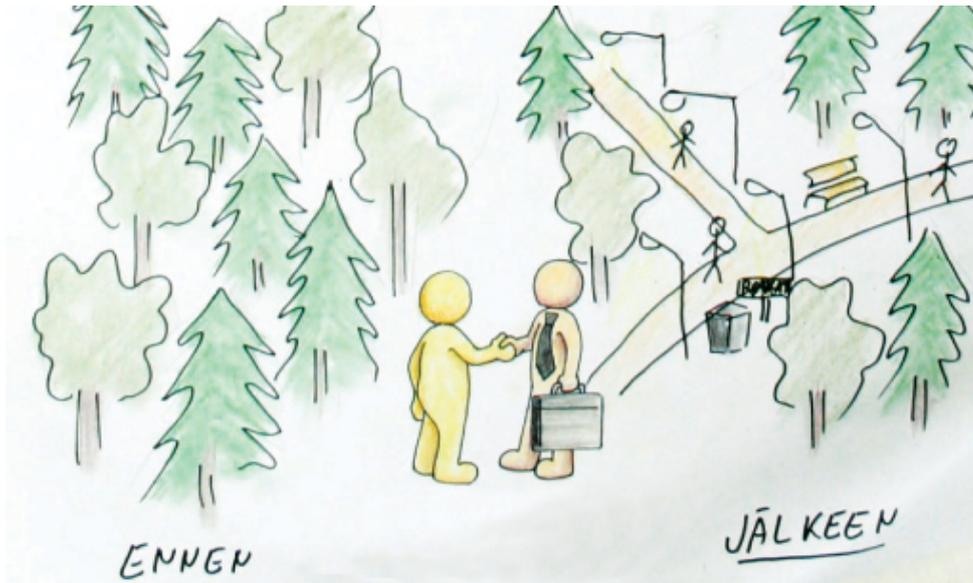


Figure 5. Change of the situation and scenery (before and after) through a certain concept solution is described with the help of a sketch in a forest economy development case. Drawing by Jari Ikonen.

Kelley and Littman point out how transformation of ideas into tangible results allows to see, feel and evaluate them [39]. Making ideation tangible helps in motivation and goal questions by creating a productive atmosphere as the results become real. The visual trying out process shows the feel of the variations and the features and allows evaluation against the customer value. Tangibles promote the iterative process structure with idea generation, feedback, analysing the situation and knowledge in constant variation. The consumer feedback and participation is also made possible by making the ideas and concepts tangible. Even services need to be described and communicated by creating scenarios, social pictures and touch points.



Figure 6. Service path described through different touch points. Image by Mikko Matveinen.

Gedenryd sees tangible outputs additionally serving with constraints that are expressed as requirements [40]. Specifications that form the pre-requirements are often incomplete in practice, and elaborating constraints is crucial to structuring the problem, decreasing the range of possible solutions and making the task less complicated. Requirements should be explored and specified through tangible design exploration and practical, experimental testing.

Design effects certain changes on a particular situation, which is typically quite complex. It will have effects on many dimensions: social, organisational, and physical ones. Gedenryd emphasises understanding the functional, social and emotional actions and conditions of the future use situations. Typical situating techniques are simulation, scenarios and storyboards created for the purpose of the future world to become a part of the cognition. The situating tools are important in the search for requirements and for evaluating the solution suitability to the innovation context. [42]



Figure 7. A city centre map describing the possible nearby stakeholders in a cultural centre development case. Photo by Harri Tuononen.

Gedenryd divides inquiring action into exploration and experimentation where active manipulation betters pure analysis. He sees exploration as imagining use situations and simulating consequences of a certain action to eventually discover situations not immediately apparent. Even a single scene about the real, complex use situation (scenario) develops the understanding by creating a test case with requirements. Experimentation is to him more powerful than exploration, in that you really physically test your ideas in the world. [42] The high rate of exploration important in innovation is facilitated by design thinking. But design provides even more with the experimentation possibilities, producing the results into a tangible form for seeing, feeling and evaluating.

With tangible synthesis tools the multidisciplinary ideas can be presented together to show how they fit together, what they produce together and if there are holes in the composition. Categorisation is one example how our brain organises the visual input into perceptual wholes, Gestalts. The Gestalt position sees the whole as an organisation with its own dynamic properties that cannot be reduced to the parts. [43] Synthesis production is essential since the Gestalt communicates something else than the separate elements. Synthetic visualisations require the filling of the knowledge or details left untouched in the abstract discussions and they show if the solution has suitable consistency. Presentation of the issues in discussion with the relations of the smaller details and their weight in the whole solution is necessary. These visualisations also produce tangible details in concrete, one-off versions of the verbal signs or categories of things.

For innovation synthesis there are various levels and types of models in terms of their accuracy, materials, finishing touch or form. Models can be made also out of complex business solutions or abstract network models. For the early phases of innovation Gedenryd reminds of the importance of inquiry models, not models resembling completed solutions [44]. Prototypes are lifelike models of the design in progress. This realness makes them particularly suitable for observing how they will work in eventual use. Models and prototypes are especially relevant as a means of getting feedback from potential users and customers. In the inquiry process, it is important to have unfinished prototypes and models open for changes. The Internet, digital 3D modeling, new digital media and rapid prototyping possibilities facilitate solution presentation. Assessment of the concepts can be made earlier in the process and more frequently than was feasible before [45]. The consumer feedback and participation is made part of the process by making the ideas and concepts tangible and available, for example, in the Internet.

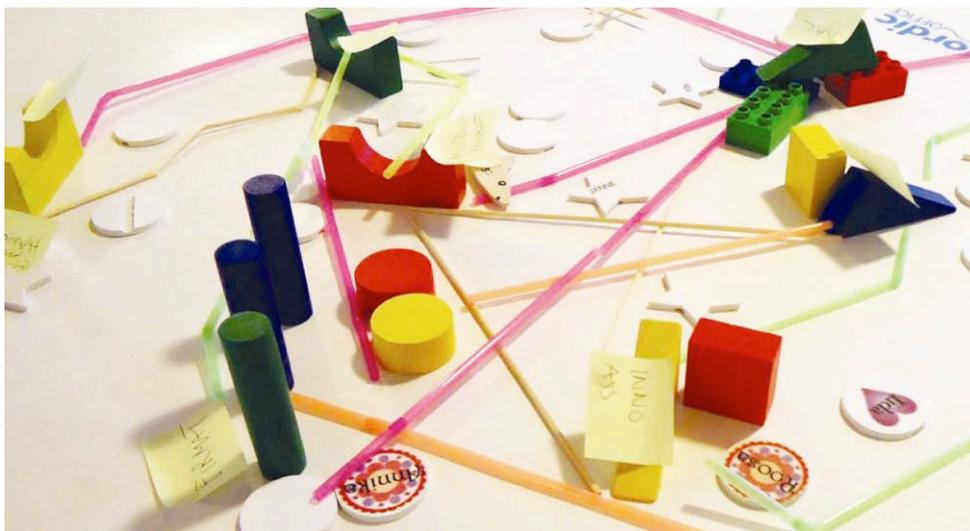


Figure 8. A network model representing the stakeholder's relationships to each other in a multidisciplinary workshop. Photo by Mikko Matveinen.

In solutions such as service design narrative synthesis is required. Narrative is crucial for our sense making, reality mapping, and even conflict exploration. It allows people to give form and meaning to experience by providing a goal, a beginning, a middle, an end, important moments and themes. People form stories from incoming

information as they try to understand it [46]. Our emotions have different plots with dramatic moments awaking more emotion than steady ones. Escalas describes how narratives place emotions meaningful in the context of individual's mental models, personal history and future orientated goals [47]. The tangible touch points describe service or other narrative based solution and the important points in it. These kinds of complex and process based modes are required as the user experience solutions grow more complex with the stakeholder networks.

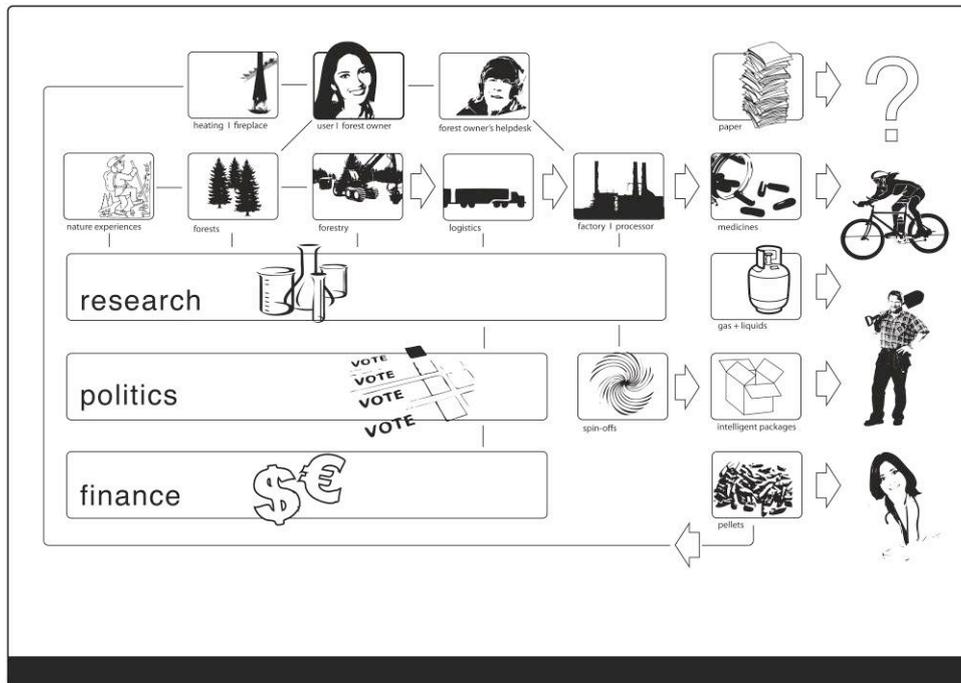


Figure 9. Stakeholder network and processes for a forestry development case. Picture Harri Tuononen.

5. Conclusion

The current innovation practice is based on multidisciplinary stakeholder collaboration. Design process and tangible outcomes facilitate turning this co-development to interdisciplinary as they provide individual scaffolds for motivation, joint values, visions and goals and tools for exploration and experimentation. Design provides visual tools for synthetic sharing of ideas and making tangible what has been put into abstract form by the dialogue. It can help in making even the individual embodied and unconscious mental images and models presentable for the collective interaction. The design process is about exploration: searching for understanding, opportunities and potential, building the rich opportunity space with generative means and visualisation. It is about experimentation and externalization: producing tangible alternatives and concretisations of the ideas and complex concepts. Design practice supports making the world part of the cognition and thus it facilitates shared cognition formation in the interdisciplinary work.

For interdisciplinary teams externalising the discussion into tangible outcomes and having the work-in-progress in clear view prevents misunderstandings, helps building on the ideas of others, describes alternatives and variations, shows the missing parts or holes in the verbal discussions, builds up joint synthesis of the

different ideas, invites and fosters the practice of eliciting feedback and critique. It encourages discourse and reflection and the interplay of divergent and convergent thinking with different experts and users and makes stakeholder and user feedback possible for the purpose of informed further development decisions. The innovation process is carried out through stakeholder dialogue exploring a rich problem space, synthesising elements from different expert and user perspectives into complex concept solutions and continuing to solution evaluation and user testing.

The analysis of the visual INNOstudio® practice shows that design reaches tangible thinking and outcomes through probes, sketches, scenarios, storyboards, social pictures, action charts, service narratives and touch points, images describing the complex participant networks or different levels of prototypes and models. A future development question is to have more methods for prototyping the many different outcomes and relationships in multiple stakeholder experience solutions. The requirement for new tangible interaction applications is also evident in virtual co-creation and open source innovation.

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Acknowledgments

Our understanding about visualization in multidisciplinary innovation has grown through INNOstudio® activities and Multidisciplinary innovative product and service environment EU project. In the planning and executing innovation sessions and as their outcomes we have enjoyed the visual results shown as figures in this article. We want to thank all those brave and enthusiastic people who have worked with us in producing these results as tangible outcomes from the understanding and ideation processes.

Introduction

For formulating this paper we need to go further through two main steps. The first step is to understand what Rancière proposes as ‘politics proper’ and how we can implement it into design philosophy; we have to avoid the temptation which is completely against of his work. The temptation which has revealed itself to us already by the questioning of task of art; ‘art for art’s sake’ or ‘commitment art’? A question which considers art and politics as two separate realms of practices. These visions always rely on criticizing relation between art and politics, while there is a sameness of art and politics.

The second step is to struggle with two fundamental understandings of what political art/design could be. These two understandings are far from each other in all aspects, even in forms and natures, but both of them are common in one aspect: They are absolutely opposed of what the paper calls political design. They are absolutely opposed not because they are not potential enough to be political but because they are formulated in a way which is not political, even many of them have the subject of politics.

One of them is an explicit argument which uses art as a political server: A form of doing through aesthetical practice which serves political causes, an idea which was and is common between literature, art and design. Remember all posters which have been done for political and social causes such as Anti-Vietnam War activities, Anti-Capitalism and Anti-Globalization activism. Remember those poems which are composed for political prisoners, activists and martyrs. Therefore there is one understanding from political art/design which I call it —‘Art/Design as political server’’. Regularly people call these pieces as political art/design.

Another one would be a prevalent idea of expanding politics to everything from arts to science, from everyday life to special situation of decision making. The idea of ‘everything is politics’ depicts a fact that is absolutely true in one way, but also is capable of being a barrier to engage people into ‘Politics’. Politics is everywhere because could be happen anywhere and anytime not because politics always happen. So there is one point here: a difference between potential time/space of happening politics and proper time/space of it. In everywhere, anytime, anything there is capacity for creation a space/time for beginning and happening politics and this is exactly what makes politics interesting.

Apart from critiques on Rancière theories that argues his thoughts are unable to make a practical situation for making politics proper happen (Hallward, 2003), this paper discusses the potentiality of his ideas in order to engage them into critical design studies for proposing a new meaning for political design.

Politics vs. Police

What we already define as politics actually is a predefined situation which is everywhere, embedded in every single object and every matter. This general definition of politics is exactly what is demanded by organizations, institutions and social orders.

But in Rancière's view, most of these situations that we call politics are called policing. —Politics is generally seen as the set of procedures whereby aggregation and consent of collectivities is achieved, the organization of powers, the distribution of places and roles, and the systems for legitimizing this distribution. I propose to give this system of distribution and legitimization another name. I propose to call it the police" (Rancière, 1999:28). What is this politics and why call it the police? What Rancière defines here is mainstream politics as we have come to know it. It involves elections, bureaucracies, the shifting of power relations in the state and the economy, the procedures for such shifts, and the justifications that are offered both for particular elements of this system and for the system as a whole.(May, 2007: 23) The police is politics as it is usually conceived, and as it is practiced by very few group of people who have the ability to manifest and discourse. But we are subject to the police. We do not participate or contribute to policing order, to creation or maintenance of it. Although we can pick up one exception in democratic societies which is voting, an act which more and less serves to legitimize the police than to change it.

By naming this form of politics policing, Rancière surely intends the resonances of coercion and repression often associated with the police. However, there is another, more historical reference to the term, one that has been analyzed by Michel Foucault (1988). Policing refers to the set of practices, emergent particularly in the eighteenth century, that seek both to utilize and to maintain the population of a state. Police practices are concerned with the demographics, health, and safety of a population, so that it can contribute optimally to the welfare of the state. —Down to the end of the ancient regime, the term 'police' does not signify at least not exclusively the institution of police in the modern sense; 'police' is the ensemble of mechanisms serving to ensure order, the properly channelled growth of wealth and the conditions of preservation of health in general" (Foucault, 1980,170)

If we look at the current state of mainstream politics, we see the relevance of this association as well. Although it is not only the state but also corporate elites who benefit from the population's stability, the general idea remains much the same.(May, 2007) As he defines police we see more problems of mainstream politics or police: —The police is, in its essence, the law which, though generally implicit, defines the part or lack of part of the parties involved. But to define that, one must first define the configuration of the sensible in which the various parties are inscribed. The police is thus above all a bodily order that defines the partition between means of doing, means of being and means of saying, which means that certain bodies are assigned, by their very name, to such and such a place, such and such a task; it is an order of the visible and the sayable, which determines that some activities are visible and that some are not, that some speech is heard as discourse while others are heard as noise."(Rancière, 1999).

The problem of mainstream politics mainly reveals itself to us by inequality as he focuses on. This mainstream politics acts as certain persons know both the public good and the good of others, while those others are not strong enough to achieve this good by themselves. Then it means they need a kind of intervention of those properly situated to run the affairs and policing order of society. This mainstream politics which is police for Rancière is predicated on a refusal to recognize that people can run their own affairs and so must have them run for them. —From Athens in the fifth century B.C. up until our own governments, the party of the rich has only ever said one thing, which is most precisely the negation of politics: there is no part of those who have no part"(Ibid, 14)

What is politics then? Politics not as policing but as something that undermines the police order. Rancière says:—I propose now to reserve the term politics for an extremely determined activity antagonistic to policing: whatever breaks with the tangible configuration whereby parties and parts or lack of them are defined by a presupposition that, by definition, has no place in that configuration—that of the part that has no part...an assumption that, at the end of the day, itself demonstrates the sheer contingency of the order, the equality of any speaking being with any other speaking being”. (Ibid, 29-30)

Politics is, in short, the undoing of the police order through the presupposition of the equality of all speaking beings.(May, 2007)

Inequality vs. Equality in Space/Time

In the first these of ‘Ten Theses on Politics’, Rancière emphasizes that —Politics is not the exercise of power.”(Rancière, 2001) Politics is reconfiguration of a particular space of experience, a space for experiencing the process of emancipation and subjectivization.

According to him, politics should put ‘Equality’ as the first principle to think and talk about it. Here equality means —the equality of any speaking being with any other speaking being.” For Rancière everybody is equal before politics, because everybody could see, speak and think. Aristotle in first book of *Politics* considers the political nature of human because of their profession of the *logos*, —the articulate language appropriate for manifesting a community in the aisthesis of the just and the unjust.”(Ibid) But in other side, animal just have *phone* which is appropriate only for expressing the feelings of pleasure and displeasure. According to Rancière the problem of inequality begins when a group of *people/demos* has the ability of discourse/manifestation in compare to who do not have. —If there is someone you do not wish to recognize as a political being, you begin by not seeing them as the bearers of politicalness, by not understanding what they say, by not hearing that it is an utterance coming out of their mouths. And the same goes for the opposition so readily invoked between the obscurity of domestic and private life, and the radiant luminosity of the public life of equals. In order to refuse the title of political subjects to a category - workers, women, etc... - it has traditionally been sufficient to assert that they belong to a 'domestic' space, to a space separated from public life; one from which only groans or cries expressing suffering, hunger, or anger could emerge, but not actual speeches demonstrating a shared aisthesis. And the politics of these categories has always consisted in re-qualifying these places, in getting them to be seen as the spaces of a community, of getting themselves to be seen or heard as speaking subjects (if only in the form of litigation); in short, participants in a common aisthesis. It has consisted in making what was unseen visible;”(Ibid)

Apart from ‘space’ another aspect of this inequality is about ‘time’. There is a platonic statement which affirms that the workers had no time to do two tasks at the same time. The point is, this lack of time is not a natural fact, but this fact basically is a symbolic distinction. Then in contexts of time like space as defined already, politics happens when those who have no time to do something else than their work, could overturn this

presupposed classified order of time. —A basic overturning involved a whole reconfiguration of the partition of experience. It involved a process of dis-identification, another relation to speech, visibility and so on.”(Rancière, 2005) An interrupt in predefined partition of time for this group to submit their discourse, to show they have something more than just mouthing their pleasure or pain, to own up the time which was not defined to be for them in a policing order could open a space for politics proper by demanding equality.

Aesthetics of Politics

This distribution and redistribution of time, space, experience and collectiveness and reconfiguration the visible and invisible, the audible and inaudible, the sayable and unsayable called ‘Distribution of the Sensible’ by Rancière. In the logic of ‘distribution of the sensible’, distributing the communal/shared spaces and time of the society and ways of participation and contribution to spaces/time takes place through perceptible. Therefore through a predefined and pre-ridged realm, sensible can percept and experience something defined and cannot percept or experiences other non-defined ones. For Rancière sensible is not a matter of good taste and is all about sensuous. Consequently some sections of the society will be merged and some sections will be ignored. He calls this as ‘Unjust’. —The distribution of the sensible reveals who can have a share in what is common to the community based on what they do and on the time and space in which this activity is performed... it defines what is visible or not in a common space, endowed with a common language, etc. There is thus an ‘aesthetics’ at the core of politics that has nothing to do with Benjamin’s discussion of the ‘aestheticization of politics’ specific to the ‘age of the masses’... It is a delimitation of spaces and times, of the visible and the invisible, of speech and noise that simultaneously determines the place and the stakes of politics as a form of experience. Politics revolves around what is seen and what can be said about it, around who has the ability to see and the talent to speak, around the properties of spaces and the possibilities of time.”(Rancière, 2004:12-13)

Politics of Aesthetics

‘Politics is Aesthetics and Aesthetics is Politics’ tell us that apart from ‘Aesthetics of Politics’ there is a ‘Politics of Aesthetics’ as well. What does this mean exactly? It means artworks and artistic forms participate in the ‘distribution of the sensible’ while they interrupt/suspend the order of sensual/perceptual experience and reconfigure a relational network of spaces, time, subjects and objects, the common and the individual. Walter Benjamin in ‘The Storyteller’ considers the disappearance of experience as disappearance of art of storytelling.(Benjamin, 1995) To put in Rancière’s words, we can conclude the opening of boundaries of experiencing is in a direct relation to opening the space of art. Politics and aesthetics are realms which through removing the logic of distribution of the sensible and redistribute them again, have ability to expand the field of aesthetical experience.

For defining arts according to Rancière, he makes a category which he calls ‘The Aesthetical Regime of Arts’, where creating an artwork refuses any relation or connections to any presupposed regulations, techniques or tools. Where art like politics can redistribute a new network of sensible, a new distribution of space/time in order to engage excluded ones. (Rancière, 2004) One could say art is always about distribution of time and space, but what matters here is not the act of distribution only, but more the act of redistribution in direction of refusing all genres, hierarchy and tools, techniques and presupposed meaning and functions that already exist there.

And this is exactly when art and politics take the same role. In his words –‘Politics and art refer to one another as two forms of fiction, working on the same material.’(Rancière, 2010)

Politics/Design

Unlike art, Rancière never focuses on design in depth. He has just one article entitled: ‘The Surface of Design’ (Rancière, 2009) which he tries to come up with similarities of Stephan Mallarme French poet and Peter Behrens German architecture, engineer and designer. To him, design is an artistic practice which mostly deals with configuration of the shared material world. –‘It is the way in which, by assembling words or forms, people define not merely various forms of art, but certain configurations of what can be seen and what can be thought, certain forms of inhabiting the material world.’ (Ibid, 91). Design as a profession which was instituted by the arrival of art production strategies to the production of everyday-life objects and as a child which was born as art affiliated or as applied art, by losing the art in itself, in the process and in the relation with the users/perspectives, is facing a big challenge now. (CORTE-REAL, 2009: 97)

Design simply is a materialist tool which serves an organizational order. An order which is defined through a complex networks of production, marketing, desires and everyday life. This dynamic order which needs to be recovered in order to survive, proposes new approaches every day. Design as a part of policing order, absolutely is preoccupied by organizations, institutions and companies in order to educate a group of mediators who through language of forms facilitate the access to what should be seen, hear, done or thought. This does not mean design is incapable of breaking this order towards redistribute possible experiences in between, but we have to keep in mind the survival of design as an marketing-packaging tool even with humanistic face – for example human-centered design, inclusive design etc. – is absolutely related to following the rules and regulation within the system. Of course you have a capacity – a defined one – to break something, to propose new genres and styles, but they are acceptable since they follow the police. Any attempt out of police should be ignored by labeling as ‘This is not design, but art!’, ‘where is the function of this?’ ‘Where is the solution?’ Which remember us this famous quote of Kierkegaard: –‘The only true neighbor is a dead neighbor.’ Design as we know and practice today, always breathe through power relations.

This exactly reminds me what is happening in policing order. Any attempts to redistribute the sensible, will be labeled as ‘destruction’ quickly by prejudgment words to legitimize the process of killing or ignoring these attempts.

Most of the designed presences we see everywhere, regarding to Rancière are relying on Representative Regime: A design which represents the hierarchy of policing order in an embedded way. Look at your mobile phone. It has a shape which reveals itself to you by a language of form and basics of design. It shows you that it is beautiful, because used a curve in left side – even asymmetrical one because it is trendy – it uses a new texture which gives you a feeling of past – like old wooden texture – it uses some applications which gives you nice games that entertain you while you are in subway, it has some applications which make a connection to other objects you have, like your running shoes. All these features are designed according to a predefined system which has already a link to your system of taste and judgment. If we take that prevalent idea of ‘everything is politics’ then this mobile phone is a political design, because there are many decisions behind this object, there is much subjectivity behind this small gadget, but they would be wrong. All these decisions, objectivities and subjectivities act in direction of organizational hierarchy, norms and regulation. Here, the design represents those norms and regulation very implicit. Regarding to Rancière, design here relies on poetic/representative regime of art. Today, design world mostly engages with representative aspect of design rather than ‘aesthetical regime’.

Consequently we need to seek a radical practice to break different parts of this policing order, in material world as well as social order.

Design should not be defined and categorized by graphical, visual, production, technological for being political. Design has to overturn all the borders of disciplines to make a new aesthetics of possibilities: An aesthetics which is not about how forms can engage content and how they represent the meaning, an aesthetics which is not about semiotic representation of an object. Design has to be redefined in order to call itself political. Design should be daring enough to stop the ‘act of design’ sometimes and instead of ‘designing’, reconfigure the sensible in society. For this, design has to go to public realm and by this, does not mean has to engage with public just in subjects necessarily. In this context being in public means proposing new possibilities for communal experiences. Design for being political at least has to take art intuitive, has to be aesthetical and be in the public. With these parameters design can contribute to the distribution of the sensible and could call itself political. Although this calling should not lead design to a new category, discipline or trend.

This does not mean we did not have any political design in history of design and political design is breathtaking new definition for design. As much as confusing ‘Representative Design’ with ‘Political Design’ could confuse our subject, trying to define and regulating political design does the same. Design and especially Architecture because of close engagement with space and time is capable to make politics proper in policing order. ‘Situationist International’ is one of the best examples who through defining what a ‘situation’ is tried to overcome and disrupt the environments and events which ‘concretely and deliberately’ have been organized by Capitalism in order to depotentiate life. (Agamben, 2000)

Recently we have seen many attempts in design world which is called human-center design or social design. More and less many of them has the subject of social, political, economical or environmental sustainability. Designers through this so called political design try to change some policies and probably make a ‘better’ policy for human and non-human. Many of them work closely with anthropological methods in order to

recognize people ‘better’. But what is at stake here is not the works they do, but the way they work. Are not those methods they use a kind of stimulation to policing order? Is not paradoxical that one of the best and successful example of human center design is a kit which is designed by IDEO one of the biggest design firm which is closely work with corporation and like all of them play a role in humanistic field through running some human-center projects for the ‘others’.

These approaches in design which is explicitly – and unfortunately wrong - called as political, perfectly matches with this definition from police by Rancière: —The essence of the police is to be a partition of the sensible characterized by the absence of emptiness and supplementary: society consists of groups devoted to specific modes of doing, of places where these occupations can be performed, of modes of being corresponding to these occupations and these places. In this adequation of functions, places and ways of being, there is no place for any void. It is this exclusion of the ‘there isn’t any’ which is the policing principle at the very core of state-sanctioned practice.”(Rancière, 2005)

Discussion

These words were first attempts to show how we can read Rancière in design theories. In simple words, when we talk about making visible what is invisible, audible what is inaudible and sayable what is unsayable, this is not just doing it in a superficial way. Since design always does this in terms of materiality, what at stake is how you want to make it happen? Do you want do that through contributing to a policing order and established regulations or do you want to create a new process of experience, a process which through it excluded could have seen, heard and thought? Design is highly capable to do that and has to that if wants to make a change. If design wants to intervene in ‘Change’ one way could be stepping in to politics in the contexts of aesthetical experience of politics. For this design should comeback to art and should comeback to crafts and socialism. Design has all we need for a political design in its roots and history, but what we need know is just tickle it in a right time, right place. We have to be aware of all risks of getting into power relations circles due to methods designers use. At the same time that we think of potentiality in design, we have to think about limitations, shortcomings and power intervention of defined design that we have.

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Acknowledgments

I have to acknowledge Dr. Christina Zetterlund, who gave me helpful advices on this paper during developing.



The Museum of All Institutional Communication Practices in a Participatory Networked World

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Abstract

In this paper we will sustain that institutions are increasingly facing the inevitability of a profound revision of their traditional parameters of unidirectional communication. Given the increasing availability of tools for audiovisual production as well as the diversity of networked communication contexts, the roles of the user and the audience have come to assume a participatory potential in the content they consume, and this will dictate their repositioning in face of the universe of institutions.

The Serralves Foundation with its Museum of Contemporary Art, in Porto, Portugal, was the subject of a first study of an empirical nature: a series of audiovisual objects were developed, in order to generate material for analysis and proposition.

In this new stage, our aim is the identification of new procedures and practices that may be effectively implemented within the institutional universe. We intend to establish more efficient communication contexts, including the maximizing of a set of relationships between institutions and audiences regarding dimensions that are traditionally outside the institutional radar: identity, narrative and affection.

With the help of important examples, we will posit that, in order to achieve more success in their missions, culture institutions should get more focus in the participatory educational and communicational processes regarding contemporary issues. By this they will enforce their engagement with their audiences and make them part of the institutions' projects.

The project is currently in the process of a wide inventory and categorization of the different institutional communication practices, with the aim of producing a map of different vocations and positions of the various institutions in regards to the aforementioned issues, which require participatory communication.

Background: The first phase of the research project

The research project that motivates this communication aims to give depth and continuity to a preliminary investigation phase initiated earlier. In this first phase, developed in 2008, it was early assumed the intention to develop an applied study on the creation of institutional identities, through participatory media strategies and taking into account the current state of the new digital and technological paradigms. The choice of the cultural institution Serralves in Porto, as subject of study, was due to three key factors: the relationship of professional collaboration that one of the researchers had with the institution, allowing privileged access to research material, the national and international recognition of this cultural institution, and the interest shown by the institution to evaluate their own strategies for audiovisual communication with their audience. Serralves is a Portuguese cultural institution, in Porto, and the most important Museum of Contemporary Art in Portugal. It is also included in the main European itinerary of the most important exhibitions of contemporary art.

Having Serralves as target of the investigation it was adopted an empirical method, as it was found that so far the work that had been done in this research area involving Portuguese cultural institutions was insignificant.

Subsequently we found the need to create sufficiently relevant cases to be analyzed and studied. With the purpose of firstly showing how the same reality (Serralves) can be presented from different perspectives and interpretations, through the use of digital manipulation tools and, secondly, of understanding how an institutional identity can be built from a participatory media experience, we conducted four exercises of collaborative creation that resulted in the following four audiovisual objects:

1. “Phonetic Value of the Brand”¹ — through the quick assembly of instants in which television news presenters uttered the word Serralves, we tried to understand the impact of this word when repeated a great number of times over this traditional medium, which is the television.

With this exercise, we intended not only to demonstrate and highlight the strong presence of the Serralves Foundation in television news, but also the importance and value that tone and phonetics have in the process of brand identity.

2. “Visual Memory”² — we tried to mold an universe of visual memory from the Serralves’s image archive in order to understand how it would result in, an assembly in which the overlapping of layers of moving images expresses the intersection of themes and temporal moments that takes place in the spaces of the institution itself. The result is one of the many possible image sequences, which separated from its original context, and therefore lost in space and time, when reordered, can provide new narrative moments, making reality more subjective.

¹ Available online at <http://www.youtube.com/watch?v=wPhZAIT0J4o>

² Available online at <http://www.youtube.com/watch?v=SF9MaKEMkkg>

3. “Touristic Moments”³ — we tried to find out how video recordings, could become quite distinct in nature according to four different types of visitors. A nine years old child, a mail office employee, a DJ and an architect. This exercise began with the aim to discover the “representation” of Serralves through the “vision” of its visitors in an attempt to understand how they see the institution. We worked with images captured by those people’s eyes navigating through the spaces of the institution.

4. “Instant Visions” (Project in collaboration with the students from the Master Degree Course of Designing Image, of the Fine Arts Faculty of the University of Porto, edition 2007/09) — we asked a group of students to freely capture images, videos and sounds during a specific period of time. Subsequently, we created a Flickr account⁴ for the participants to upload their pictures and a YouTube channel⁵ to upload their videos. We intended this experiment to work as simulation of an event or happening that may even take other proportions in future versions, at a larger scale. This experiment resulted as a kind of rehearsal.

These four exercises were important first to show the power of the digital technologies in the process of creating new messages through the appropriation of other peoples’ media pieces. And secondly to show the importance and advantages of participatory media when the audiences contribute with their creations to the institutional communication processes.

At the end of this first phase of the project we found out that there is a great creative potential in the Serralves audience’s hands that should be explored by the institution.

This project proved to be important to sustain the assertion that considering the repositioning of the user who has started to assume a participatory role in the content he consumes, a cultural institution like the Serralves should not insist just on communicating, it also has to be able to interact.

Framework: the participatory culture

Dazzled by the enormous manipulative and social possibilities of digital tools, we are living in an increasingly participatory and interconnected society. Right now, everybody wants to produce and also to share. The decreasing of the costs and the consequent democratization of production and distribution of media content results in a segmentation of the consumer society, where products to suit all tastes accumulate incessantly (Anderson, 2007). On one hand, as Andrew Keen says, we risk to be feeding a growing massive amateurization (Keen, 2007), because nobody cares anymore about the quality of what they are putting online. First publish it, and then filter it (Anderson, 2007; Shirky, 2008). But on the other hand, this might be the way to implement the idea, defended by Pierre Lévy, and referred by Henry Jenkins in his book “Convergence Culture: Where Old and New Media Collide” (Jenkins, 2006), in which knowledge must be built collectively.

³ Available online at <http://www.youtube.com/watch?v=g3XfWX314uQ>

⁴ Available online at <http://www.flickr.com/search/?q=mdi0709&m=tags&page=8>

⁵ Available online at <http://www.youtube.com/visoesinstantaneas>

Despite all the controversy generated around it, Wikipedia is probably the online collaborative production system that best exemplifies this process of knowledge construction through continuous confrontation and discussion of ideas among its participants. We believe that in this case it's the community that establishes its ideology and self-regulation. It may actually arise publications of erroneous content, but these cases, when compared with the volume of high quality content published on Wikipedia, become roughly meaningless. You may find errors or false information, but what is certain is that it is easier to find and fix an error on a platform such as this one, than in a traditional encyclopedia, because in the case of Wikipedia, the process is developed collaboratively between all users, instead of being centralized in a restricted and limited group of specialists.

As we can see, technology has its advantages, but also presents many risks. If it can greatly increase the amount of media content producers, it can also distort the very notion of authorship, because now everyone can be an author, and everything can be raw material. Everything is liable to be mixed, sampled and manipulated through technology. Ironically, it turns out to be through it that we can guide our "navigation" through the "ocean" of digital information with which we have to live with. This growing belief in technology, which so worries Neil Postman (Postman, 1994), excludes any subjective value and reverses the logic of the invention of tools or instruments that since now, were filling needs, and now they create desires. As Jenkins refers (Jenkins, 2006), nowadays, consumption obeys more and more to emotional factors, resulting in a growth of an affective economy.

In this context, where technologies are increasingly ubiquitous, it becomes difficult to implement the project of a romantic resistance proposed by Postman (Postman, 1994). Thus, it's no longer important to discuss whether the Internet has more good things than bad, or vice versa, but to understand how this can be used in its best way to produce good things, bearing in mind its possible disadvantages.

Within this participatory culture it emerged new kinds of narratives that changed the strategies of storytelling, the transmedia narratives, which force consumers to cross information from different media platforms and make the entertainment experience more beneficial and interesting for them. Media contents are increasingly generated by consumers. Then, it raises concerns about how educational, social and cultural institutions should deal with these new ways of creating institutional identities and narratives in order to take full advantage of them.

The institutions' attitude concerning participatory platforms

In order to conduct an analysis of posture of the institution Serralves, we will now describe an example of one of the many activities developed by this institution.

Serralves organizes every year a one-weekend festival with a very extensive and complete program of various kinds of contemporary art forms about several artistic issues, with many activities for all kind of audiences. In 2010, the 7th edition of this event led, once again, a massive presence of public, registering more than 80,000 entries in the spaces of the institution, in just two days. Despite this massive attendance of people the question that arises every year, is: "What about after that?"

What happens in the remaining days of the year in Serralves? In fact, the number of visitors registered in Serralves in the remaining days of the year is devastating if we compare with the numbers of the festival.

Thus, we believe that the strategies of the institutions must follow more sustainable guidelines. Institutions like Serralves cannot continue to worry only about themselves, but with their audiences. Serralves continues to work carrying only about numbers that result from a lineup that has become more eclectic for only two days in the year. It's not enough to call for visitors turning the program more eclectic. They must try to teach and educate them for the various themes and issues about contemporary art and this can't be made with an only weekend attempt. There are many things that should change in the modus operandi of Serralves. They should interact more with the visitors from the different age groups and social, cultural and educational backgrounds, otherwise, even if slowly, they will lose their audience.

Upon the completion of the first phase of this research project, the Serralves Foundation realized that it had to quickly become a member of the online social networks. They created then a channel on Youtube, a Facebook page and a Twitter account. We can easily verify a huge amount of fans and followers in each situation. If we analyze the statistical data related to Serralves presence on these social networking platforms, mentioned above, we can see around 68,000 fans in Facebook, more than 21,000 views of Youtube content and 2,500 followers on Twitter.

But despite the great adherence of the members of these communities, there is no relevant interaction. There is no feedback.

Serralves, is exclusively adopting an one-way communication strategy, typically associated with the traditional advertising and marketing procedures. On Facebook and Twitter we can notice the regular publication of all information concerning the activities happening in Serralves, while on Youtube, all the videos that we find in the channel, were created and are responsibility of the institution (promotional and corporate videos).

“Community first and foremost, marketing second. If you make a commitment to the community and provide worthwhile content, marketing will follow naturally. If you are there just to advertise, you are not being a good community member.” (Caruth & Bernstein, 2007)

Through the analysis of the conclusions announced by Nicole J. Caruth and Shelley Bernstein, in the case study of the Brooklyn Museum (2007), in which a series of actions were implemented to increase the participatory nature of this institution, we conclude that the attitude to be taken should be very different from the one implemented by Serralves. “Community first and foremost, marketing second.”

Although it exists a representation of Serralves in social networks, the institutional identity and its narratives remain on the institution restricted liability.

We can conclude that the possible narratives created by the community are not being truly exploited. Thus, it is being wasted an enormous potential for creative production. As Clay Shirky refers (Shirky, 2008), it seems to be important to begin to introduce the “computer mouse” (as one of the most universal symbol of

interactivity) in the activities of this institution in order to attract users to contribute collectively and collaboratively on content. Another alternative might be to implement a transmedia communication, in the manner explained by Jenkins (Jenkins, 2006) that requires a greater engagement of the audience. It should first be established relations between the various online platforms and the information should be adapted and distributed differently in each one of it, stopping the repeatedly posting of the same things in every platform. Secondly it should be implemented a bridge between the online realities and the institution's physical spaces. We believe that it no longer makes any sense to continue speaking of network communication (online communities) in parallel to traditional institutional communication. They should work together.

We realized that the institution recognizes the importance of these new communication paradigms that is to be governed by participatory models, because it took the initiative to adhere to these online environments. However, either it doesn't know how to operationalize the new strategic plans, or it fears that it will endanger the authority mediator power that it has in this relationship between the audience and the services it provides, including exhibitions of contemporary art. Somehow, we understand this concern, as Serralves is a very important institution with a strong status in the contemporary culture and it could become vulnerable facing its exposure in online communities. According to Chris Anderson, we can say that, before the globalization of information and the Internet, it was the agents, which in this case are the institutions that had the power to set the variety of choices by which consumption was governed. However, this situation has been radically changed. In the new decentralized economic systems there are no limits for the selection of what we want to consume and these agents have been losing their mediator power.

Therefore, in order to become a good member of the online social networks, an institution like Serralves, have to know how to deal with a community where communication is decentralized and occurs directly between the community members. After all, the social networks communities are like starfish that live without a main leader (Beckstrom & Brafman, 2008) and establish themselves in groups around common objectives without the help of organizations (Shirky, 2010). In an environment of this kind the authoritarianism typically associated to these kinds of institutions will most likely be defeated, and so this can bring down the institution's role as the unique possible intermediary in the relationship between the audience and what it has to offer.

It is therefore important to know how to deal with this new reality, developing strategies and action plans, in a cautious manner, but never giving up to assume a more open participation. More than realize and recognize the importance of dealing with the participatory media issues, it is imperative to know what do we want to do with them. We believe that in a certain way, this new reality, if ignored, can become a problem to the institutions.

“The community's voice can be louder than the museum's, and that can be a good thing. Be prepared for both the good comments and the bad, and be open to constructive criticism. Listen to your audience. It's worth the effort — and the comments (good or bad) are more valuable than you could ever imagine.” (Caruth & Bernstein, 2007)

The institutions cannot continue to ignore their audience in online communities. They cannot continue to use a medium like the Internet regarding to a “one-to-many” logic, otherwise they won’t be taking advantage of all of its capacities. A return path must be included in the model: the feedback. The communication model should be “many-to-many.”

Nevertheless, we believe that a certain sense of authority can be maintained, but always through reason and not through power. Authority, not authoritarianism. On the online communities, the institution must be seen as a catalyst and not as a controlling element; it should promote and provide greater audience participation in its reality. Retrieving the example described by Clay Shirky, about the attitude of Obama's communication team: it is more important to bring together and stimulate your audience than trying to control it (TEDtalks, 2009).

Future work and expectations

In this new phase of the research project we aim to comprehend how participatory media can contribute to make audiences get close to institutions. In the current context in which we are facing an increasing democratization of the media, we are watching a strong stimulus to the consumers’ creative capabilities. Given this, we will seek to discern how institutions can take advantage of its audiences’ willingness to participate in the construction or reconstruction of its institutional identities and narratives and even in the redefinition of its missions in the improvement of societies.

Currently the project is in the process of sorting and taxonomy to find the study objects that will serve as a basis to implement the investigation. In an intuitive way, we are producing an intensive and broad inventory of national and international, public and independent cultural institutions and their different aptitudes and positions regarding the issues addressed by the project, which involve a participatory communication. Through the interpretation of all the collected data and information get from the contacts that we are conducting, we will try to recognize some patterns of institutional communication. After this, we will act over the inventory, in order to understand which institutions may offer a greater viability to the project.

The project will evolve within the creation of a series of audiovisual communication exercises, in which we will seek to confront the different institutional universes and modus operandi, producing some readings about the consequences of a more open, flexible and permeable communication, throughout the power of production and sharing offered by participatory media. The aim is to provide a final study that can probably result in a set of recommendations that may be presented to certain cultural Portuguese and international institutions, in order to call the attention of its responsible for the communication media evolution and for the participatory media and new contemporary trend issues, which are now dominated by the interactivity factor.

The dedication to new digital technologies and participatory media is important, not only to the success of businesses related to the sale of products or services but also to the success of institutions that deals with creating and transmitting knowledge, such

as those related to formation, education and research (formation centers, schools, universities, laboratories, among others) and those related to culture (museums, theaters, cultural associations, and others).

We believe that the implementation of a greater interaction, permeability and flexibility in communicating with the audience will make the institutions more attractive, dynamic and compelling. And, through participation, the audience will be involved in the construction of institutional identity, providing a greater level of authenticity.

Conclusion

The first truly “public” museum was opened in 1793, after the French Revolution: the Louvre. The aim was to make public and free the access to the art collection, which, until then was owned by the royalty and the nobles. We can conclude that here was born the concept of “museum for all”. Now, with the Web 2.0 and the increasing exploitation of the new tools for producing and sharing media content by everyone and the inherent growing of the importance of participatory media in our daily lives, it seems that we are living in a kind of a global museum built by everyone. The question that comes up here is if we can start a discussion over a new concept of museum: the “museum of all”, where visitors can be part of its institutional practices not only as consumers but also or even mainly as producers.

Thus, we think that if we have to reform the communication practices of cultural institutions, we cannot continue to focus only on the idea of a “museum for all”, but on the idea of “a museum of all”.

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Acknowledgments: The project presented in this communication is being developed as part of the Ph.D. in Digital Media, of the Universidade do Porto and the Universidade Nova de Lisboa, with the support of UT Austin-Portugal program.

Locality

design for scent:

the case of shaping rose scented items in Isparta, Turkey

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Abstract

Industrial design is often associated with production sector. In general, the production sector provides the materials and technologies which serves as a means for design. However, the output of production is not always the object designed. The scope of the study is the production sector shaped by the chemical industry; in particular the items emerged and shaped around Turkish rose cosmetics production.

Turkey is one of the leading countries in rose oil and rose water production. During 19th century, rose plantation which was supported by the Ottoman state, was condensed around Istanbul and vicinities. In fact, rose scent and rose water had been abundantly used in Ottoman palace in history. The items particularly designed for sprinkling rose water and scent were produced out of glass, ceramics and metal. In the 19th century, rose plantation and processing around Istanbul went in parallel with related glassware production. However both of the attempts discontinued and the need for rose cosmetics changed by time. On the other hand, rose agriculture in another Turkish city, Isparta, began with a civil initiative at the end of 19th century and became one of the leading industries of Turkey until this time. However the industrialization of rose processing and the market conditions, together with the region's inadequacy in glassware and ceramics production, limited the production of items particular for keeping rose cosmetics. Today, such items are restricted to cosmetics packages and souvenirs such as rose shaped scented candles and soaps, or rose scented beads.

The aim of the study is to investigate the changing habits and uses of rose scent and the items shaped within the framework of rose oil production in Turkey.

1. Introduction

Of all the fragrances that of the rose remains the most robust and widely used throughout the ages (Stoddart, 1990). Beginning from ancient times, it was regarded to be both sacred and profane in different cultures. In fact, the use of perfume manifests a similar character. From the fall of Rome until the Renaissance, the perfumer's art was conducted mainly in the Middle East (Stoddart, 1990). The development of perfume production accelerated with the development of glazery in 16th century (Gülar, 2010). However until 19th century, perfume was not directly applied to skin for it was believed to be unhealthy. Instead, the outfits, the gloves, the handkerchiefs, fans, or slippers were scented or scent pouches were attached to the outfits as well as the scent beads worn (Corbin, 1994). With the hygiene revolution in 19th century, perfumes began to be applied directly to clean skin and became a personal identifier rather than a dirt mask.

Until 1850's, the major rose provider for French perfume producers was the Ottoman Empire, which then fell into a shortfall and left its place to Parisian producers (Corbin, 1994). However, it was not short after that the Anatolian rose producers grasped the global market and became the major rose provider again. Until 1900, the Ottoman Empire lost its major rose plantation region, Kizanlik in Bulgaria, but was capable of rose plantation and rose oil production in Istanbul and Isparta. After the foundation of the Turkish Republic, the production was supported by associations and institutions founded in the region.

On the other hand, the items shaped around the chemical industry processing rose remained limited and untouched for a long period of time. In 19th century, Istanbul was the center for both rose oil production and glazery. The glass rose flasks produced in Beykoz, Istanbul had a particular characteristic and remained as luxurious items which were even exported. In contrast, the chemical industry in Isparta did not have such cooperation due to the production and market conditions of the period. The paper tries to inspect the characteristics of the items shaped for rose scented products, particularly the products of chemical industry processing oil rose, namely *rosa damascene*, cultivated in Isparta.

2. A Brief History of Rose Plantation in Turkey

The homeland of rose is mentioned to be Central Asia. The plant is supposed to be carried to the west and the south by merchants for its scent, and medical use. In the Ottoman Empire, the city of Edirne, which is located northwest of Istanbul, is known as the first center for rose agriculture. Rose plantation dates back to 13th century in Edirne. For a long period of time, rose tillers cultivated in the city are said to be sent to Topkapi Palace in Istanbul (Atasoy, 2002).

Another center for rose plantation in the Ottoman Empire was the province of Kizanlik, which is now within the borders of Bulgaria. Beginning from 1361, the mentioned

region was occupied by Ottomans and became a town of Edirne. Until the outbreak of Turkish-Russian war in 1877-1878, for about 500 years, the region remained as an Ottoman land. Following the conflict, the Turkish population resident in the region emigrated to homeland, and with the foundation of Bulgaria in 1908, the region was departed from Ottoman Empire. The Turkish emigrants carried tradition and experience of rose cultivation to Anatolia as well as rose tillers. Beginning from 1880's, these emigrants raised the plant first in Istanbul, and Bursa and in 1885-1886, succeeded rosewater and oil production and trade. Moreover, the attempts to raise the plant were strongly supported by the Ottoman state (Altintas, 2009).

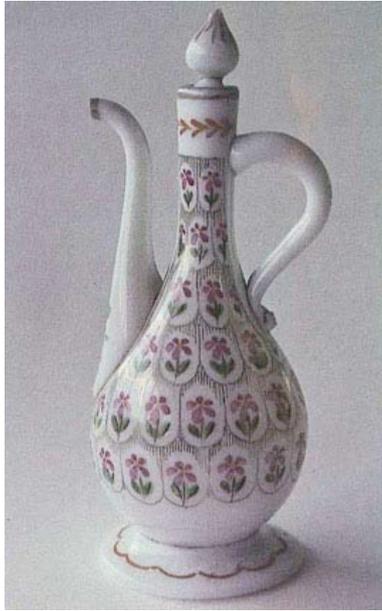
Rose cultivation in the city of Isparta, on the other hand, is totally an individual attempt without state support. Beginning from 1888, a local notable of Isparta was very much involved with rose plantation and rose oil production. This person went in touch with the so-called Kizanlik emigrants who were involved with the plantation and production process. These efforts made Isparta the major rose plantation region of the Ottoman Empire in 1900. The foundation of the Turkish Republic resulted in an increase in the production amount and constitution of production plants for rose oil (Altintas, 2009).

3. The Tradition of Using Rose Scent:

Rose is known to be the symbol of the prophet in Islam. According to Koran, rose first appeared during Miraj. As Mohammed ascended to heaven, some of his sweat was said to have fallen to earth and from it sprang white roses (Stoddart, 1990), while from his horse's sweat sprang yellow roses, and from Gabriel's sweat sprang red ones (Atasoy, 2002). Observing this, the prophet said "whoever would smell my scent, let him smell the rose." (Stoddart, 1990, p.150). He is known to use rose scent especially during his meetings, which is supposed to provide evaporative cooling. As an extension of such an attitude, rosewater is abundantly used in Islamic rituals. The mosques were used to be scrubbed with rosewater to render them fit for service to praise the prophet (Stoddart, 1990). Rosewater, had a considerable symbolic value and besides its symbolic value, it became a part of Turkish social habits. It used to be sprinkled to guests in pray days, and utilized as a cosmetic commodity kept in glass, ceramic or metal containers. Among them, glassware was considered ideal for carrying such a commodity for its being a neutral material and not interacting with the contents (Kücükerman, 1985).

The center of the Ottoman glazery used to be Istanbul where the tradition of glass processing existed during the Byzantine period. With the conquest of the city in 1453, craft was transferred to Turks. Beykoz ware is the most popular of Istanbul glass tradition and one of the well known types of it was globular glass bottles and ewers (Picture 1) used to sprinkle rosewater. Such bottles were named as "*gülabdan*" and made out of opal glass, crystal glass or common glass (Bayramoglu, 1976). These rosewater flasks shared the symbolism inspired by their contents. However they tended to be uncomplicated in form relying for their effect on applied and surface decoration (Kücükerman, 1985). On the other hand, there are rare examples of rosewater sprinklers in the form of birds, barrels and old pistols. These served as elegant bibelots and exported as well to foreign countries such as Iran. Apart from Istanbul, glass workshops

existed in various cities during the Ottoman Empire. Sopot, which is now located in Bulgaria was one of these centers where small vessels for rosewater and other small glassware were produced (Bayramoglu, 1976).



Picture 1- Glass ewer (Kucukerman, 1985, p.173)



Picture 2- Tombak gulabdan (Bodur, 1987, p.119)

Rosewater sprinkles were regarded as luxurious and prestigious objects whose production was not limited to glass and ceramics, but metals such as brass and copper as well. Brass, which is a copper alloy, appears to have been medieval equivalent of high quality plastic which is cheap, durable and easy to mass produce (Ward, 1993). Besides, gold plating copper, which is the technique called *tombak* was employed to a variety of items of day to day and religious use such as rosewater flasks (Picture 2)(Bodur, 1987).

The Ottoman Westernization movement which took place in the 19th century resulted in a change in lifestyles and culture. During the time, daily life, outfit, architecture as well as scent habits changed. The Ottoman upper class preferred the European innovation, *Kölnish Wasser* or *René de Florentine*, which is a light scent mixture diluted with alcohol, instead of rosewater. On the other hand, the public did not give up using the item although it was hard to be found. Since the major rose plantation region was not an Ottoman land anymore, and the domestic production was not adequate, rosewater became an expensive article (Altintas, 2009).

4. The Shift in Production, The Shift in the Meaning:

Until the beginning of 20th century, rose plantation and glass making used to be production acts which were promoted by the Ottoman state and established around Istanbul. The abundance of rose plantation areas and glassware workshops in the vicinity supported each other as two parallel production activities. Unlike Istanbul, rose industry in Isparta emerged with individual efforts and was not supported by a parallel production act.

Today, the city of Isparta appears as the leading rose oil production area in the world. The cooperatives in the vicinity went through a unification process and founded an association called Gülbirlik in 1954. The major contribution of the association was to fully industrialize production that is fit to the world standards. The unification resulted in construction of rose oil production plants and prevented informal production (Gülbirlik, 2010).



Picture 3- Rose scented products (photograph by Sansal Erdinc)

However, until 1990's, production was limited to exported base products for perfume industry. The association did not come out with a cosmetics brand, rather remained as one of the chief rose oil producers in the global market. During the time, rose cosmetics such as scented creams remained as local items or souvenir articles that hardly occupied a position in the domestic market. In 2003, the association launched two brands offering a wide product range of cosmetics and food (Gülbirlik, 2010). At present day, the products are no longer limited to souvenirs but available in the domestic market even within particular stores in major cities in Turkey. Besides varied categories of cosmetics, which emerged with a certain corporate identity, specific religious items such as rose scented beads and rugs appear as products particular to the city of Isparta (Picture 3). The recent state of the chemical industry processing rose seem to deliver products in three categories:

- i. cosmetics: rosewater, lotion, soap, balm etc.
- ii. food: sorbet, Turkish delight, jam (Picture 4)
- iii. fragrant ritualistic items: rose scented prayer rugs and prayer beads.



Picture 4- Rose sorbet and rose scented Turkish delight (photograph by Sansal Erdinc)

The form of some of the cosmetic items emerged around rose scent are observed to be direct depictions of rose flower. These items such as soaps or candles leave its cosmetic function and become decorative tabletop objects. The fragrant religious items, on the other hand, protect their traditional form, but try to strengthen the nature of religious practice by applying a sacred scent. Traditional objects used in religious rituals are familiar to most people and their religious nature is obvious (Gorman, 2009). Since religion is emotive as well as cognitive, smell adds to the religious nature of the item to stimulate pious feelings of the user (McDannell, 1995). On the other hand, religious objects frequently serve as the material reminders of significant events or people by stimulating imaginative memory (McDannell, 1995). Since Islamic tradition forbids human figurative depictions, rather than visually depicting the prophet, using the scent of the prophet in religious items may be thought of creating an illusion during the religious practice.

In Isparta, rose is transformed into a local symbol. The local economy and culture reinforces the historical identity of a place. The clear imagery of specific systems of production and particular products which could be associated with locations recedes into memory and may be used as an instrument of tourist attraction (Julier, 2008). Though the chemical industry shaped around scented rose in Isparta is still an active element in city's culture. The commercial entrepreneurism have a leading role in constructing the city's identity. Although the city is of no religious importance, fragrant religious objects having symbolic function became souvenirs particular to the city.

5. Conclusion:

The tradition of using rose scent breed particular items called *gülabdan* for containing rosewater. Apart from *gülabdans*, glass ewers had been used to sprinkle rosewater or bird shaped bibelots served as rose scent containers. However these traditional items do not have a connotation with its contents. These typical forms are usually decorated with common flower ornaments. Traditional ewers appear to be general purpose containers which are produced either out of metal or ceramic. Ewers unique for rosewater sprinkling seem to be out of glass and smaller in size. On the other hand, the bird or pistol shaped scent vessels manifest a “loose link and a distance between the functional purpose and the form” (Miller, 1987). In general, these pieces are supposed to reflect mastery in production, rather than indicating the characteristics of the scent.

Recent examples of rose cosmetics and other items, on the contrary, are strictly shaped by the flower itself. The shift of production to Isparta and industrialization of rose processing act resulted in a variety of chemical products such as cosmetics, rose shaped candles, soaps, even beads. In fact, the principle function of flowers is decorative by providing aesthetic pleasure through stimulation of visual, tactile and olfactory senses (Stott, 1992). Yet, the intangible nature of the fragrance becomes visible by direct depictions of the flower itself. The pink color of the scented rose, is the characteristic of the so called products and their packages. The souvenir shops in the city are easily recognizable with their displays decorated with pink veils.

Odour is an important means by which consumers judge the value and effectiveness of the products. It is perceived as an intrinsic characteristic of the product which indicates its ability to deliver certain benefits (Classen, Howes, Synnott, 1994). Since certain fragrances convey certain meanings, they are used to reinforce certain functions tied with these meanings. As in the case of detergents, an added scent may add up to the effectiveness of the cleaning function. Although the scent is just an added feature and a superficial characteristic of the product, it becomes an integral part of it. Yet rose scented ritualistic articles do not reflect such a manner. Even though the scent has a certain symbolic value, it still remains extrinsic to the product. Rather than reinforcing the function of the product, the scent accompanies it without providing an extra benefit. Unlike the perfumes worn to skin for external appeal, the fragrances of these articles are smelled during practicing certain ritualistic acts. In Douglas and Isherwood's terms, the scent becomes a ritual adjunct of the object (1996).



Picture 5- Rose scented prayer's bead (photograph by Sansal Erdinc)

At least since Middle Ages, floral analogies have been employed to describe various attributes of femininity in art, literature and thought. The flower-female metaphor is used to express concepts as dependence, passivity, aesthetic consumability which corresponds to the dominant conservative definition of femininity (Stott, 1992). On the contrary, the religious meaning of rose scent constructs a unisex identity in the mentioned religious items. Since it does not work for temptation, but for certain customs, it does not serve for one sex. However the scented products with their pink color inevitably reflects feminine identity. For this reason, the scented prayer's beads (Picture 5) are slightly varied in colors, black or grayish pink.

At present day, rosewater is not a conventional item as it used to be in the Ottoman era. Except from special pray days, it is seldom used as a cosmetic item or in cooking traditional desserts. Rosewater seems to be replaced with lemon scented eau de cologne in order to provide evaporative cooling. The lemon scented item is used as a refreshing tonic offered to guests or brought to patients. It may be regarded as a habit which unites rosewater tradition and Kölnish Wasser. Alternatively the so called cosmetics industry today produces rose scented eau de cologne packed in stylish glass containers while rosewater packages are limited to plastic bottles.

For centuries rose had a certain symbolic meaning. The products of the chemical industry serve for the identity of the city. Besides cosmetics, ritualistic items appear as souvenirs particular for Isparta although the province is not of holy significance. While the so called chemical industry is capable of producing rose scented products in global scale, the form of the domestic items and its containers needs design support.

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Abstract

In recent years interest has been growing around food production and consumption due to both the economic difficulties farmers have to deal with and the frequent scandals in food systems that bring about health risks for consumers. In this perspective local production, especially from the productive countryside surrounding the big metropolitan areas, becomes crucial in offering new solutions to shorten the food chain and sustain local communities, keeping a system able to offer quality food at the right price.

On closer observation it is possible to recognize positive signals: groups of people linking up with small family-run farms to meet their needs while supporting farming. These creative communities offer a foresight of a possible future in their new collaborative ways of organization that can be seen as real user-created services.

In this framework we can foresee a new kind of territory consisting of new collaborative networks of producers and consumers able to involve a growing number of people and to create a diffuse and efficient system of services. Such a periurban area could feed the city while offering tourism opportunities to the city dwellers.

Starting from these premises the paper analyses a set of case studies of direct selling solutions with a specific focus on farmers' markets, targeting the typologies of services provided and the innovative solutions adopted. Gaining insight from these examples it then develops by describing the approaches applied by service design to the pilot project called Earth Market in the city of Milan, which is part of an ongoing research project for regional development in the Milanese area, and to the Union Square Greenmarket in New York. These interventions use service prototyping techniques and co-design to start a community centered design process in order to define new services for local needs.

The project looks at farmers' markets as suitable places for participatory action research and involves the local communities both in the definition of new services and in the implementation of the markets themselves. Finally the paper discusses the results obtained so far and proposes future steps.

Periurban areas: risks and opportunities

In recent decades, urban growth has detached places where people live from both urban services and rural ones. This has turned periurban areas into controversial places, suffering from lack of identity and loss of social cohesion [1, 2, 3].

In this framework it is possible to recognize two main problematic fields: on one hand the continuous expansion of cities, which penetrate neighboring areas, in the majority of cases overwhelms them with structures totally unrelated to the local cultural context. On the other hand, economic problems emerge for the agricultural activity in the green belt surrounding the urban areas. This often leads the farmers to stop cultivating and to wait for a purchase proposal from real estate companies, as this is often more economically viable. This leads to the loss of both agricultural land and the local identity of the place acquired through its original function.

According to Fleury [4], periurban agriculture in industrialized countries could cover new roles such as restoring confidence in food quality and safety, creating more harmonious cities, renewing citizens' awareness of agriculture and managing the cities' green belts. Local food production also increases regional food sovereignty [5] with positive consequences on local economies, and regenerates the social role of the farmers [6].

The main problem in defining new identities for periurban areas is the apparent lack of profitable and practicable alternatives to production sites, housing or offices. However, looking more deeply into the current situation [7, 8, 9], it is possible to recognize the existence of many small local initiatives (i.e. community supported agriculture, farmers' markets, school farming activities, etc.) that could be fostered and linked together in order to create a resilient local network, based on territorial resources and opportunities. Indeed it emerges that groups of people, creative communities [10], find new and collaborative solutions to everyday problems giving birth to real services where the difference between users and consumers blurs, creating direct connections among different actors in the region.

Possible strategies: multifunctionality and de-mediation

Against this background the research investigates possible strategies to foster and increment these solutions among small and medium local farms and the city area. Looking at the literature and the European directories in the agricultural field, it emerges that it is necessary to consolidate the social role of the farmer through strategies such as the promotion of multifunctional agriculture [11] and of local and direct connections [12, 1] between producers and consumers. Thus, for the purpose of the research it was important to deepen these two concepts: multifunctionality and de-mediation.

The concept of *multifunctionality* in agriculture ascribes to a farm the possibility to vary its sources of income by activating secondary functions alongside and linked to its primary function related to food production, contributing that way to the social economic viability of many rural areas [13, 14]. These additional functions can be seen as services for the environment, the region and the people.

This idea is considered to be very promising not only for European agriculture [11] but especially for the development of periurban areas where these services could be addressed to the city, shortening the food chain and creating direct connections between urban dwellers and producers [15, 16]. It is important to underline that, although in other geographical areas such as the United States it's common practice to refer to this idea using other terms, the development perspective of the food systems of the big metropolitan areas goes in the same direction. In fact its primary objective is to reinforce the regional provision system enabling logistic synergies among producers and direct connections and collaborations with the citizen through the implementation of local services such as farmers' markets and CSA [17].

In line with these development directions a new image of the farmer is emerging (ddl 228, 2001, Legge orientamento). Alongside the food production which remains the foundation activity of the farm, he is now allowed to carry out other activities such as food tasting, recreational, cultural or didactic activities, sports and tourism aimed at enhancing the knowledge and enjoyment of the region by the citizen.

The term *de-mediation* refers to the reduction of steps and middlemen in the food chain. This concept is especially associated with the relational dynamics of quality and locality typical of small farm production.. Among the main problems that prevent these small farming businesses becoming part of the mainstream distribution, we can highlight the following:

- the pattern of excessive costs that raises the end price, but pays producers inadequately;
- over-standardization of products, which drastically reduces variety, above all to the detriment of small scale production and small producers;
- growing dissatisfaction among consumers who do not have transparent access to information about the source of the product;
- logistics conceived for large quantities of produce and long distances;
- indiscriminate disassociation from season and region that leads to a lack of food awareness and unsustainable environmental costs.

Thus the main strategy emerging is to take advantage of the proximity between the periurban countryside and the city [18] fostering the creation of direct connection through a multifunctional system of services. Hence de-mediation becomes the objective in developing sustainable food systems, and multifunctionality the currently most promising strategy to obtain it.

Moving from this theoretical framework, the paper presents a service and strategic design approach to fostering the development of multifunctional food systems, by sustaining direct relations between the city and the periurban countryside. As expressed in the previous paragraphs and supported by the existing literature, the issue draws the attention of different actors and disciplines at international level. However, the main application opportunities for this research have been the project "Feeding Milan. Energies for change". [19] (promoted by Slow Food Italia with the University of

Gastronomic Science and the Politecnico di Milano-INDACO and a six months period as a visiting scholar at Parsons, the New School for Design in New York.

Methodology: case studies and participatory action research

The methodology applied consists of two main strategies: case studies and participatory action-research. The case collection was carried out on a national and international level, mainly in Europe and the United States, focusing on services that enable de-mediated food supply solutions and their connected organizations. The main criterion for clustering the cases is based on technical concerns about the connections: how does food, and information about that food, get from producers to consumers.

- Buying, farming & picking produce on the farm
- Farmers markets
- Food box schemes & CSA
- Collective city shops
- Urban agriculture & DIY
- Other:
 - Producers' associations
 - Educational organizations
 - Tools for mapping and connecting

The second strategy, participatory action–research, was adopted in synergy with a set of didactic and research activities involving different actors:

- Service Design Lab, 1st year of Master degree at Politecnico di Milano. During the course the main activities carried out with the students were: on-the-field research into the context and services provided by three multifunctional family farms in the Agricultural Park South Milan, and a workshop aimed at co-designing new service ideas to connect the citizen and the farms.
- “Feeding Milan. Energies for change” research project. The first year of the project focused on a set of interconnected activities that enabled the group of researchers involved to define the scenario for the Milanese area development [20] and to define and develop its pilot projects, with a main focus on the Earth Market.
- Amplifying Creative Communities, promoted by DESIS Lab – SDS, in Parsons, the New School for Design. Within the project, the research related to food networks centered on the development of a tool to boost the diffusion of collaborative services for food provision. This was tested by involving users of the farmers' market in Union Square.

Case analysis

A system of interconnected services. Case studies built up the basis for a deeper understanding of multifunctional systems and their services. From a collection of 36 solutions and organizations, 5 were selected (each one from a different category) for in-depth analysis in the same geographical area, New York City. The place proved to be a

good object for analysis for its richness in terms of innovative solutions and proactive people involved.

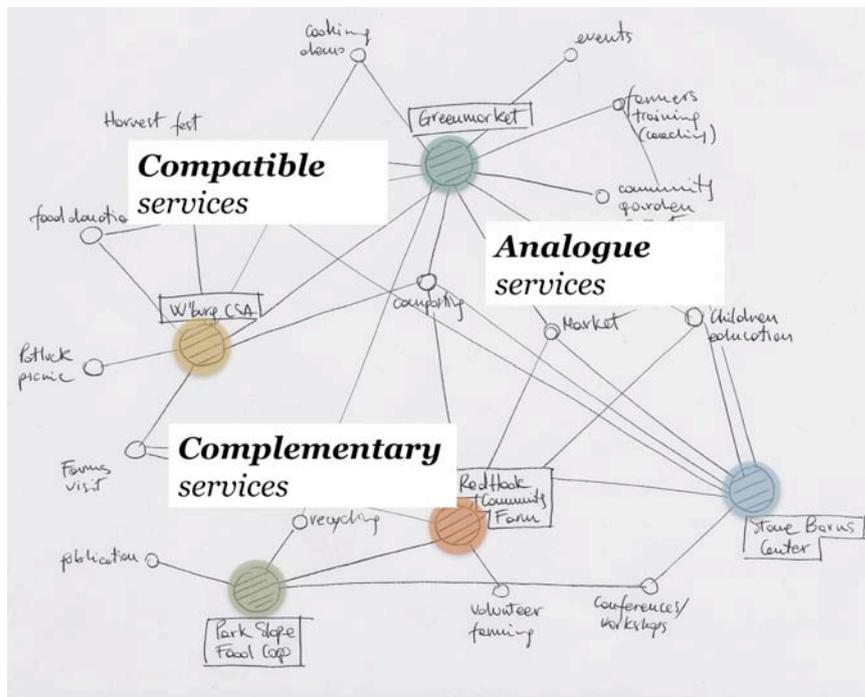


Figure 1 – Conceptual map of the existing connections among food related services in NYC area.

The research highlighted the connections among the services and actors involved through the use of a conceptual map. This analysis was especially useful in bringing otherwise hidden, existing relations to light, allowing the development of further reflections on their nature. What emerges is that there are three main connection typologies among services [21]:

1. Sharing of places, tools and materials in order to optimize resources and the transport of products among *compatible services*. E.g. Referring to the map above, one of the producers participating in the Greenmarket in Greenpoint provides the vegetable shares for the local community supported agriculture (CSA) in the same area, before or after market time.
2. Collaboration based on direct connection between different steps in the food chain: what is not needed anymore by one service could be useful for another as in the case of *complementary services*. E.g. The Park Slope Food Coop recycles its green waste through the collection center in the Red Hook Farm.
3. Diffused offering of *analogous services* by different actors in the same area. E.g. In the New York area many farmers' markets, urban farms and CSA promote composting services by providing information and acting as a collection point, in this way offering an informal diffused service to the city.

This qualitative mapping activity, developed on a limited number of cases, offers interesting insights confirmed by quantitative studies carried out by internationally recognized centers such as the Urban Design Lab in Columbia.

The cases collected and the analysis led to two initial observations:

- Each service within the system observed has a recurrent structure consisting of a main function, linked to the production/selling of food, and a set of auxiliary functions indirectly supporting the primary one. For example, in a farmers' market the buying/selling activity is the primary function but cooking demonstrations, using seasonal produce, aim at educating users to consume locally, hence to use the market.
- Synergies between different services make a fundamental contribution to the sustainability of local multifunctional systems. Just as an example, the most interesting cases involving small-medium farms are related to logistic solutions that optimize the transport and delivery of the produce by fostering collaboration among producers or services (e.g. <http://localorb.it/lo2/>).

Interaction levels and experiences in multifunctional systems. Case analysis triggers the following reflection around the concepts of functionality and collaboration in solutions connected with social innovation phenomena. What emerges is that when the highly relational initial solutions evolve and scale up, the peculiar “relational” nature [22] of their connections moves in a more “functional” direction. The collaboration and involvement are still inherent in the nature of the solution but there is a highly designed organization and a clear functional output (e.g. Park Slope Food Coop). This suggests that creating services offering different involvement opportunities leads to more accessible solutions and, as a consequence, the development of flourishing and diffused local systems. Therefore the assumption is that a balance between human relations and functionality is needed to foster systems of local services, starting from the existing best practices and active local participants. This is more evident looking at the production side, where the dimension of the family farms, with limited human resources, means that an overload in terms of human relations with the customers would not be sustainable jointly with their production activity.

In order to better understand the practical impact of this, two cases and their offering, Milan Earth Market in Italy and Union Square Greenmarket in New York, were analyzed using the framework developed by Forlizzi and Battabee [23]:

“When an individual interacts with a product [...], his or her experiences dynamically flow between fluent, cognitive and expressive interaction as they happen. Co-experience is the process of lifting up experiences to shared attention, where they become part of a social interpretation process that can influence what the experience comes to mean to the individuals and others.”

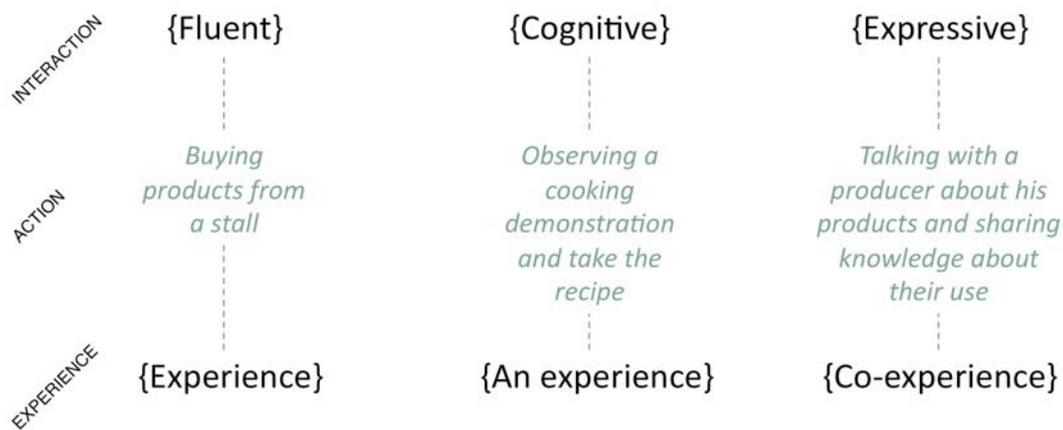


Figure 2 – An example of different levels of experience in a service at a farmers' market.

Farmers' markets were chosen because they can be observed as multifunctional systems on a smaller scale (see "experience scalability" in [23]), providing important insights for the understanding of those on a regional level.

Comparing the interactions and experiences currently offered by the Italian and American solutions we found that while the former offers mainly cognitive and expressive interactions, the latter spread from fluent to expressive at the same time, having a wider range of users and being part of a large network of markets (120 in the city). This suggests that a design intervention on a local system of services should focus on creating a balance of fluent, cognitive and expressive interactions, offering both functional and relational services.

This provided the starting point for further applied research activities in the markets involving the users and the producers.

Multifunctionality and service design strategy

From this initial finding three results and an intervention strategy were defined.

- Creating synergy among services is the starting point to trigger the growth of a multifunctional and collaborative local system. At the same time these connections allow existing systems to be sustainable from an economic, environmental and social point of view.
- Among the overall offering in the local systems, it's important to create a balance between functional and relational services to involve different users while keeping the social qualities of the initial cases [24].
- By involving a large number of users and producers and offering many interaction opportunities, farmers' markets can be a privileged access point from which to understand the internal dynamics and the existent connections in a multifunctional system.

On field applied research

Following on from the previous observations participatory action research has started in the two markets with several objectives. These currently ongoing projects involve both the users and the producers in improving the existing solutions and co-designing new ones. They have been started in synergy with other research projects and involve various activities developed in the “Research Stall” in the Milanese market and some activities planned to take place in the Union Square Greenmarket.

Milan Earth Market. The Milanese farmer market is the first one to be implemented on public land in the city. It is not a new solution but is of strong value for the area. This is the first pilot project realized within “Nutrire Milano”. It started in December 2009 and takes place monthly; currently strongly supported by Slow Food, it is planned to become autonomous in the near future. The market involves local producers within 40 km from the city, both from the Agricultural Park South Milan and other areas in the north. Each month it hosts some Slow Food presidia producers from other parts of the world. The services offered include: an info point by Slow Food and Milan Province; research activities at the Research stall; a Taste Lab; presentation of the Presidia; educational activities; events and Convivial tables to enjoy the produce just bought.

In this context our research group started a permanent research activity in September last year with a dedicated stall in which to test new service prototypes and involve users and producers in a co-design process to improve the market offering. The main interventions to date have been the following:

- Design of the market sign system aimed at making the services offered more evident and improving the visual connection between the two separate areas of the market, divided by a short path. This communication intervention, although quite simple, was the first step in building the identity of the market.
- Development of two surveys, addressed to both producers and consumers, in order to support the creation of new digital and non-digital services and to test the feasible fields for collaboration among the actors involved. One of the results of this activity was the development of a digital platform to provide information and to support new collaborative services. At the same time 3 service ideas, founded on real attitudes and needs emerging from the surveys, were defined and visualized through physical tools used to help the co-design process and foster conversation during the interviews with the producers.
- Prototype of a new food box scheme to bring shares of fresh food to people’s houses. This activity was carried out at the Research Stall, interviewing users during the market time using a mock-up of the box with additional communication materials and a paper tool to help them in defining the desired features of the service. The results obtained so far have enabled us to pilot the service this spring.
- Sensitizing people using the market in the Christmas period by offering the opportunity to pack the produce they bought with original bags and communicative tags to make presents promoting local consumption.

- Developing research and co-design activities to test a new project idea: a cooperative supermarket selling local produce and completely managed by its members.

Union Square Greenmarket. This farmers' market is the main one in a network, covering all five boroughs of New York, which started in 1976 and has since grown into the nation's largest open air farmers' market program. Very different in origin and dimension from the Italian one, this is located in the very center of Manhattan and draws a wide public, including local residents, people from other parts of the city, workers in the area and even tourists looking for something to eat or just willing to visit this local institution. The initiatives are many, including: an info point and Food stamps exchange stall, cooking demonstration and recipes with the Natural Gourmet Institute or other local actors, free cooking advice from local chefs, children's education through the Greenmarket Youth Education Project, kitchen scrap collection point for composting in collaboration with the Lower East Side Ecology Center, textile recycling point, food donation to City Harvest a food rescue organization, events, Home Delivery, Recipe Baskets and Farmers' Lunch Menu by From Earth To Kitchen, farmer training and support, and community garden support.

- To date the activity carried out in this context has been connected with the research project Amplify Creative Communities promoted by DESIS Lab in the School of Design Strategies in Parsons, the New School for Design. Its objective has been to test a tool to promote the diffusion of a new model of CSA in residential buildings and to better adapt the concept to the real user needs.
- Furthermore, a project measuring the impact of the solution was defined in collaboration with the market manager. The idea, based on the definition of research activity modules to be used in different markets, is to evaluate the service economy, the experiences offered and the customers' knowledge of the produce, thus to support its management.

Conclusions

The research carried out to date and the positive feedback obtained so far in the action research allow us to say that farmers' markets are a good access point for work on regional multifunctional food systems, offering unexpected interaction opportunity with many actors indirectly connected to them.

Our experience so far demonstrates that it is possible to work on these solutions both as cases to be implemented and places to foster the development of other services. Actually, participatory action research practice shows that these two aspects are often strictly connected and that while working on new collaborative services to be implemented, as a side effect, it strengthens trust among producers and consumers with positive impacts on the market itself.

Although the number of interventions is already sizeable, a further development of the ongoing testing phases and the implementation of the digital platform and "The Market Measure" project would be needed to achieve further results in terms of tools, methods and co-design and fast service prototyping techniques to be used.

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Inside Design: some aspects of an ethnographic study of a brazilian design office

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Abstract

Many brazilian designers share the idea that people don't know what design is nor its value; they also believe that people are unable to assess the quality of work or the expertise of a professional and cannot imagine what is behind of a well done project. This idealization results of a alleged awareness of designers on what Design is, on the value of Design, etc. That is, designers know what is behind the Design while those that are not designers do not. Although the designer apparently really understands the aspects of his/her job, these points are not clear and they cannot be identified and expressed easily. This paper intends, through an ethnographic study, to bring up the way designers think their professional practice and how they perceive the aspects that distinguish them professionally.

Introduction

This paper presents results of a six-month ethnographic study carried out in a product design office in the brazilian city of Florianópolis, and aimed to observe designers in action. It attempts to approach designers' understanding of their profession and to think about some questions as: which aspects of brazilian Design could be revealed in a daily contact with an office? To what extent the experience of following a designer's day-to-day can bring a comprehension of brazilian Design? And yet, how designers' ideas can be useful to our reflection about these issues?

The study was carried out in design office formed by five designers, two design students and one engineer. They all were informers. The team age ranged from 18 to 35 years. The office develops graphic and product design for companies throughout Brazil. During the period of our research, the office was developing a project for a major client from the automotive sector, and the success of it was seen as something very important once it would bring to the office high visibility in the international design scene¹.

We are going to start the article thinking about the designer's position of keeping hidden some

¹ It is not here to describe the details of this Project, or the relationship between customer's size and the size of the office. The Idea of this paper is to describe general aspects of Brazilian design, and not those related to the Project that was being developed at that time.

internal aspects of his/her profession. This strategy illustrates a picture that only designers can understand the design, and only they would be able to practice design. These next few statements discuss this aspect:

– *Anyone thinks he/she can draw. Mainly considering that many of the programs and softwares we use are available to download as unlicensed versions. It means [...] anyone can use it at home for free (Carlos²).*

– *The problem then is that these guys do bad works and end up damaging the whole professional category (Philippe).*

The following passage from Nigel Cross (1995, p.111) explains our informers' complaints: "Design ability is possessed by everyone... Although professional designers might naturally be expected to have highly developed design ability, it is also clear that non-designers also possess at least some aspects, or lower levels of design ability".

Our informers clearly expressed two concerns. First, the idea that people in general think they are able to do designers' job. Second, the fact that designers' tools are available to anyone and can be used by non-designers to do whatever they wish. However, from their point of view, to "draw" and to use design tools is not enough to really design. Those who are limited to this will produce bad results. In other words, there are other key questions to consider the result of a work as good. Thus, the informers' speech suggests that there is something more behind that "anyone thinks he/she can do". Here we understand that differently to "anyone", designers know the secrets of what is behind design. Somehow, the informers pointed out that design practice involves something extraordinary, peculiar and largely unknown by the general public, but very well known by designers. This knowledge distinguishes designers from those who only can draw and can manage design tools. This scenario leads us immediately to two questions: what is this extraordinary quality that only a designer owns? And what designer does to have it? We attempt to investigate them.

Design according to the designer

The intent of this study is to investigate how designers understand their profession. We believe that the designer has a particular view of its activity, and considering it is a way to understand the design. The discussions about the profession are a constant among designers. It is not necessary to much time to catch the designers talking about their activity. One day, three months after the beginning of my daily office journey, while the group talked with great enthusiasm about what design was, I turned on the recorder and asked the first question that came to my mind:

– *You are talking about a workmate of you who had "a very narrow vision on design". What is your vision on design? (interviewer)*

– *For him, things that are not serial products are not design. For me, design is anything that supposes a project of a product... There is not necessarily a relation with the amount of produced products (Juan, surprised by the excessive seriousness of my question).*

The question about what is or not is design is frequent both in academic area and in the offices. In academic circles this issue seems to be a little outworn, although it is often reconsidered and

² The original names were changed. The choice of names that appear throughout the text did not follow any relationship with the originals.

receives important changes³. Among the professionals who do not belong to the academia, the question seems to be more exciting, as we can follow here:

– *That picture I showed you yesterday, of a whisky bottle, only five hundred units were launched, and it costs five thousand dollars... It means that the guy who has designed that bottle is not a designer? (Ronald, visibly willing to lead the polemic)*

– *The own definition of ICSID⁴ says that the design has nothing to do with serial production (Carlos, who stood up from his chair and came join us in the semicircle formed around the coffee bottle).*

As the conversation went on, the interlocutors realized that they could reach certain consensus: if design is not related to the amount of the production, what is it related to? In this sense, Juan set up some link between design and project:

– *For me, to consider a product as design, it is enough that the product has been designed (Juan).*

– *It doesn't mean that it was necessarily done by a designer. But the guy who did it had thought of a specific public which went through a concept stage... That is, if the concepts that this guy thought about represent what the public wants... (Carlos)*

Ronald mentions the importance of defining the design according to its distinction to other areas that perhaps could be close to it.

– *We take in account all the technical of the engineering [...] but design distinguishes itself from engineering because we add to our practice some aesthetic standards that have a social function to a certain public (Ronald).*

– *A big difference is that design can envisage new solutions in this product for the same activity. I think we can have more solutions to a certain problem (Carlos).*

This brief passage of the conversation, which took almost an hour, went through some issues that related design to: (a) serial production; (b) the use of projects; (c) the designer; (d) the interests of a target public; (e) social aspects; (f) the use of tools; and finally, (g) an amount of new solutions for the same problem. From these correlations, we will attempt to question some aspects of the designer's profession and the scheme that differentiates him/her as a professional group. Thinking this characterization from this opening dialogue seems plausible because here are expressed some fundamental aspects to this discussion: the recognition that design exists as a professional activity; *certain idea* of what design is; and some ways to distinguish design from other fields.

It seems that electing what we called "relationship between design and designer" is a good starting point here. When we chose the title "relationship between design and designer" we had in mind the informer's argument which states that a design product does not necessarily result from the work of a designer (*It doesn't mean that it was necessarily done by a designer, or... For me, to consider a product as design, it is enough that the product has been design*). Here we have two different procedures which often came up in team discussions about design: one of them, the professional and the product's legitimation process, whose assessment would lead us to the following questions: "who deserves the title of designer?", and "what deserves the name

³ A collection of articles edited by Margolin and Buchanan (1995) provides an overview of the subject.

of design”; the other one, the trainee process which culminates in the good performance of someone who works with design, would instruct us about “what makes someone able to design?”. That is, being a designer is not the same of being prepared to design. Designing involves other mechanisms which are different to those adopted by people who “only” want to become a designer.

In the midst of this curious scene, something came up as a particular aspect. On the one hand, the legitimacy of the profession took place without any notable correlation with the performance of the profession. But on the other, those designers followed common procedures in their careers. At his point, they showed concern on having undergraduate design degree, getting experience in design projects, building up a solid portfolio, gaining stability, becoming a recognized and prestigious professional. In other words, these professionals, although they thought that any designed product could be consider a great design product and that anyone could build a product with a great design, yet they identified the necessary course to become designers.

Seeking to enter and remain in the market

The designer somehow overestimates the mechanisms that lead to job security. The idea among the designers is that only few of them can achieve the necessary requirements for this stabilization. In the following interview, the informer mention the unique correspondence between the large number of design students who end up graduating (and therefore they receive the design degree), and the low number of professionals in the labor market.

- There's only one guy in our class who is working in the area. He was looking for a job for a year and he is now working as a graphic designer. The rest of our class, after university, is unemployed, or working in other fields (Carlos).

If this difficulty influences the professional’s relationship with her/his legitimation mechanisms, the same is true to the image of the rewards that a prestigious position offers.

- I think our office is just an office, not a trademark. We have a trademark, which is not considered as one yet. This is important for the consolidation of the office (Ronald).

In the informer’s view, becoming a trademark happens when the general public identifies, in certain products, the image of the company that designed it. We observe here the designer's expectation for the moment that his/her signature will represent his/her portfolio, and it becomes something desired not only for the product in which it is printed, but for the history of previous works that are implied in it. The idea shared by the informer is that reaching this stage is to achieve a reputation that allows a more comfortable and desired position, a position of greater status.

Here we examine the relationship between the professional prestige and its importance to the work: it does not seem excessive to say that this reputation is the designer’s greatest expectation for his/her profession, a kind of general goal that he/she will never stop looking for. We will think now about the designer’s idealization on the necessary process to reach that stage. We start considering the importance of the portfolio in this scheme.

Professional Legitimation Mechanisms

The relation between the portfolio and professional placement is clearly expressed in his speech: *I don't know if I will continue in the office... here we have no stability, we won't be hired, I've*

been here up to this day for experience, to improve my portfolio (Carlos). That same day, I asked Juan what was the importance of the portfolio for him: Those who didn't invest on it are all unemployed. Once more, when Carlos told me about the difficulty of explaining to clients what design was, he said: but I showed him the portfolio and he got impressed ... It is because people don't know exactly what it is design. And the portfolio showed what I was doing.

We identified here that the designer realizes the importance of the portfolio in many ways. They all indicate that the portfolio is seen as essential in the career of a designer. First of all, it is seen as a business card, something important to enter in the "market". Without it, there is hardly a professional placement. Those who don't have one are "unemployed". The portfolio is good to show clients the professional's potential. And also to present what design is. The portfolio represents the path that the designer crossed to arrive at his/her current position. Through it, it is possible to realize all the difficulties of working in companies where you do not have "stability", where you are not "well paid". This period of difficulties is represented by the portfolio. Then, the designers think that someone without portfolio should not be considered a professional because he/she not passed the trials that the portfolio represents.

If the portfolio are seen by the designer as something fundamental to the profession, the same did not happen in relation to formal learning at university. On one hand there is the idea that the *university didn't teach that much, the office was our second university* (Philippe). On the other hand, we have seen that all members of this office have a bachelor's degree, or were on the way to obtain it. That is, although they demonstrate that the university did not teach too many things, the participants were unanimous in taking it. Therefore, the dominant idea is that even if the under-graduation studies do not teach "a lot", it is essential to have an opportunity in the market.

As the university degree does not provide a proper formation to these professionals, the importance of the knowledge acquired within the offices is perceived by them as a crucial part of their learning. The following informer's words are really representative of this:

- I had the option of delaying the course to gain experience, to build a portfolio.... I think with our portfolio and the experience we have we can get a job anywhere (Carlos).

Another speech continues this discussion:

The staff of the University X is usually very creative, they have many good ideas, but they can't implement them. [...] These things are intangibles. There are not concrete. And a part of the design is pretty like this, that part of concept. But you have the design from the ability to implement these ideas (Ronald).

The informer conceives the design as something that involves "the ability to implement ideas," and the students of that university can have "good ideas" but are not able to "execute them". So, this informer attributes to university something problematic: the perception that formal background is insufficient and should be continued.

This last passage bring back the relationship we identified few pages ago between design and the production of new solutions for the same problem. Previously, the informer mentioned that *design can envisage [...] new solutions for the same activity*. He also said: *I think we can have more solutions (than engineers) for a certain problem*. At his point, Ronald brings back the subject when he mentions that *one phase of the design is pretty like this [...] of having many ideas*. What statements suggest, more specifically, is that the design differs from engineering

because the designer is able to offer for the same problem a number of new solutions that the engineer is not able to reach.

In this vision, the designer is a problem solver. The conjunction of these two lines indicates that the design should relate to the production of new ideas for certain issues, and with the necessary implementation of these ideas. Frascara says that "project is to predict, to plan things that do not yet exist" (2000:35). In the same perspective, Harold Nelson states, through its so valued definition, that "design is the ability to imagine, that-which-does-not-yet-exist, to make it concrete or concretized form as a new, purposeful addition to the real world" (2002).

As we have seen, there is a common misconception that considers design as something connected to an ability to imagine the "not yet" and make it concrete, and it involves a "human power to conceive, plan and make products." However, to associate it to the production of new ideas is not sufficient to distinguish design of other areas that also have this goal in their attributions. The value of the previous quotes is huge and, as we have seen, is present in the speech of our informers. But in this context, it demands continuity.

As the designer considers the mechanisms devised by him as important to the profession, he/she becomes and deserves the attributions of a designer and is recognized as a professional capable of practice design. He/she now holds what he/she believes that is the design knowledge. If the means to get the knowledge for professional recognition are expressed in these legitimation mechanisms, they say little about *which* skills are these. To examine this knowledge and how designers deal with it is something essential because it corresponds to what the designer uses in the course of their projects, which points to key aspects of the profession. This following dialogue treats about this topic:

- The guy needs to know how to imagine what will be done. The question is not: I've already done three cars, but: I imagine that this can be done in that way... So I need to go after such and such suppliers who work with these materials, and then we can make the thing work. It is more to imagine than to know ... The question is that you have to know where we have to go to look for knowledge, you need to have the feeling of what you'll need for the project. Of what I need to know to design a car, a coffee machine ... Because every project is different (Carlos).

This statement points to some *general* knowledge in design. It is not possible to predict this knowledge because we cannot anticipate the themes of all possible projects. Given this range of topics that are part of everyday design, even though we could anticipate or want to sort them, yet the domain of knowledge would be willing unfeasible. This situation is illustrated by Frascara (1995:52) when he says that "no school could attempt to deal with all of these requirements in every area of professional practice... (they) are areas that demand different backgrounds, training, and aptitudes and both require specialized instructors and motivated students for each [...]"

Friedman (2001, p. 40) emphasizes that "the nature of design as an integrative discipline places it at the intersection of several large fields". For the author, the space taken by the design is constituted by six general areas: "natural sciences, humanities and liberal arts, social and behavioral sciences, professions and human services, creative and applied arts, and technology and engineering".

The perception that there is no specific design knowledge makes fundamental the mechanisms

which provide skills to the designer. That is, the designer can only show that he/she is in possession of some design knowledge through the expression and application of these mechanisms. For the designer, the question is not to show that "he/she knows how to calculate something", as the informers mentioned that happen in engineering. It is worth to ensure that the route through which he/she passed through fulfilled the mechanisms that qualify him/her as a designer. It is in the particularity of these mechanisms that the profession is distinguished from close ones.

Some Final Considerations

We have seen that even though the necessary arrangements to become a designer are ambiguous and considered informal, the designer uses mechanisms that can be described in certain way. This distinction usually goes through (a) formal learning in college-level courses and by (b) the experience of the designer on project markets, what culminates necessarily in his/her (c) portfolio. This pattern identified among the mechanisms applied by designers represents something on which designers usually focus. Its importance lies in allowing the designer to build certain key professional references. If the designer does not identify these mechanisms, the search for prestige, stabilization and professional distinction would happen occasionally. As designer use these mechanisms, he/she becomes recognized as a designer able to practice design.

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The development of appropriate technologies for meliponiculture in Paraíba's Agreste and Alagoas' semiarid lands, in Northeast Brazil



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The paper describes an Industrial Design (ID) intervention in sustainable development and family agriculture, focusing on meliponiculture i.e. beekeeping with stingless bees. The potential of ID in the socioeconomic context of family agriculture have yet to be explored. Industrial design can cause a positive impact on low income communities by developing projects which focus on appropriate technologies. Despite recent recognition of the importance of the contribution of subsistence agriculture in Brazil, relatively little has been done to improve working and living conditions of these populations. The partial results have been satisfactory with the construction of hive prototypes. The initial tests have shown that the agricultural waste employed is of good quality and feasible for the construction of alternative hives. However, there is still a need to deepen the tests in the field.

1. Introduction

Often called the “Sleeping Giant”, Brazil appears to have woken up. During the last eight years in particular it has had unprecedented economic growth, lifting millions of people out of poverty. The country is the fifth in the world in terms of territory and is one of the eight most economically important nations in the world. Despite all this progress, Brazil’s wealth is still unevenly distributed, leaving a considerable part of its population without access to basic income.

Of its five regions (North, Northeast, Centre-West, Southeast and South), the Northeast is the poorest. The region occupies an area of 1.554.257 Km², with a population of approximately fifty three million living in nine states (Almanaque Abril, 2010)[1]. Geographically, 53% of this region is located in semiarid lands. The “Semiarid”, also called *Sertão*, is a large geographic zone subjected to sporadic drought. Economically, it is characterized by extensive cattle and small ruminant breeding. Its main agricultural activities are: cotton, and *carnaúba* (palm oil) in the very dry areas: manioc, corn and beans in the humid areas; sugar cane in some high altitude *brejos* (marshes). In the *agreste*, “another geographic area between the coast and the sertão is a transition between the forests and the caatingas, with specimens of both systems”. [2]

Family Agriculture in Brazil, an activity employing over 12 million people, is a form of rural production which employs predominantly family members who cultivate small plots of land (6-17 hectares). The North-eastern Region of the country has half of the total of family farms in Brazil (2.187.295) and 35% of the total area of the country dedicated to this activity (28,3 million hectares). These farms produce a variety of crops such as rice, beans, manioc and corn. They are also involved in cattle breeding and the production of milk and eggs (Banco do Nordeste, 2010)[3]. Supporting the development of this rural activity helps to maintain these families in the rural areas, thus deterring migration to urban centers which has highly negative consequences. Once they arrive in large cities, these migrants live in very rough conditions on the periphery of urban areas not planned to absorb this migratory influx.

1.1 The social role of industrial design in developing countries

The social role of industrial design in developing countries has been the subject of relatively little research. In relation to this study, despite the potential of design in this context, very few industrial design projects aimed at improving small rural production have been realized. A review of the literature related to design in the rural context reveals an absence of studies related to the role of industrial design in family agriculture. Other issues, such as the role of design in income redistribution and the fulfillment of the needs of the majority of the population, have seldom been addressed in the recent design literature, with the exception of a few studies on handicrafts.

In Brazil, the design of socially useful products rarely attracts interest from the design community. This appears to be true both in the literature and in practical projects, and in other countries of Latin America too. The private sector is very rarely involved in any intervention related to the needs of the poor in less developed nations. The rare existing interventions are undertaken by a few governmental organizations, international donor agencies, and by non-governmental organizations - NGOs working in the area of development. However, these interventions are small in relation to the overwhelming needs of the population. In reality most of the material needs of the poor are fulfilled by

small producers who design and manufacture the products, or by the poor themselves (Guimarães; Braga, 2003)[4].

There is great potential in the Northeastern Region for the use of design as a tool for rural development. For example, there is room for improving tools and equipment to facilitate agricultural and post-harvest activity. For design to have a substantial impact on these communities industrial designers have to get involved in projects which use appropriate technologies, termed social technologies by some organizations in Brazil.

In the case of Paraíba and Alagoas, the two states where our research is being conducted, there are interesting possibilities for intervention. As there are already a number of economic activities occurring in small rural production units, including the manufacture of simple products, it is clear that cooperation between designers and the small producers can be beneficial.

There is room to use two specialties of design in this context: Product design; Graphic design.

In product design there is a range of possibilities in relation to the project described in this study. We consider to be a priority the development of agricultural machinery and equipment (capital goods) related to beekeeping, including the commercialization of honey and hand crafts using by-products of beekeeping. Today, a number of rural activities are conducted precariously in small farms and require considerable manpower. Moreover, in products used in such an environment, there is an absence of considerations such as ergonomics and the man-machine interface.

Graphic design can deliver some immediate results, particularly in projects related to food packaging for products made by local communities as they attempt to reach more sophisticated markets. In this case the quality and presentation requirements are greater. The interventions may require the development of branding for small producers, cooperatives and producer associations. Another benefit of using design is the production of teaching materials for technical training in local schools.

2. The importance of appropriate technologies for meliponiculture

The ongoing project, supported by the Brazilian National Research Council (CNPq), is conducted in Paraíba and Alagoas States, in Northeast Brazil and involves the redesign of artificial beehives with the objective of producing a more sustainable product. Although rare in the design sphere, the intervention is challenging as it requires dialogue between different disciplines. The project team is interdisciplinary, as there is a need for particular expertise. The team comprises an industrial designer, an agricultural engineer, a zoo technician, a geographer and an economist. Other professionals are also required but to obtain help from them has been problematic. Thus, industrial designers may get involved in activities for which they are not trained, e.g. tool making for industrial production. Industrial design can contribute to the use of appropriate technologies, which empower local small producers and create needed employment. The importance of environmental education is considered crucial to the preservation of native bees, as the involvement of local communities is the key to success.

The focus of the project is on meliponiculture, the breeding of stingless bees to obtain honey and other products. In this study this activity is treated in a systemic form, considering all the stages in honey production. The project takes into consideration the imminent danger of extinction of a number of stingless bee species and, consequently, of a number of crops.

Known as stingless bees, native or indian bees (*meliponia*), they have an atrophied sting and are spread throughout the tropical and subtropical regions of the South and Central Americas, Malaysia, India, Indonesia, Africa and Australia (WILLE, 1979)[5]. Their hives, which are retrieved by men called *meleiros*, who cut them out using a motorized saw (honey hunters), are constructed in the hollows of trees and accessed by the bees through a small entrance (Figures 01 and 02).



Figures 01 and 02 - Their hives, which are captured by men called *meleiros* who cut them using a motorized saw (honey hunters), are constructed in the hollow of trees and accessed by the bees through a small entrance. Photo Luiz Eduardo Cid Guimarães

Their honey has been used in traditional medicine by indigenous communities for centuries. The breeding of stingless bees in *cabaças* (calabash, dry gourd), skeps and rustic boxes, is a traditional activity in most Brazilian regions. According to some authors, there are approximately 400 species of stingless bees (Velthuis, 1997)[6]. Different from the African bees (*Apis mellifera*), which have stings, stingless bees are benign, adapt well to artificial hives and are easy to cultivate, producing a tasty honey that fetches high prices in the market. For example, honey from “uruçu” bees can fetch over US\$60,00 per litre. Stingless bees are spread throughout Brazil, although their dispersion is regional. However, most rural producers are uninformed about this great diversity.

Meliponiculture was originally developed by Brazilian indians who revealed great knowledge about the anatomy and species’ behavior, maintaining them close to the tribes to extract honey, pollen and larvae for food. They also used the wax and resin to make utensils and arrows. Parts of the bees and hives were used for medicinal purposes.

However, damage to the environment by men, such as pollution, deforestation, fire, indiscriminate use of pesticides and climate change, has resulted in unprecedented environmental imbalance. All these factors have impacted on bees endangering not only the production of food but also the preservation of forests and their biodiversity.

Stingless bees are important pollinators of native plants. Preserving these bees contributes to the survival of a diverse flora. Many farmers already use stingless bees in the pollination of their crops such as mangoes and other fruits. Besides the honey, they provide pollen, wax and propolis. The hives can be sold for a good price in the market. The honey has basic nutrients such as sugar, proteins, vitamins and fat. It also has high antibacterial properties, used traditionally in different parts of Brazil, against pulmonary diseases, colds, fatigue, and eye infections.

Despite the economic importance of beekeeping, many traditional producers use outdated methods and keep these bees in inadequate conditions extracting their honey with unhygienic methods, thereby devaluing the product due to changes in its organoleptic (sensory properties of a product, involving taste, colour, odour and feel) properties.



Figures 03 and 04: Traditional producers that use outdated methods and keep these bees in inadequate conditions extracting their honey with unhygienic methods. Photo José Wilio Albuquerque.

3. The design problem

In 2009, the – *Grupo de Design e Desenvolvimento Sustentável* - GDDS (Design and Sustainable Development Group), based at the Industrial Design Academic Unit/Federal University of Campina Grande - UFCG was contacted by the Agricultural Engineering Academic Unit, also from UFCG, and asked to develop a new design for a beehive, which incorporated an alternative material to wood in their construction. It is common knowledge that Paraíba and Alagoas are in process of desertification due to, amongst other causes, the indiscriminate use of wood. As beekeeping requires a number of hives to be economically feasible, the consumption of wood for hive construction is considerable. Thus, the use of alternative materials is desirable. Agricultural waste has that potential. In our case, three types are accessible: sugar cane bagasse, banana tree fibers and sisal. Some industrial waste material such as PET bottles has the potential to cover the hives. However, all these materials have to be acceptable to the bees.

The new design of hives requires knowledge of hive architecture which has very specific configuration. Stingless bees behave differently from sting bees. The layout of their hives is distinct from other bees (Figure 05). These bees require an insulated

environment where the temperature has to be maintained at about 36°C. The hives are divided into three main parts: the nest, the over nest and the melgueira, i.e. space for pots made from wax, to store honey and pollen. Care has to be taken to protect the hives against humidity and traditional predators, such as ants and small lizards. There is also the need to provide water for the colony. Another aspect to be considered is the manufacture of the hives. Preferably they should be made by the bee keepers or by people from the rural community. This poses a problem related to the level of technology and the amount of financial resources available in these communities. Thus, there is a need for the production to be simple and accessible.

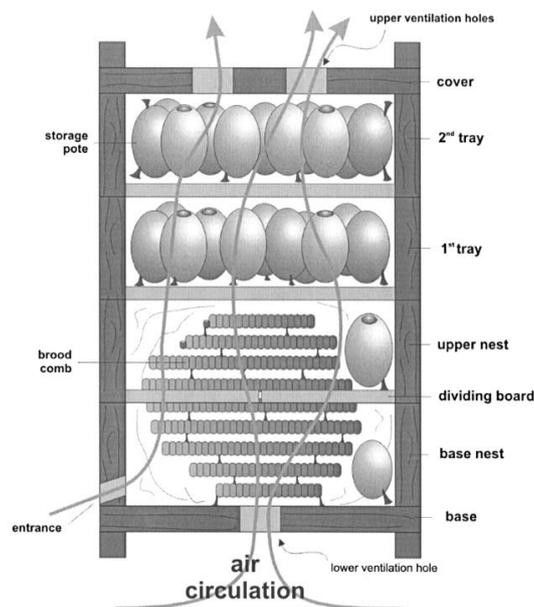


Figure 05: The layout of their hives is distinct in nature from other bees. [7]

It was decided to use sugar cane bagasse for the initial trial, an abundant material in the region. The Northeast has been a traditional sugar cane producer for centuries. In Paraíba, there is a large production of sugar, spirits and *rapadura*, a sweet made from sugar cane. The bagasse was brought in from Areia, a city an hour's drive from Campina Grande, where the UFCG is located. The bagasse was dried and milled into powder. It was then mixed with PVA glue and initially hand pressed using a book binding press with improvised moulds. Thus a simple press and its mould were designed by one of the industrial design students. Tests revealed that more pressure should be applied to get a good finish to the hive's parts. A larger 10 ton hydraulic press was then purchased. Basically, powdered bagasse is mixed with polyvinyl acetate – PVA glue, introduced into the mould and pressed. After a period of time the part is extracted from the mould and dried for 24 hours. After this period, the part will be pressed again to extract the humidity left in its interior. The results have been satisfactory, producing a strong and stable part (Figure 08 and 09). One of the problems related to the use of natural fibres is that they absorb water. As the hives will be exposed to the weather most of the time, we decided to coat them. We tested a varnish made from bee propolis and alcohol and also

used wax from African bees (*Apis mellifera*). The result of waxing the part was quite good, covering the part homogeneously. A complete hive is now being tested in the field.

One of the bottlenecks in the hives manufacturing process is the mould, made from steel; expensive and difficult to work material. These small producers are isolated and have only simple technology available to them. Thus, a reinforced concrete mould was designed and at present is being tested (Figure 07). If it works this mould will lower costs, facilitate the access to the technology and increase the production of hives.



Figure 06, 07, 08 and 09: Photo José Wilio Albuquerque.

Parallel to the development of the hives, a range of crafts products are being developed and local people will be trained to produce them. Beekeeping is conducted by the poor, employing mainly family members. The idea is to stimulate the community to establish cooperatives and associations and work as groups. At the moment, tests using industrialized moulds are being conducted with products made from bees-wax and honey (Figure 10 and 11). Due to the fact that stingless bees produce comparatively small quantities of wax, we have used wax from African bees which is considered waste and is seldom reutilized by beekeepers. The material is dirty and has to be heated and cleaned before use. The crafts groups will aim at the women in the community, who have little employment alternative. Packaging, using waste materials such as PET bottles, is also being studied (Figure 12 and 13).



Figures 10 and 11 tests using industrialized moulds are being conducted with products made from bee wax and honey. Photo Luiz Eduardo Cid Guimarães.



Figures 12 and 13 Packaging, using waste materials such as PET bottles, is also being studied: Photos: Luiz Eduardo Cid Guimarães and José Wilio Albuquerque.

At a later stage, the tested artificial hives will be sent to 15 honey producers who live in the “agreste” and semiarid lands, where the direct effects of the hot and humid tropical climate will be evaluated.

4. Partial conclusions

Although we still have twelve months to finish this project, the preliminary results give us reason to be optimistic about achieving our aims. We have made a strong hive model, initially based on the existing design, to to compare it with the new material’s properties and to test the functional aspects of the product.

The sugar cane bagasse proved to be an easy material to manipulate. It is quite soft for milling it into powder, using a very basic and accessible forage machine. The fine powder also facilitates the mixture with the PVA glue. The molding system uses basic pressing technology and the tools, both in steel and reinforced concrete, are relatively easy to make. In relation to the hive’s impermeability there is a need to conduct more

tests to verify if it will stand the specifications. Initial tests with crafts products, using existing designs, have proved successful and sales trials will be conducted.

In this milieu, industrial design can have a significant impact both on the design of capital and consumer goods, not only in the functional, engineering sense, but particularly on the user interface with the product. In relation to capital goods, it can address the physical and psychological characteristics of workers, for example by considering anthropometric data of the working population. This is important when beekeepers are manipulating the hives. Some small farms might have from fifty to a hundred hives. These hives have to be open to extract the honey, cleaned and hanged in the roofs of stocked on shelves.

Good design can facilitate the operation of production equipment by positioning the controls in an appropriate location, specify efficient use of materials, make the product reliable, improve its performance, make it easy to manufacture, repair and maintain, using locally available raw materials and equipment. It can have an impact on the design of capital goods which are appropriate to the needs of small farmers.

In the development of capital equipment, engineering design skills should be utilised but, industrial design skills are crucial to the improvement of the overall quality of the product. Because much of the production equipment in micro-production units is adapted and constructed in-house, improvements through design can easily be incorporated. On the consumer goods side, design can also play an important role in improving a number of features, including safety and making the product user-friendly. Immediate benefits can accrue from design. Through design it is possible to reduce costs in manufacturing by reducing the amount of raw materials used and by adapting the production infrastructure to the needs of a small operation.

A crucial part of this project is stimulating the use of design in self-help schemes. Self-help schemes run by the poor exist in most developing countries. Some of them are operated by organizations such as churches and NGOs, others are spontaneous schemes which emerge from cooperation between neighbors. For example, in Brazil, it is common practice to have a 'mutirão'. This is help offered by peasant neighbors who get together on a specific day to work for the benefit of one person who, on this day, gives a party at his/her expense. The work performed might be harvesting, planting or even the construction of a house. This practice has spilled over to poor communities in urban areas. Introducing design training, hive and crafts construction 'mutirões' can have immediate effects on the lives of people.

There are other benefits which can accrue from beekeeping and the preservation of native bees, e.g. environmental education, ecotourism and landscape architecture (Maeterlinck, 1987)[8]. Besides being a source of food and medicine, the honey produced by stingless bees represents in some regions an important source of income. These bees are benign and are easy to manage. This can be used for teaching adults and as an instrument for environmental education for children. Another commercial use of bees is using different designs of hives to decorate gardens and at the same time helps pollinate the plants. This can be done by using hives made of agricultural waste, clay or stone.

However, the most important aspect is environmental education. Knowledge of biology and the importance of bees to the environment. This can be enhanced through the planning and siting of meliponaries in schools, parks and forest reservations.

Tourism is another activity which can benefit from beekeeping. Tourists like to know about flora and fauna and appreciate products from nature. Showing people how these bees behave and tasting their honey will enhance tourism and consequently preserve the species. Eliminating manufacturing operations, the design can help to improve overall product quality and thus enhance the possibility of acceptance by consumers and success in the market.

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Acknowledgments

We are indebted to Dr. Stanley Moody for his excellent suggestions to improve the paper. This work is supported by the Conselho Nacional de Desenvolvimento Científico e Tecnológico – CNPq (Brazilian National Research Council). The project is entitled *Desenvolvimento de tecnologias apropriadas para a meliponicultura no semiárido da Paraíba e Alagoas*. It has been coordinated by the Grupo de Desenho Industrial e Desenvolvimento Sustentável – GDDS (Design and Sustainable Development Group) at the Industrial Design Academic Unit, Centre of Science and Technology of the Federal University of Campina Grande.

Nomadism

Design Thinking as an Enabler of Strategic Innovations – a discussion of the interrelatedness of the two concepts

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Abstract

This paper builds linkages between two concepts that have emerged from two different fields: strategic innovation which originates from the field of strategy, and design thinking which comes from the field of design. Strategic innovation is innovation on strategy, i.e. innovation on the way the entire organization operates. Strategic innovation is highly potent source for sustainable competitive advantage because key activities and their linkages are redesigned and new unique combinations are formed. That is why strategic innovation has drawn significant interest among business practitioners as well as strategy scholars. Design thinking can be described as an approach to innovation that emphasizes fast and early prototyping, an iterative approach, and an experimental and emergent process. Although having a long history in the design discourse, the concept of design thinking is a more recent one to the management discourse. Design thinking is currently heavily discussed among managers, and linked to e.g. organization design, and strategy process. However, a link between design thinking and strategic innovation has not been acknowledged in the existing discourse and literature. Based on a literature review in both strategic innovation and design thinking literature we show how design thinking offers an interesting framework for both finding the original strategic innovation idea and realizing it through the so called execution ideas. We suggest that one way to meet the requirements strategic innovation poses on the innovation process is the design thinking approach.

Keywords: design thinking, strategic innovation, opportunity, execution ideas, experimenting, prototyping

Introduction

In the highly competitive global business environment, companies are looking for new sources of competitive advantage. During the last 15 years, strategic innovation, i.e. innovation in the manner the entire organization operates, has drawn considerable attention among practitioners and scholars (see e.g. review by Schlegelmilch et al 2003). Innovations that affect the way an entire organization operates have variously

been called e.g. as Value Innovation (Kim&Mauborgne 1997), as Blue Ocean Strategy (Kim&Mauborgne 2005a), Driving the Markets approach (Jaworski et al 2000), Game-changing strategy or Business Model Innovation (Markides 2008), as well as Value System Reconfiguration or Prime Movership (Normann 2001). There are more than a hundred examples of strategic innovations in the literature, most well-known examples being perhaps IKEA, Southwest airlines, Casella Wines, Enterprise Rent a car, Dell computers.

The concept of design thinking has lately become popular in the management discourse when discussing alternative approaches to innovation and value creation at large (e.g. Brown 2008; Martin 2010; Lockwood 2010). Although there is no generally accepted definition, nor theory, of design thinking (Johansson & Woodilla 2010), some characterizations recur across literature, e.g. iterative process, embodied nature, early and fast prototyping, as well as an explorative and experimental approach. Some authors have suggested that design thinking is especially suitable for innovations that go beyond incremental improvements. For example, according to Lockwood (2010 DMI 21, 3) design thinking typically strives for more-radical improvements. Also Brown (2008) describes how design thinking entails an urge to proceed in entirely new directions. Our interest in this paper lays with a specific type of innovation, which aims to produce dramatic value improvements – strategic innovation. Observing the requirements strategic innovation poses on the innovation process and looking at the characteristics of design thinking raises the question of a possible fit between an end and means. The aim of this paper is to illustrate this interrelatedness.

In this paper, we initiate discussion into exploring the significance of design thinking in the process of identifying and creating strategic innovations and the inherent interrelatedness of these two concepts.

This paper is a theoretical comparison of two concepts – strategic innovation and design thinking - and is based on a review of existing literature on these concepts. In the following chapter we discuss the concept of strategic innovation and review some of the central literature on the subject. Following this, we discuss design thinking and how it is characterized in the current management discourse. We end the paper by comparing the concepts of strategic innovation and design thinking and illustrating linkages between these two concepts.

What is Strategic innovation and why is it such a potent source for competitive advantage?

Strategic innovation is innovation on strategy, i.e. how company operates as a whole. There are various definitions of strategic innovation in the literature. In this paper, in the lines of Schelegelmilch et al. (2003), we define strategic innovation as proactive, fundamental reconceptualization of the business model and the reshaping of existing markets (by breaking the rules and changing the nature of competition) to achieve dramatic value improvements for customers and high growth for companies. Thus, strategic innovation is usually a (re)constructive initiative, in which the basic assumptions (such as e.g. what value, to whom, how), bottlenecks and the industry boundaries are redefined. From this perspective strategic innovation always contains industry-changing potential. Also, strategic innovation is on the one hand typically about creating a new "pie" – possibly between two or more existing industries like

Apple iPod or Cirque du Soleil – or expanding of existing “pie” (Porter 2008: expanding the profit pool or Brandenburger & Nalebuff 1995: added value). This means that it is not merely about fighting for existing market shares or optimizing the firm’s costs.

Why, then, is strategic innovation such a potent source for competitive advantage? The answer lies in the fundamental reorganization of what companies do. Michael Porter, one of the most well known strategy gurus in the world, argued already 1985 how “competitive advantage grows fundamentally out of the value a firm is able to create for its buyers. It may take the form of prices lower than competitors’ for equivalent benefits or the provision of unique benefits that more than offset a premium price. ..Thus, there are two basic types of competitive advantage: cost leadership and differentiation.” Discrete activities and their linkages form Value Chains, activity systems. Therefore, competitive advantage rests on activities, their linkages and combinations. Doing the same or being more effective of doing the same is not a strategy (Porter 1996). In other words, companies might have a strategy if they are doing different things than their competitors, or if they are doing the same things differently, given that customers learn to appreciate that (Tuulenmäki 2010).

According to Porter, good strategy requires positioning the business into the industry structure according to Five Industry Forces (Porter 1980) as well as clear trade-offs within activity system according to cost leadership or differentiation strategy so that activities fit together and reinforce each other (Porter 1996). Recently, especially Kim&Mauborgne (2005a,b) have pointed out how organizations like Cirque du Soleil, Dubai, and Casella Wines have done both cost leadership and differentiation at the same time. Thus, if one is not able to benefit from the existing industry structure and positioning there, one must reconstruct the industry structure (Kim & Mauborgne 2009), conduct strategic innovation and make the existing competition and structure irrelevant. Even Porter (1991) has admitted that “competitive advantage is attained within some scope, and the choice of scope is a central one in strategy. Scope choices also influence industry structure.” In modern highly dynamic world where more and more assets are digital and easy to combine together, where industries are converging and industry boundaries are blurring, doing such strategic moves is easier than ever. Industries are no longer as stable as they were in the 1970s and 1980s.

Strategic innovation is highly potent source for *sustainable* competitive advantage because key activities and their linkages are redesigned and new unique combinations are formed. Such non-linear moves are difficult to anticipate and imitate by competitors from various reasons. First, even internal stakeholders are not necessarily aware of how activity system as a whole works together, or how organization ended up to this strategic innovation. One might be able to copy some most visible elements of the activity system but not the entire system. Second, since many activities and their linkages are decoded, strategic innovation usually contains lots of idiosyncratic elements, like culture, historical and path-dependent factors. Involvement of idiosyncratic and path-dependent elements might affect the process so that it might be impossible to do the same strategic innovation at the same way twice. Third, as already mentioned above, strategy and strategic innovation requires either-or type of choices in activity system. Thus, one cannot copy the new system without doing the same kind of either-or choices. That usually destroys at least some of the existing competencies,

positions, resources, and internal power-structures.

Characteristics of Design Thinking

Design thinking is currently a popular topic among management discourse. However, despite of the recent popularity, design thinking is not an entirely new term or concept. The topic of design thinking is currently present in two discourses; one in the field of design and other in the field of management (Johansson & Woodilla 2010). These two discourses vary in terms of their history and interest area. Whereas the design discourse has its roots around the 1960's, the management discourse is a more recent phenomenon, starting around the beginning of the 2000's (ibid, McCullagh 2010). In terms of the interest area, the design discourse has evolved through its interest in the way designers work, but the managerial discourse has been interested in design thinking as a method for innovation and value creation (Johansson & Woodilla 2010). In this paper, we discuss the managerial discourse on design thinking, and apply the view of design thinking that is based on innovation and value creation.

As for design, there is no one unified, generally accepted definition for design thinking either. Definitions and views on the concept vary. It has been described as a source for innovation and the next competitive advantage (Martin 2009), and as an approach to problem solving that is interpretive, emergent, and explicitly embodied (Rylander 2009). It can also be viewed as the expansion of design method and culture to other fields beyond traditional design (Gloppen 2009), e.g. to solve problems related to organization, strategy, mission, and so on (Cooper et al. 2009). It has also been recommended to “approach managerial problems as designers approach design problems” (Dunne & Martin 2006). Brown (2008) describes design thinking as “a discipline that uses the designer’s sensibility and methods to match people’s needs with what is technologically feasible and what a viable business strategy can convert into customer value and market opportunity”. In his description Lockwood (2010a) goes somewhat more into detail in describing the concept as “a human-centered innovation process that emphasizes observation, collaboration, fast learning, visualization and quick prototyping, and concurrent business analysis, which hopefully influences strategy.”

The descriptions in the management discourse all seem to consider design thinking as an approach, set of methods, or a mindset that derives from the world of design professions. Design thinking is typically described as being, for example, iterative (e.g. Dunne & Martin 2006; Brown 2008), practical and embodied (e.g. Sato et al. 2010; Rylander 2009), involving early and fast prototyping (e.g. Brown 2008, Boland & Collopy 2004), explorative and experimental (e.g. Fraser 2009, Lockwood 2010b), and emergent as a process (e.g. Cooper et al. 2009; Rylander 2009). In relation to the innovation process, design thinking is related to a front-end innovation process and typically strives for more-radical improvements (Lockwood 2010a).

In the following section we will consider these characteristics of design thinking from the perspective of identifying opportunities for strategic innovations as well as creating strategic innovation.

The Role of Design Thinking in Creating Strategic Innovations

So far, we have argued how strategy rests on discrete activities and their unique combinations. Strategic innovation is innovation to that very system of activities. How, then, to find and realize such innovations? This is where design thinking comes along. To build the linkages between strategic innovation and design thinking we need to differentiate between the creativity needed in opportunity recognition and creativity needed in benefiting from the opportunity. This brings us to short analysis on different development modes.

We could argue that one needs at least an opportunity and an execution in order to benefit from strategic innovation. **Business opportunity** can be e.g. selling low cost furniture. It is easy to understand that in addition to the opportunity idea, there is a need for many **execution ideas**. Execution ideas operationalize the opportunity into business. Consider IKEA, for instance. IKEA provides a particular shopping route with readily set rooms to offer great variety of ideas for their customers and to make it easier for customers to compare the ideas to their own home settings. IKEA uses flat packaging to save space and transportation costs. In the IKEA stores, customers collect the items in the in-store warehouse, customers carry them home with their own cars, as well as assemble the furniture in their ready-paid assembly lines, i.e. living rooms. All products are designed for easy transportation and assembly etc. All those execution ideas and many more are not direct derivatives from the original opportunity idea. Rather, they are very innovative execution ideas (Tuulenmäki & Välikangas 2011). The opportunity for a strategic innovation can be created either by ‘discovery logic’, in which the opportunity exists independently of the innovator, or by ‘creation logic’ in which the iterative learning process itself creates the chance (Alvarez & Barney 2007). In reality, both are needed. Especially in the latter approach, execution ideas play crucial role already in the very recognition of an opportunity.

One can realize new ideas with at least four different development modes. The approaches can be positioned along a continuum, according to how certain of an environment they are suited for. **Flash development** begins with a defined, desired outcome and focuses all energies on reaching that outcome as soon as possible (Vandenbosch & Clift 2002). Thus, both the outcome and the means to get that are known in the very beginning of the process and the driver is speed.

Among the most well-known approaches for managing new initiatives, the one commonly used in product development, is the **Stage-Gate** model or “waterfall” type of models (Cooper et al 2002). The driver of the model is to “get it right” with the first attempt by providing formalized, sequential steps and formal evaluation “gates” at the critical decision points. All the necessary creativity and a basic assessment of customer needs is assumed to exist at the outset of the process. So the critical task is to collect the relevant information, identify the key issues, and develop a well-thought-out business concept and a process plan. In order to avoid any unnecessary rework and to speed time to market, the stage-gate process seeks to freeze the product or service concept as early as possible.

In “flexible” versions of this model (Iansiti 1995, MacCormack et al 2001), some details will be worked out during the later phases. In the outset, it is known that the necessary information for the process is not yet available but it will be later in the process. In

Stage-Gate models, previous phase must be closed in order to start the next phase but in **flexible models** the following phases must be started in order to get the required information to close the early phases. Thus, to keep options open and in waiting for the information from preceding phases, several phases must be carried out concurrently. The driver, then, is to keep options open as long as possible.

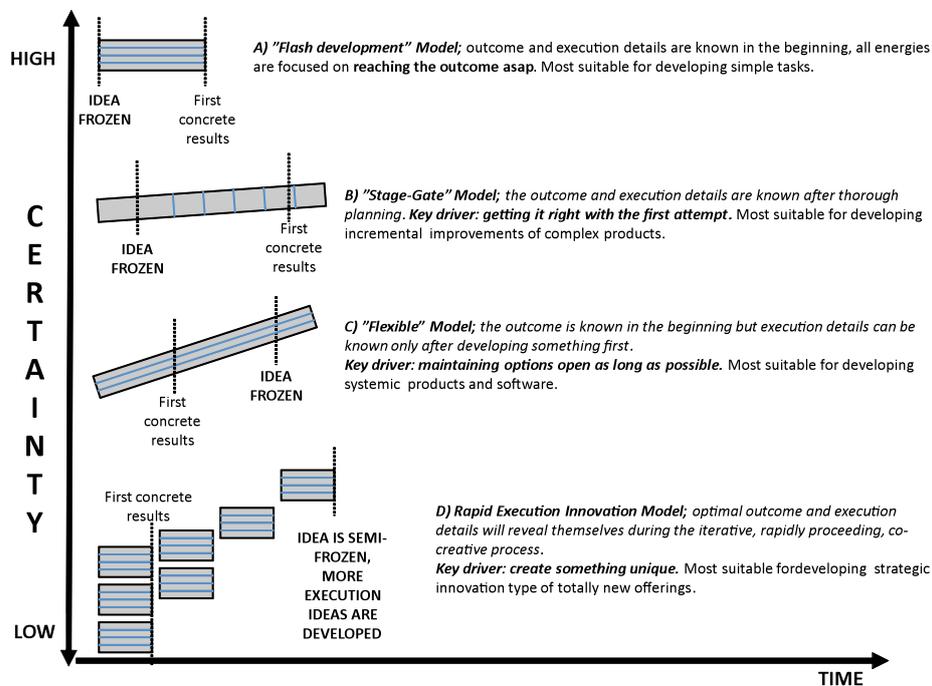


Figure 1 - Different kinds of development modes (modified from Tuulenmäki & Välikangas 2011).

In the most uncertain environments, where information about the outcome or means to do it is not known, even the most flexible models are not enough. **Rapid Execution Innovation** (Tuulenmäki & Välikangas 2011) model “seeks to maximize the opportunity for rapid experimentation, rather than to reach a particular preconceived outcome or to pick winners from a portfolio of projects. Execution innovation begins with a series of small experiments, after which the results are assessed and the experimentation continued (ibid).” Here, in each of the small experiments, the Flash model might be suitable approach. In the very uncertain environment one has to create certainty by reaching something concrete as fast as possible, getting feedback, and learning from that. “At some point the purpose of the experimentation is no longer just discovery, but the creation of opportunity through continuous innovation. It’s a process of opening the door to fresh insight, learning, taking action, thinking, iterating and reiterating. Execution innovation invites and builds upon many small failures and errors that are treated as important learning points. They provide the next target for execution ideas – and are addressed in the next wave of iteration. Thus, execution innovation is about thinking by doing and about acting and thinking differently (ibid).” Thus, the driver in Rapid Execution Innovation process is to create something unique. It is especially suitable for realizing complex innovations like strategic innovations, where many activities, people, linkages must fit and work together. Such innovations are impossible to just plan in the boardroom; there are simply too many variables and things

that cannot be seen in the outset, things that emerge only after some action affects other actions.

If we now consider the characteristics of design thinking described in the previous chapter, we can see the similarities between the rapid execution innovation model suggested for strategic innovations and the design thinking approach. Through early and fast prototyping, explorative and experimental mindset, and the iterative process, design thinking offers a useful framework for both finding the original strategic innovation idea and creating it through execution ideas (although these two activities are interrelated). Where as in business, especially at strategic level, the goal has traditionally been to avoid mistakes at all costs (Zaccai in Lockwood 2010b), in design thinking, the guiding idea is to fail fast (Brown 2009) and thereby accelerate learning (Lockwood 2010c). This approach echoes the approach of the rapid execution innovation model, where the process begins with a series of small experiments that build upon small failures and errors. For strategic innovation there is a need to produce a series of ideas to experiment early in the process. Similarly, a key characteristic of design thinking is the importance to explore several possible solutions early in the process, not to perfect a prototype (Fraser 2007). Iterations and constant change are necessary and good throughout the process, and it keeps the cost of failure low (ibid). In design thinking prototypes are viewed as a tool for thinking (Boland & Collopy 2004), and they are designed to answer questions (Schrage 2006). Same applies when aiming for strategic innovation; opportunities are identified through action, in “thinking by doing”, and receiving early feedback to learn and improve the original idea.

Conclusions and Discussion

This paper set out to illustrate the potential of design thinking as an approach to identifying opportunities for strategic innovation as well as creating them. The characteristics of design thinking as an abductive, explorative & experimental, iterative, and prototype-driven approach form a fit with the special needs of generating strategic innovations. Table 1 below summarizes the key aspects.

Characteristics of Design Thinking	Requirements of Strategic Innovation
<i>Experimental & explorative:</i> exploring possibilities and risking failure	Builds upon many small failures and errors, which are seen as important learning points.
<i>Prototype-driven:</i> prototype as a physical tool for thinking	Maximizing the opportunity for rapid experimentation, beginning with a series of small experiments
<i>Iterative:</i> looping back to refine ideas	A process of learning, taking action, thinking, iterating and reiterating

Table 1 - Means to an end: characteristics of design thinking and requirements of strategic innovation

One of the central challenges in creating strategic innovations is the need for early experimentation. Strategic innovations cannot be created purely through careful planning; the information to create the innovation does not readily exist, but has to be created through action. This sets special requirements to the innovation process. Instead of an analytical approach, an abductive one is required to generate new ideas. The

nature of the process has to be experimental and explorative, one that enables searching for radically new solutions and failing early. In this type of a process, the role of prototypes and experiments is to drive thinking, to assist learning. Therefore, room for iteration is also required.

User-centricity is regularly emphasized in the discussion on design thinking, and it is considered a central characteristic to the concept. But how does a user-centered approach match with the pursuit of strategic innovations? Verganti (2009) has strongly argued how radical innovation does not come from users, who are generally constrained by the existing solutions. Also Norman (2010) has argued that human-centered design is useful for incremental changes, but not for the large, radical transformations. However, in the discussion around user innovations, lead users in “advanced analog fields” are considered a source for radical (Hippel 2006). Therefore, the role of user-centered design in creating strategic innovations is controversial, and questions related to that remain for future research; what is the appropriate level of applying user-centered design methods and when in the innovation process should they be applied, when aiming for a strategic innovation?

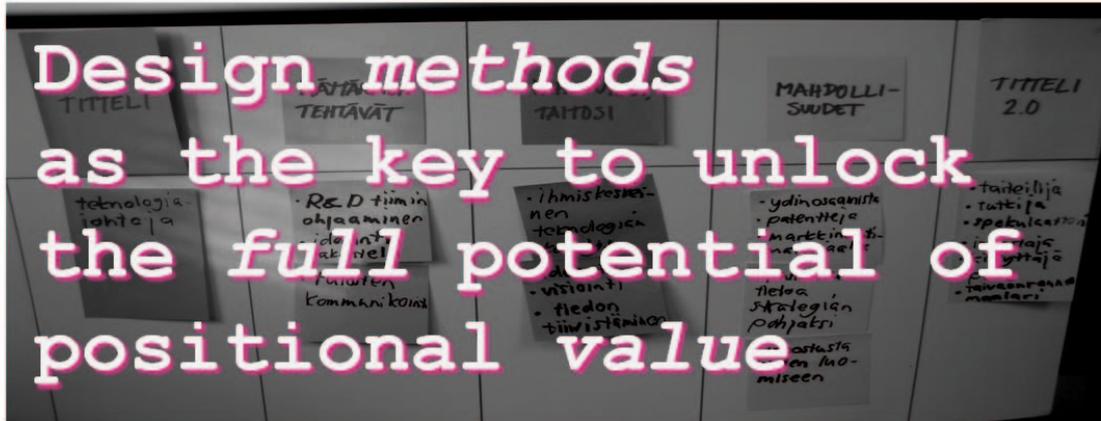
The linkage between strategic innovation and design thinking illustrated in this paper forms a starting point for understanding the requirements strategic innovation has for the innovation process. Future research will continue by comparing different approaches to the innovation process and product development strategies and the nature of strategic innovation.

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Abstract

Positional value can be defined as value that a product – or in more general terms, an asset – has in more than a single value configuration. Although positional value could offer significant benefits to organizations and to the economy at large identifying positional value in their own processes seems to be a difficult task for companies. Therefore, there is a need for a tool that assists in identifying positional value. Due to the challenge of identifying sources of positional value, design methods were applied to the search process. The discipline of design provides approaches and tools for visualizing and concretizing the varying locus and form of positional value, and thus assists in the identification process. In this paper, we propose a tool that assists in identifying the opportunities for positional value. It is a systematical tool that is based on methods deriving from the field of design. The tool builds upon the organization's or industry's material and immaterial assets, as well as the specific traits of a consumption process and aims at the easy identification of positional value. These opportunities for positional value form the basis for creating new, significant value for an organization. Therefore, the paper contributes to the discussion of how design could be utilized in redesigning not just offerings but also organizations and societies. In this paper, we also present some key results of applying the tool with a number of Finnish companies.

Keywords: Positional value, new value creation, design methods

1 Introduction

Positional value is based on using existing resources and assets in new value configurations. A product may apart from its intrinsic and intended value also have additional value, i.e. positional value, in an entirely different value configuration (Normann 2001). A key feature of positional value is the use of existing resources and

assets in new value configurations. For example, the Williams Companies Inc used its large, existing network of gas pipelines to place fiber-optic lines in the pipelines and lease these fiber-optic lines to start-ups in the telecommunications industry. The network of gas pipelines was an already existing asset of Williams Companies and the fiber-optic lines run through the pipelines were used in a new value configuration. (Boulton and Libert and Samek 2000.)

In a similar manner the street furniture company JCDecaux has built its business from positional value perspective since it used the existing waiting areas for public transportation, i.e. bus stops, to sell bus travelers' attention for advertizing. Thus JCDecaux founder Jean-Claude Decaux combined public services with advertising and offered free bus shelters to the city of Lyon in France, at the same time selling advertising space for companies. (JCDecaux Group.)

For Galeries Lafayette Gourmet, a French gourmet food and wine retailer chain, the existing unused resource was their customers; in addition to providing value for their customer through their core business – availability of foodstuff – also the customers within the store provided value for each other. Galeries Lafayette Gourmet began its 'Thursday nights for singles' in 2003. The store provides singles with special mauve shopping baskets, allowing the customers to create value for the shopkeeper in the traditional line (Thiessen 2004.), but also allowing singles to provide value to other singles in the shop by communicating their marital status, and hopefully to "find love between the aisles" (Thiessen 2004). (Tuulenmäki and Helminen 2009.)

Although the examples of positional value described above seem obvious and logical, it seems that organizations have difficulties in examining their own processes and identifying possibilities for positional value. The three successful cases of positional value presented above were used to test the positional value tool developed in Aalto Design Factory, Finland in 2009-2010. The research in positional value and therefore also existing literature on the subject is minimal. Normann (2001) was the first and thus far the only to use the concept of positional value in the existing literature. Therefore, the aim of the research presented in this paper was to both clarify the concept of positional value by identifying the elements, actors, and dimensions of the positional value, and to develop an initial method for identifying positional value. The focus of this paper is thus positional value from two different perspectives: both from the conceptual perspective and from the business application perspective, and for the latter we utilize the positional value tool.

In this paper we describe the development and testing of a tool for identifying positional value and propose a framework for finding positional value ex ante. We start by summarizing the key concepts related to positional value in general as well as more specifically to our tool. We then move on to describe the development of our positional value tool and we will present the content of the tool. After this, we present some findings from using the tool and finally we conclude by suggesting a framework that identifies positional value ex ante.

2 Key concepts

In this discussion, also the concepts of intrinsic and intended value should be mentioned since positional value is value that a product has apart from its intrinsic and intended value. In addition to this intrinsic and intended value, the product then also has additional value, i.e. positional value, in a totally different value configuration. (Normann 2001) Intrinsic value is the value a product has in itself. A car's intrinsic value is to take one from point A to B and a pen's intrinsic value is to create text or a picture. When a product is used for the goal that it is intended to, we use the term intended value (Von Hippel 1999). The product or service then not only has intrinsic

value in its original value configuration and original consumption process but also, due to its position (location), it may have value in other value configurations and value processes. This value is called positional value (Tuulenmäki and Helminen 2009).

The concept of positional value can be defined as the value that a product, a service or, more generally, an asset has in more than one value configuration (Tuulenmäki and Helminen 2009). This means that e.g. the bus stops described above provide shelter for the awaiting passengers in the public transportation value configuration and attention space for companies' advertising needs in their value configurations. Value configuration can be defined as a network of value chains (Stabell and Fjeldstad 1998). Value chain in turn is a series of activities that add value in contributing to the delivery of customer requirements (Porter 1985). The value configuration models the enterprise-wide business process as a network of processes.

The examples of positional value described above may seem obvious and logical but, however, it is challenging to examine the corporate processes and to identify possibilities for positional value. The tool for positional value presented in this paper was borne out of the challenge. The tool uses visualization as a method to identify positional value in different types of organizations. Visualization was chosen as the applied design method because it combines information visualization techniques with principles of creative design (Lau and Vande Maure 2007).

Although positional value may be found anywhere in the value configuration, the tool presented in this paper focuses on identifying positional value solely in the consummation chain in order to simplify the analysis. Consummation chain (see Figure 1) is defined as a customer's entire experience with a product or a service, (MacMillan and McGrath 1997). In this paper we use the term consummation chain instead of the term consumption chain since despite being almost synonyms the two terms are slightly different. Also the terms Customer-Activity Chain (Vandermerve 2000, Sawhney and Balasubramanian and Krishnan 2004), the Buyer Experience Cycle (Kim and Mauborgne 2005) and several other terms have been used in the new value creation literature as synonyms for consummation chain. Miettinen and Koivisto (2009) discuss how "consuming a service means consuming an experience, a process that extends over time. The customer journey thus illustrates how the customer perceives and experiences the service interface along the time axis". Also the consummation chain consists of different service touch points that are the tangibles, for example spaces, objects, people or interactions (Moritz 2005) that make up the total experience of using a service or of a product.

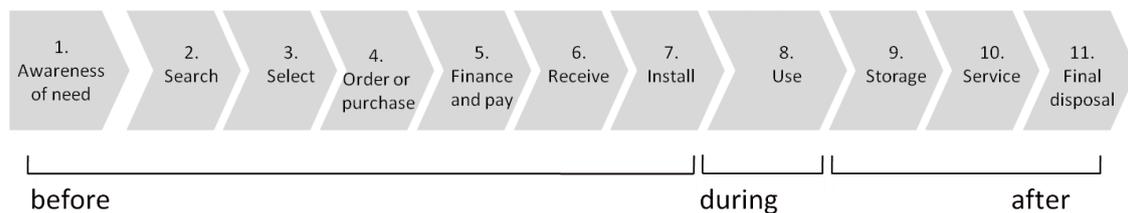


Figure 1 - Generic consumption chain (MacMillan and McGrath 1997).

The positional value tool identifies different types of assets present in the consumption chain. Assets are defined to be things that produce outputs that can be mapped (Boulton and Libert and Samek 2000). We use Boulton, Andersen, Samek and Libert's (2000) asset classification that divides assets into physical, financial, customer related, employee and supplier related and organization related assets:

- 1) **Physical** assets include land, buildings, equipment and inventory.
- 2) **Financial** assets include cash, receivables, debt, investments and equity.
- 3) **Customer** related assets include customers, channels and affiliates.
- 4) **Employee and supplier** related assets include employees, suppliers and partners.
- 5) **Organization** related assets include leadership, strategy, structure, culture, brand, innovation, knowledge, processes, systems and IP.

One of the key starting points for our analysis of positional value is the five senses: sight, hearing, taste, smell and touch. Playing on the five senses in the world of marketing is nothing new: some of Nokia's new phones have the look and feel of a high-end lipstick, which can give a positive feeling for some women; Victoria's secret adds potpourri scent to its products so that when you get home the smell in your Victoria's Secret package reminds you of the store experience; the London Metro adds smell at peak hours to reduce the negative odours (Slassi 2005, Moore 2006). Although these examples of sense utilizing marketing for products and services are common, attempts to adapt senses into business analysis are few. Any attempts to apply the classification of senses to identifying positional value have not come to our attention. Our tool for identifying positional value departs from the five senses – as well as feelings relevant to consumption– mapped during consumption chain (Figure 2). The tool visualizes the activeness of a sense or of a feeling in all different stages of the consumption chain.

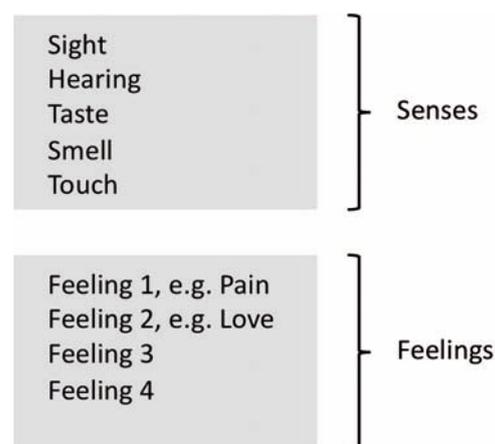


Figure 2 - The classification of senses and feelings as a starting point for the visualization tool.

3 Developing a model for identifying positional value

In chapter 3 we describe the development and the use of our tool. We will also present a framework for conceptualizing and clarifying the concept of positional value.

3.1 Development of the tool

This tool is developed to assist in identifying positional value i.e. finding value from existing resources. The tool can use several of the traditional methods of design for gathering data, e.g. user interviews, observation, or self-evaluation. In this article, we applied the method of self evaluation. The tool is meant for a user with accurate knowledge of a certain industry and of a specific consummation process since using it requires knowledge of the whole process. The tool is applied by following an seven-step guide and visualizing the results throughout the process. The tool and its seven steps are presented in chapter 3.2 as assignments.

The tool focuses on consummation phase in the value chain of a product or of a service. However, positional value can be found also elsewhere in the value chain and in situations before and after the phases of consummation. Consummation chain may also be divided to as small parts as necessary according to what is seen best for each case. For example, does a case of airplane travel begin when an alarm clock goes off at home, when the traveler starts to pack, or when he or she arrives at the airport? Finding positional value could also depart from assets used in an industry but this was left for another study.

3.2 Tool instructions

Positional value can be discovered by using different methods. With our model the aim is to discover positional value by identifying what activities the consumer is performing in each situation of the consummation process. We aim to identify situations where the consumer could be doing something else, something that could be valuable for another value configuration and/or for the consumer himself/herself. The tool is divided into seven different assignments that need to be completed in order to find positional value. When starting the positional value identification process, the user of the tool is given an empty canvas as presented in Figure 3. When completing the assignments, the user is asked to identify different information and place it on the canvas. First the user is asked to identify the given consummation chain and different aspects related to it and then the user is asked to assess the intensity of the aspects throughout the chain. The accuracy needed in identifying the intensity levels depends on the case since the aim of these phases is to notice changes or relations or patterns in the levels.

The Canvas

1.	1.1 Situation																
	1.2 What takes place?																
2.	Time																
3. Assets		ACTIVELY															
	Physical																
	Financial																
	Customer																
	Employee & Supplier																
	Organization	INACTIVELY															
4. Activities		ACTIVELY															
5. Senses	Sight																
	Hearing																
	Taste																
	Smell																
	Touch																
6. Feelings	Pain																
	Tiredness																
	Frustration																
		INACTIVELY															

Figure 3 - The generic canvas of positional value tool.

Assignment 1.1: phases of the consummation process

“Identify the different phases the consumer faces during the consummation process and place them on the canvas chronologically.”

The phases – or situations – should be separated and described accurately enough.

Assignment 1.2: activities

“Identify what activities the consumer performs during each phase and place them on the canvas in the corresponding phases identified in assignment 1.1.”

Activities are defined to be the sets of actions going on in the different phases of the consummation chain. For example, e.g. in the bus stop example one activity is waiting at the bus stop.

Assignment 2: durations

“Identify how much time each situation or phase lasts and mark them down in the corresponding phases in the canvas.”

The durations may vary from 30 sec (e.g. waiting by the coffee machine) to several years (e.g. living in a house). The aim of this phase is to notice whether in the consummation chain there might be a situation that lasts for a relatively long time period/ short time period.

Assignment 3.1: assets

“Identify which assets – physical, financial, customer related, employee and supplier related and organization related – are present in each phase of the

consummation chain. Mark them down in the corresponding phases on the canvas.”

Assignment 3.2: activeness of the assets

“Indicate how actively or inactively an asset is used during each situation. Draw the activeness levels as lines on the canvas.”

The aim of identifying the activeness of the asset is to notice whether an asset might be not used to its full potential at some point of the consumption chain and could be thus used in another use at the same time.

Assignment 4: performance activeness

“How actively is the consumer performing activities identified in assignment 1.2? Evaluate in each situation, if the consumer is actively or inactively performing activities and draw a line according to this evaluation.”

Assignment 5.1: the senses

“Identify which senses are in use during each situation and mark them down on the canvas.”

The list of senses as explained in Chapter 2 may be used as guidance.

Assignment 5.2: intensity of the senses

“Indicate how actively or inactively a sense chosen in assignment 5.1 is utilized in each situation of the consummation process. Draw the activeness levels as lines on the canvas.”

Assignment 6.1: the emotions

“Identify which emotions or feelings the consumer is experiencing during each situation.”

A list of possible feelings may be used as guidance: love, pain, fear, frustration, anxiety, helplessness, confidence, pride.

Assignment 6.2: intensity of the emotions

“Indicate how actively or inactively an emotion or feeling chosen in assignment 6.1 is utilized in each situation of the consummation process. Draw the activeness levels as lines on the canvas.”

The aim of this phase is to notice how intensity levels of the emotions used are evolving.

Assignment 7: finding possibilities

In the seventh stage of the process the canvas created in stages 1-6 is used for identifying possibilities for positional value. There are seven different angles from which positional value may be found. Through all these angles the relevant question is what kind of assets, activities or people are present in these situations and could they be of value to the consumer. Identify situations:

- i. where the consumer is not performing any activities: Could other people or companies (or both) create value by offering something for these situations? Could the consumer create value for him-/herself by performing certain activities?
- ii. that last a long time period: Could other people or companies (or both) create value by offering the consumer something else to do at the same time? Could the consumer create value for him-/herself by doing something else at the same time?
- iii. where the consumer is performing lots of activities or actively using his/her senses: Could value be created by other people or companies (or both) by helping the consumer to perform less activities/using less senses?
- iv. which cause strong feelings for the consumer: Could value be created for the consumer by offering something that would ease strong feelings. For

example, if the consumer is listening to speech (performing activities that require use of senses) during a flight would this ease his/her fear of flying?

- v. which don't create any feelings for the consumer: Could other people or companies (or both) create value by offering something that would create strong feelings for the consumer, for example help the consumer fall in love?

Next the opportunities found from these angles are marked down on the canvas.

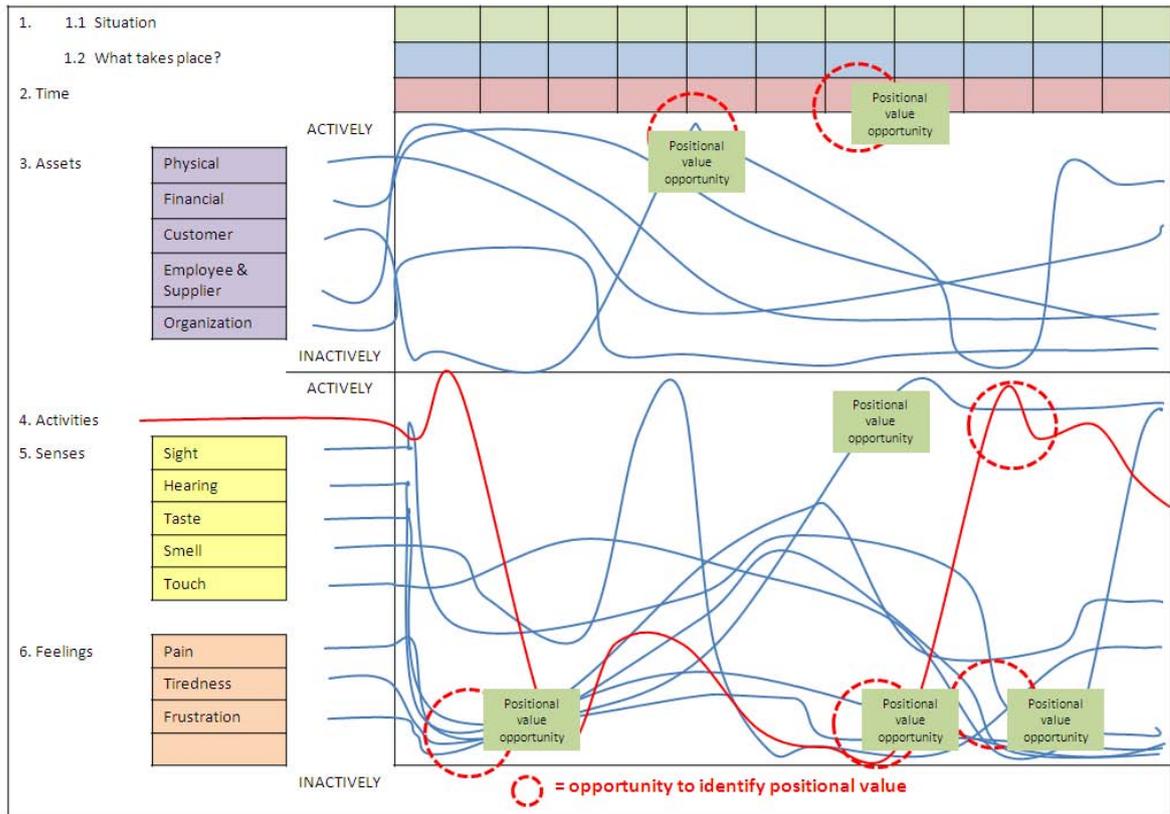


Figure 4 - The canvas after completing all assignments.

In Figure 4, the lines indicating variation in activeness are not drawn according to a certain case but to demonstrate the visualization resulting from the assignments 1.1-6.2. Using the tool described in this chapter we identified opportunities for positional value. In Chapter 4 we go on to present some findings from testing the tool.

3.3 The proposed framework

We propose a concluding framework of positional value (Figure 5). The framework analyses the different dimensions and actors of positional value and assists in examining whether a case is about positional value or about some other type of new value. Analyzing a case with the framework begins with identifying what is the intended value asset that acts as the source of positional value. The intended value asset is the asset that existed originally and is the carrier of the potential value. Also the owner of the intended value asset is identified, as well as its user in the original value configuration. Next the intended value assets positional value is identified. However, identifying the positional value does not suffice: a consummator is needed. A consummator (derived from the verb consummate: to make perfect, achieve) is the executor of positional value, the benefiter of positional value. Prime movers are the *reconfigurers* of value creation systems (Normann 2001). The new positional value asset is the intended value asset in the positional value use after reconfiguration.

Intended value asset	User of intended value asset	Owner of intended value asset	Intended value asset's positional value	Consummator	Prime mover / Case	New positional value asset (reconfiguration)
A bus stop with a lot of people	Traveler	Town	Attention spot	Advertiser	JCDecaux	The bus stop as an advertising place
Home and its inhabitants who know the area	Family	House owner	Accommodation and knowledge	Language school student	EF	The language school accommodation
Gas pipe	Gas customer	Williams	The readily built pipe	The fibre company	Williams	The gas pipe with a light fibre
Shopping basket	Shop customers	Shop	Ability to communicate	Single	Galleries Lafayette	Shopping basket for singles
Coffee for sale	Gas station customer	ABC (a Finnish gas station company)	Free coffee	Police	ABC (a Finnish gas station company)	Security service bought with the price of a coffee cup.

Figure 5 - Identifying positional value ex ante: The framework.

The framework above helps to test the possibilities for positional value that have gone through the positional value tool. Also, the framework is valuable in clarifying the concept of positional value and its different dimensions and parties. Let us go through an example with this framework: a Finnish gas station company ABC provides free coffee for police. The police receive free coffee when drinking on ABC gas stations and the gas station receives security service bought with the price of a coffee cup. In this case, the intended value asset is the coffee that the gas station provides for sale and the user for this asset is the gas station customer. The owner of the intended value asset is the gas station. The intended value asset's positional value is free coffee for the police, who in turn in this case are the consummators. The prime mover (a term first used by Normann 2001) is ABC, the gas station company and the new positional value asset is the security service bought with the price of a coffee cup.

4 Examples of using the tool

The tool for finding positional value was tested on several Finnish companies. In all cases interesting results were found. Below we briefly present an airline company's example case in which the positional value tool was used.

4.1 Case 1: Airline

The model was used to analyze the situations of an airplane travel when a consumer is flying from Helsinki to London. In our test the airline company's consummation chain was described to include arrival to the airport, parking car, check-in, security check, shopping, cafeteria, waiting in the departure lobby, boarding, seating, take-off, flight, meal, landing, baggage claim, customs, and leaving the airport. During every situation a number of activities need to be performed. For example at the Check-in situation the consumer needs to tap in his or hers flight number to the self service check-in machine, search for passport, receive boarding ticket, queue in line to drop of baggage, lift the baggage on to the conveyer and so on. During the test, all activities, assets, senses, feelings, were mapped on to the canvas. After this was done the participants began to use the model for identifying possibilities of positional value. With the help of the model we were able to recognize that the consumer needs to perform lots of activities before entering the plane and after leaving the plane. However, when the consumer is on the plane he or she is hardly performing any activities. The flight duration is 3 hours and 20 minutes. Besides eating a sandwich for 30 minutes after take-off the consumer is most likely sitting in his chair staring at the headrest in front of him. Something that was discovered was that during the three hours the consumer is on the plane he is, at least not likely, creating any value for anyone, and especially not for himself.

A place where maybe hundreds of people are sitting next to each other with basically nothing to do could be seen as a huge opportunity for another business, for example advertising business. Companies in the advertising industry are usually spending large amounts of money only to catch a few seconds of people's attention. Still every day, hundreds of airline companies fly around with the asset of people's attention and do nothing about it.

Imagine a situation where the consumer would pay less for his plane tickets if he agrees to listen to for example product presentations, or take part in consumer surveys during the flight. The value for the company would be 3 hours of undisturbed attention from the consumer (most likely a business person on a business flight). The value for the consumer would be less money spent on plane tickets and something to do during the flight. For airline companies to sell the attention of the mass of people who travel with them every day is an opportunity of positional value. This example was discovered during our test of the model. The model helped the participants realize that the consumer is very seldom performing any activities during the flight that would require using senses.

The positional value model was gone through according to the instructions described in section 3.2, and a canvas similar to the one in Figure 4 was reached. From the visualization that the model provided the participants were able to identify the potential points for positional value.

5 Discussion

As the research in positional value is still minor, the tool for identifying possibilities for positional value is an important start to gaining deeper understanding in positional value. When tested, the tool presented in this paper identified sources for positional value in each of the test cases. Additionally, the tool pointed our attention to several other possible ways of adding value to services and products even though these ways were not about positional value. Thus the positional value dimension of the tool should be strengthened.

Applying design methods in the form of visualization to the development of the tool provides relevant information on the assessment of the user. The need for user centered approach in identifying positional value was clear in our research. We believe design methods and especially visualization are of great importance in finding positional value since the identification process aims at being intuitive and usable by anyone. In addition, considering the tightening environmental requirements, the concept of positional value is also a source for environmental value, as it is often based on a more efficient use of existing assets. This fact contributes to positional value offering significant benefits to organizations and to the economy at large.

The tool and the framework are suggestive in nature and need to be further developed. However, we believe they contribute to the discussion by clarifying the concept of positional value and by presenting a tool finding this value. Thus they provide an insightful contribution to the discussion around positional value.

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DESIGNERS AS LANGUAGE INNOVATORS?

CHALLENGES AND OPPORTUNITIES FOR DESIGNERS AND MANAGERS WITH DESIGN-DRIVEN INNOVATION

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Abstract The interest in design as a driver of innovation has risen dramatically in recent years. Nevertheless, while some studies indicate that investments in design may affect business performance, and that design-driven companies tend to be more innovative than others, we still know little about how design-driven innovation actually occurs in practice. Other studies show that there are still many hurdles to be overcome before the full potential of design as a driver of innovation can be fully realized. Among the most commonly noted are the communication issues between designers and their clients with a business or engineering background, reflecting different epistemological stances and professional identities. To be able to bridge this divide we need new theoretical frameworks that allow us to address the unique contributions of each discipline together, yet on their own terms. This paper outlines a sketch for such a framework departing from the notion of design-driven innovation, defined as radical innovation in meaning. It is argued that pragmatist philosophers John Dewey and G. H. Mead provide the basis for a theoretical platform for understanding how meaning is shaped and negotiated in design practice and in meetings between designers and their clients as well as between the design object and its users. A case study of a design consultancy is used to illustrate the connection and relevance of pragmatist philosophy to contemporary design practice.

Introduction

The last few years have seen a resurgence in interest in design as a driver of innovation. This has been visible in the popular as well as scholarly management press, with *Business Week* and *Fast Company* praising the value of design with cover page articles with headlines such as *The Power of Design* (May 17, 2004 and June 1, 2005 respectively). According to *Business Week*'s Bruce Nussbaum, Design Thinking is "the key to earnings growth and an edge that outsourcing can't beat" (March 8, 2005). Along with this dramatic growth in interest in design, the past 10 – 15 years has seen a shift in the view of designers and their contribution to management. Whereas design used to be seen as mere "styling" of products, added in the last phase of the NPD process, now design is increasingly understood as a strategic activity that can bring a different perspective to a wide range of management challenges. The term "design thinking" has become a buzzword, aiming to capture designers' creativity-driven approach to innovation that can be applied to anything from physical products and intangible services, to formulating and solving complex social problems (e.g. Brown 2008, Martin 2009).

At the same time, research has been conducted to explore the link between design investments and business performance. A number of recent studies in Europe has indicated that design-driven companies are more innovative than others (e.g. European Commission 2009, Irish Centre for Design Innovation 2007, SVID 2008).

This increased attention to design reflects developments in management, and the wider social sciences, with greater attention being directed to the socio-cultural aspects of innovation, as well as to creative practices that are better able to handle increasing levels of complexity and global competition. Moreover, European policy highlights the increasing importance of innovation and creativity for Europe, and the increasing need for approaches that complement research and development (R&D) based scientific and technological innovation. Reflecting this, 2009 was the *European Year of Creativity and Innovation* to highlight the importance of creativity in innovation, the need to disseminate best practices, and to stimulate education and research. This initiative emphasised a wider understanding of innovation, encompassing the cultural and creative industries, including design “where the aesthetic and economic coincide”. Indeed, one of the 7 points in the Year’s “Manifesto for Creativity and Innovation in Europe” was to: “Promote design processes, thinking and tools, understanding the needs, emotions, aspirations and abilities of users”.¹

In practice, however, the marriage of design and management is not always easy. There are still many hurdles to be overcome to be able to fully exploit the potential of design as a driver of innovation.

Being predominantly rooted in the faculties of Art and Management respectively, the fields of design and management have different historical roots, theoretical perspectives and research foci. Fundamentally, they are based on different epistemological perspectives (Rylander 2009). Business schools tend to emphasize “intellectual and theory-guided” knowledge as management scholarship pays considerable attention to theory, modelled and drawing on the social sciences, principally economics, sociology and psychology. Designers, by contrast are predominantly trained in artistic traditions and in schools that typically use the atelier method of the design studio as their central educational approach. Students are set a series of design problems to solve ‘by doing’, and design knowledge creation is marked by profound interaction with visual and physical objects. There is therefore a strong emphasis on embodied craft and tacit practical, rather than theoretical and analytical, knowledge (Lawson 2006).

The professional cultures and skills of practising designers, engineers and business graduates reflect this disconnect between management and design perspectives. Designers and business people often lack a common framework and language for communicating how design can contribute to the company (Johansson and Svengren 2008), which causes misunderstandings or conflict as the two professional groups see design differently. Increasingly, however, manufacturing companies advocate the skills and practices of industrial designers in the early stages of the innovation process for an improved understanding of end-users and for developing solutions that meet their needs. Yet few firms fully understand where, how and when they can use design, which results in a fragmented design effort, and the organization does not achieve the full benefits from the possibilities with design (Carlgren 2009). Other companies, and in particular

¹ <http://www.create2009.europa.eu/>

SMEs and service companies, have little knowledge and experience of working with design and designers, while design companies tend to be small or micro businesses, with very limited resources for training and pioneering new markets (Commission of the European Communities 2009). Consequently, design has often remained on the fringes of the organization rather than being integrated with its strategic and innovation activities.

Similarly, in the scholarly literature on design management, “design”, whether treated as a noun or a verb, was largely seen as an “add-on” to other management functions and activities. Although design management has existed since the beginning of industrialization, as an area of research it has a shorter history, of twenty to thirty years. Until recently, this research tradition has hardly engaged with design theory at all. In particular the notion of aesthetic experience as a form of knowing and expressing ideas is largely ignored in the design management literature (Digerfeldt-Månsson 2009). Instead design has been added to other mainstream strategy models (Johansson and Wodilla 2008).

In spite of the great surge in interest in the role of design and designers in innovation from the field of management in recent years, there is still little by way of empirical research that helps us understand what actually happens when designers enter the organizational arena in innovation processes. Most descriptions of “design thinking”, as portrayed in the managerial literature, lack theoretical anchoring and documented empirical material tends to be based on high-level descriptions of processes, mixed with practitioners’ own cases (promoting their own activities). Conversely, the literature in design theory tends to focus on the design process as such, but does not engage with the organizational issues of the non-design companies engaging designers in their innovation processes.

In order to exploit the full potential of design as a driver of innovation, we thus need new theoretical frameworks that allow us to bridge the design-management divide while addressing the unique contributions of each discipline on their own terms. The purpose of this paper is to sketch the principles for such a framework.

Design-driven innovation

A promising development in this respect is the concept of *design-driven innovation* as proposed by Verganti (2008, 2009), referring to radical *innovation in meaning*. Verganti builds on Krippendorf ‘s (1989, 2006) view of design as “making sense [of things]”.

Design-driven innovation is a process of making sense of the socio-cultural trends of tomorrow and finding a way to express this meaning - emotionally, symbolically and functionally - to users through a product or service. According to this view, design can thus change the very essence of how we think about innovation by focusing on the symbolic dimensions of a product or service, where innovation relates to its meaning to users rather than to technological or functional aspects (Verganti 2009).

The bulk of research on innovation processes address technological innovation, where designers tend come in at the very end of the process, if at all. We therefore know little about how design-driven innovation actually happens in practice. A critical feature of design-driven innovation is the focus on the early stages of the innovation process as an exploration into socio-cultural contexts to identify the embryos of future meanings. Successful design-driven innovators have developed a significant capability to understand, anticipate, propose and influence the emergence of new meanings. The

process through which knowledge about possible future socio-cultural evolutions and new product meanings is developed is hard to track. Indeed, knowledge about the subtle and unexpressed dynamics of socio-cultural models is *tacit* and *distributed*, depending on millions of unpredictable interactions between users, firms, designers, products, communication media, cultural centres, schools, artists, etc.

Successful design-driven innovators are therefore immersed in a distributed network of actors that both explore future meanings and influence, with their actions, the creation of new cultural models. These actors, which include designers, firms, artists and schools, can be considered as *interpreters* of the evolution of socio-cultural models and future scenarios, with whom to share visions, exchange information on trends and test the robustness of assumptions. In this sense, design-driven innovators are embedded in a huge research laboratory, where actors make their own investigations through their networks (Verganti, 2006, 2008, 2009). Designers play a critical role in such collective research laboratories, acting as brokers of knowledge about languages and not just technology (Verganti 2003).

A few recent studies of successful Italian design-based companies are beginning to cast some light on the role of designers in the innovation process for generating new ideas and interpreting and expressing the trends and signs that give new meaning to products. Dell'Era and Verganti (2010) found that designers can play an important role in helping companies explore customer needs in terms of the signs (such as form, colours, materials etc.) that give meaning to products. Managing collaborations with external designers therefore becomes critical to companies in design-driven industries. A similar conclusion was reached by Ravasi and Lojacono (2005) who emphasized the importance of acknowledging internal and external designers as primary sources for new ideas, providing them with the freedom and resources to experiment.

These studies confirm the view of design-driven innovation that designers can play a central role in the early stages of the innovation process. However, if we are to understand their role in the process of developing new meanings we need complementary theoretical frameworks that help us study how this happens in practice at a much more detailed level.

A pragmatist approach to meaning and design

This paper suggests that pragmatist philosophers John Dewey and G. H. Mead can provide a theoretical platform for understanding how meaning is shaped in processes of design-driven innovation. Mead and Dewey had a common quest in explaining meaning as the development of symbolically mediated social interaction growing out of the conditional structures of biological activity. They mutually influenced each other and their theories of meaning are quite complimentary (Alexander 1987). Mead (1934) was more specific about the social dimension of meaning. He explained how we are all active participants in our social worlds as we continuously construct and re-construct the social meanings that shape our thoughts and actions through interactions with other people and social contexts. Dewey on the other hand, can help us better understand how our embodied interactions with physical objects shape meaning through sensory experience and artistic practice.

Dewey challenges the basic premise of the design thinking literature - the idea of "design thinking" as different in kind from "science thinking", or a different approach to

problem solving than that traditionally used by managers (see e.g. Brown 2009; Martin 2009; Neumaier 2009). Rather, he claimed, it is the same fundamental pattern of inquiry whether for science, art of common sense, though the actual problems addressed, the emphasis on the different phases and the techniques used may differ (Dewey 1938). Nevertheless, these differences in emphasis and technique can be crucial for how meaning is created. In *Art as Experience* (1934) he fleshes out his views on the role of aesthetic experience in problem-solving in art and intellectual endeavors and the particularities of artistic practice. The latter will be further explored below, illustrated with some quotes from a case study of No Picnic, a leading Swedish design consultancy. The purpose of the study was to explore designers' particular approach to innovative, complex problem-solving during a client project (a Korean telecommunications company, here called KT), looking at how designers work and how they make sense of what they do and who they are as designers. Especially relevant for this paper is Dewey's notion of artistic practice as a particular way of "expressing" meaning. It is the ability to embody that "feeling" of a great idea, based on an experimental process interacting with sketches as well as the user context, into an "expressive object" that is the essence of design as art in a Deweyan sense.

Emotion is central to the act of expressing, or creation of a work of art - indeed it is a special skill of artists to be able express the emotional quality of a particular situation into a work of art.

A lifetime would be too short to reproduce in words a single emotion. In reality, however, poet and novelist have an immense advantage over even an expert psychologist in dealing with an emotion. For the former build up a concrete situation and permit *it* to evoke emotional response. Instead of a description of an emotion in intellectual and symbolic terms, the artist "does the deed that breeds" the emotion. (Dewey 1934/1980:67)

To Dewey art is thus a form of communication between artist and audience, mediated through the object of art.

"Because objects of art are expressive, they are a language. Rather they are many languages. For each art has its own medium and that medium is especially fitted for one kind of communication. Each medium says something that cannot be uttered as well or as completely in any other tongue." (Dewey 1934/1980:106)

Because of practical considerations, Dewey notes, superior importance has been given to speech in everyday life, though this is just one mode of communication. This has unfortunately given rise to the impression that meanings in architecture, sculpture, painting and music can be translated into words with little if any loss. "In fact, each art speaks an idiom that conveys what cannot be said in any other language and yet remains the same" (Dewey 1934/1980: 106).

Accordingly, design is artistic when form is not merely useful but serves the purposes of an "immediate and vital experience" that is meaningful to its users.

"It is significant that the word 'design' has a double meaning. It signifies purpose and it signifies arrangement, mode of composition" (Dewey 1934/1980:116).

The design of a chair is constructed to serve the purpose of those sitting in it, but it is also an arrangement of all the elements by which it becomes an expressive unity in direct perception. The characteristic of artistic design is the intimacy of the relations that

hold the parts together, i.e. when the parts of the whole are so harmonious in their combination that they contribute to the consummation of a conscious experience.

Design, when artistic, therefore cannot be separated from “meaning” as experienced by the user.

“As long as ‘meaning’ is a matter of association and suggestion, it falls apart from the qualities of the sensuous medium and form is disturbed. Sense qualities are carriers of meanings, not as vehicles carry goods but as a mother carries a baby when the baby is part of her own organism.” (p.118)

According to Dewey, not every designed object can pass as art – it has to be aesthetic according to the criteria set out above.

Lost in translation between designers and managers?

The use of, and fluency in, different “languages” of designers and their clients is often reflected in communication problems between these groups (Johansson and Svengren 2008). Just as it can be difficult to explain what happens when you get a good design idea, it is equally difficult to express qualitative differences of design in words to an outsider or client.

“It is very difficult to explain why this one [design] is better than the other. Sometimes the differences are very subtle, especially in a picture. It is about so much more; it’s about material, it’s about weight, it’s about the tactile etc. The feeling of red packaging, marketing, everything. Everything is supposed to fit hand in hand. And that’s very hard to explain sometimes, really. Because we feel that *this* will work, it’s perfect! And then you are supposed to point at what it really is, and that is really difficult. Then you really ought to do a doctoral dissertation, and we don’t have time for that.” (Tomi, designer)

Conversely, designers are often dissatisfied with the brief from clients that may be 20 pages and contain too much information (i.e. irrelevant and constraining) but still miss the essence of what they want out of the design. As Jonas put it: “One thing that is almost always missing is the very, what should we call it, the philosophical or emotional basis, that is almost never there”. The ideal brief then, according to No Picnic designers, is when the brief becomes a part of the creative process, evolving and clarifying through a dialogue between designers and client involving pictures and sketches as well as words.

As a consequence of these communication difficulties, in spite of the recent interest in design thinking, designers involvement in innovation processes is still very limited, and their role not well understood by (potential) clients.

“Vision is to see something. So we think design is a very important part of innovation work. Perhaps the core of it ... But we [as and industry] are not there yet, because we do not speak the same language [as the managers]” (Liselott, designer).

Another reason for resistance to engaging in design-driven innovation is of course the element of risk. If it is difficult for non-designers to grasp the qualitative differences in “good” or “bad” design, or among different design options, it is even harder to make assessments and decisions about “radical innovation in meanings”. This entails making *proposals* that change the entire user context rather than following trends (Verganti 2009). Not only is this a highly uncertain strategy, as it is difficult to say beforehand

how customers will respond to the proposal, but it can also take quite some time before customers have gotten used to the new meanings proposed, or the new user context. Like any form of inquiry, the production of an object of art is experimental and emergent, and therefore, so are the meanings of the artistic object. Dewey refers to the painter Matisse who is reported to have said (in Dewey 1934/1980: 106) “When a painting is finished, it is like a new-born child. The artist himself must have time for understanding it.” It must be lived with as a child is lived with if we are to grasp the meaning of his being.

The same thing can be said about the perceiver, or the audience for the art. As Dewey points out, language exists only when it is listened to as well as spoken. The hearer is an indispensable partner and the work or art is complete only as it works in the experience of others than its creator. In this sense, a new poem is created by every person who reads it poetically (aesthetically) as every individual brings with her a particular way of seeing and feeling, based previous experiences. In interaction with the object of art (the poem in this case) something new is created, not previously existing in experience.

It is therefore absurd according to Dewey to ask what an artist “really” meant with her product – even she herself would find different meanings at different times depending on her own development. A work of art is universal only if it can stand the test of time and continue to inspire new personal realizations in experience. It marks a way of envisaging, of feeling, and of presenting experienced matter so that it most readily and effectively becomes material for the construction of aesthetic experience of others. It is in this sense that a new design can only be a “proposal” to users to engage in a dialogue. Time and customers will tell if the product becomes a “classic”, but a prerequisite for that to happen is that it has a unique identity that really sets it apart from others in its category, or creates an entirely new category of meaning. In the case of KT, the client wanted No Picnic to come up with suggestions that could develop into “an icon”, not an entirely unusual comment for a client. To Jonas that was “a fun process, but also really difficult when someone says: oh, we should do an icon. ... for it to become that it has to stick out in an incredible way so that people almost get irritated to start with”.

To put it in Deweyan terms, a design needs to be artistic to be able to lead to radical innovation in meaning. That is, all the different aspects of the design needs to be so harmonious in their composition as to give rise to an aesthetic experience of the user. It is in this direct and immediate experience that the meaning of the design is manifest to the user. Yet, this meaning is also dependent of the personal background of the user and the cultural context. A design that questions the traditional definitions of, say, a chair, according to a particular cultural context, are pushing the boundaries of the language of that culture. A radical innovation in language, such a new “design icon”, therefore requires users to learn and accept dimensions of language. This is a risky business that cannot be fully controlled, but is dependent on the learning process of the users.

Implications for further research and practice

The shift in focus from functional and technological aspects of innovation to innovation in languages, i.e. the meanings of a product (or service), fundamentally questions the innovation process as traditionally portrayed in literature and practice, as well as designers’ role in it. This shift turns the attention to the process of how meaning is created and negotiated in actual processes of design-driven innovation. It highlights the

importance of relationships between company actors and designers (external as well as internal) and how and why conflicts arise in these meetings. To gain a better understanding of how this happens we need to conduct micro-level studies of design practice, specifically looking at how meaning is created in interplay with physical objects and other social actors. These studies need to be anchored in theoretical frameworks that can help us better understand and interpret what goes in these interactions.

This paper suggested a pragmatist framework, based on the Mead's theories of symbolic interaction (1934) and Dewey's notion of aesthetic experience and practice (Dewey 1934) provides an interesting platform for further investigations. According to a pragmatist perspective, practice signifies the continuous interactions of everyday life, involving the symbolically-mediated interweaving of experience and action. As people derive their meaning, significance and sense of self through these interactions, the process of constructing identity is intimately associated with the notion of practice (Simpson 2009). In this sense, design-driven innovation cannot be fully understood without attention to *both* aesthetic experience and identity because one cannot be fully grasped outside the context of the other.

Meanings emerge out of our biological activity, but is also emergent and social. The unique, non-discursive, integrated, emotional side of meaning is just as important as the communicable, inter-related, discursive side for Dewey. Yet, the former is notoriously hard to capture and management research has tended to neglect it at the expense of the latter. However, as Dewey commented, though superior importance has been given to verbal communication for practical reasons, this should not be allowed to conceal the importance of other forms of expression. As each medium of art has its own language with its own characteristics. What is said with music or a painting or a designed object cannot be said in the same way with words.

Indeed, different kinds of sensory information, such as pictorial/visual, verbal/narrative, spatial/kinaesthetic, haptic etc. affect how we create meaning differently. Richer sensory experience tends to reduce rather than increase ambiguity because these different forms of information have different properties. For example, narrative information, which is vivid and plausible, often has ambiguous and multivocal meanings, whereas visual information, which aggregates information into depictions and patterns, has a greater capacity to simplify it. Physical objects, as compared to verbal accounts, are specifically interesting in this respect as the more senses are involved, the richer the sense making.

Dewey's ideas about different forms of art, or media of expression, as different languages helps us see why the clashes between designers and managers arise and so frequently seem irreconcilable; they can be conceived as representing different languages that cannot be fully translated without loss of meaning. Whereas designers, as a professional group, no doubt have a great deal to learn (and a vested interest in learning) to better express their design ideas in the language of their manager (business or engineering) counterparts, the reverse is certainly also true. Managers may have a great interest in learning to "read" and "speak" the various languages of design. In a competitive landscape increasingly dependent on non-technological aspects of products and services to appeal to customer needs, design becomes an increasingly critical component.

At this stage we have to be careful and rush into sloppy translations in the excitement of the (potential) value of design-driven innovation by trying to force fit design into the language and frameworks of the “usual ways of doing business” that provide legitimacy in academia and business practice. Rather than looking at design-driven innovation as a “special case” that differs from the standard process of innovation, perhaps we should take a look at design-driven innovation as means for better understanding certain aspects of innovation processes in general? This would require us to recognize and explore the aesthetic dimension of design and innovation based on its own qualities and terms. As Stefan at No Picnic said;

“That is what I react to, that everything has to be explained in rational terms - it *is* possible to go the other way, to invite people over to the cultural and emotional dimensions... I think it is very much about taking that part of our consciousness seriously. To understand that culture is important, it is what we need, it is what makes us human.”

And when they have tried at No Picnic to invite clients “to go the other way”, i.e. to come and work with their tools and techniques to express their ideas and vision it tends to work pretty well. But how this happened was difficult to express in words – it has to be experienced. The challenge for designers is thus to learn to reach out to managers and convey their meaning of design without reducing it to “words”. It has to be communicated in its own language, yet in a way that can be understood in another social context (managers), lacking the same tools and training for “reading” and “speaking” the language(s) of design.

This, of course, is no easy task. As noted in the introduction, the communication issues often noted in the relationship between managers and designers are rooted in different epistemological traditions. Through education and professional practice designers and managers acquire different professional identities.

Shared identity, in organizations and professions as in any social context, is necessary for people to perceive and interpret the world in similar ways (Haslam et al., 2003). As Weick (1995:20) put it: “Depending on who I am, my definition of what is ‘out there’ will also change.” He therefore put the establishment and maintenance of identity as the first of the seven properties of sensemaking. Accordingly, a shared organizational identity is central from an organizational perspective; it provides a link between the individual and the organization, as well as guidance for attitudes and behaviors. Similarly, professional identities allow people in a particular profession to view their work in a certain way; it allows them to see certain things at the expense of others. Broadly speaking, managers and designers represent different professional identities, and with these differences comes different ways of understanding and interpreting design as well as different practices and languages (Rylander 2009).

The challenge is not so much in learning the “words”, or the specific vocabulary of a profession, but in understanding the context of the word. Just as understanding a new language can be the key to understanding a new culture, understanding a particular culture is key to learning the language of that culture. One cannot be fully grasped without the other. The meaning of a word is revealed by its context. The same word can mean completely different things in different contexts. Understanding professional identities is thus an important prerequisite for understanding how meaning is shaped and negotiated in interactions between designers and managers in the innovation process.

While there are still few studies that look into the professional identities of designers, and in particular the tension between designers and managers, there is a rich tradition in management and organization studies in identity research that could provide a fruitful starting point for further research.

The notion of design-driven innovation turns traditional innovation theories on their head – the entire process of innovation needs to be rethought and reorganized to accommodate the challenges inherent in creating new meanings as opposed (or as a complement) to new functions or technological solutions. For managers, this requires a shift in attitude from one of keeping the ideas secret (not to reveal critical IP) until the last minute of market testing, to an open, experimental and emergent approach where users as well as different kinds of interpreters are invited to participate in the very first stages of idea generation. Indeed, the early phase of the process of design-driven innovation resembles the process of design research. Such shift would often pose significant practical challenges to organizational structures and systems currently dominating many industries, dependent on innovation models such as the “stage-gate-process”. It would also often require new skills, structures and processes for managing networks and collaborations with designers and other interpreters.

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The Meander Model-

--- a metaphor for user involvement in service design ---

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Abstract

This paper explores different approaches to the user within service design (innovation). We start with Verganti's [40] distinction between "design driven innovation" versus "user-centered design". We find the user-centered perspective more coherent with service design, since the user is in the core of service creation. However, our empirical material indicates that this dichotomy does not always exist. Instead, we introduce a conceptual approach that blurs the line between "design driven innovation" and "user-centered design". The meander model presented here does not fall into this dichotomous trap, but allows for a more dynamic combination that is more consistent with our empirical data.

Introduction

The designer's relation to the user is one of the largest research areas within design research. It contains many subareas like "participatory design" [6], co-design [16, 27], user-driven innovation [26] and user-centered design [32] all of which are about different active relations to the user. The new wave of service design has a strong focus on the development of different co-creation methods [11]. Both service design and its sibling area within management research – service management – emphasize the role of the customer as central in the new development and realization of service [25]. A counter-stream to this user-emphasized direction has recently developed, proposing a new relation, or maybe non-relation to the customer [23, 39, 40]. These researchers argue that instead of turning towards the user for inspiration and dialogue, designers should be inspired within their own network ("webs of designer"), and then *propose* a solution to the user.

Verganti makes a clear dichotomy between user-centered design (UCD) and design-driven innovation (DDI). Only the latter, he claims, can result in radical innovation. The

relation between the concepts of UCD and DDI intrigues us and leads to our first research question, *How and in what traditions have these concepts developed?*

In conversations with designers and in an empirical field study we have found it difficult to categorize the designers' approach to the user in either user-centered design or design driven innovation. Designers do not seem to work according to either one or the other part of the dichotomous perspectives. Therefore we are interested in finding out how they work and how to conceptualize their work with users within service design. In the light of this divergence between theory and practice our second research question is framed as follows: *In what ways do designers make use of these concept in practice?*

In this paper we first trace the theoretical landscape of service design and service management, followed by a description of the landscape of user involvement in design and the concept of Design Driven Innovation (DDI). We then share some observations from the field study, and finally present a conceptual model which points towards a more complex combination of UCD and DDI rather than the dichotomous relationship presented above.

Theories of service design, service management and service innovation

In the following section we first describe the discourses of service design and service management, including their differences. Thereafter we discuss the difficulties of separating radical and incremental innovation, especially in service design.

Service design

Service design as a practical activity within the designer's competence is rather new; it is often regarded as emerging around the turn of the century when live|work started as the first service design agency. The academic area that reflects upon the service design practice is even younger.

The early research in service design covered the intersection of *interaction design* and *service design* because the majority of the researchers had a background in this field [2]. Blomkvist and colleagues identify two major approaches in the early research in service design: The first is to widen the scope by connecting the emerging discipline to other non-design fields, like management and anthropology and the second approach is to explore and challenge the basic assumptions and methods in service design. Further trends are identified in a review of peer-reviewed material published in 2008-2009 (ibid.).

Service design practice is inherently customer and user centered [11], influenced by the co-creational nature of value creation in service [e.g.36]. Stickdorn [33] argues that service design is truly interdisciplinary, and therefore can not be defined as one discipline. However, he presents five core principles: 1) user-centeredness (see next section), 2) co-creative, (ibid.) 3) sequencing, (visualized as a sequence of interrelated

actions) 4) evidencing (making the service tangible) and 5) holistic (the entire environment of a service should be considered).

Maffei et al. [19] argue for a merger between user-driven design approaches and contemporary innovation theory in service. To date there has been very little work done in this direction, although Sangiorgi and Pacenti [29] coin the concept of *Service design driven innovation* and define it as a user-centered approach to innovation.

Other streams within service design research have taken an interdisciplinary approach to include service management. Kimbell [14, 15] relates service design to “the service dominant logic” and the work of Vargo and Lusch [e.g., 36, 37]. Han [10] looks at the roles the designer takes within the service design process, using a stakeholder perspective. She formulates the concept of “communities of service” derived from “communities of practice”. In her study of service design in the Australian tax authority Junginger [13] relates service design to organizational change, while Sangiorgi [28] talks about transformational design at different levels: individual, organizational and societal¹.

Service management

Service management emerged from the marketing discourse in the 70’s. The starting point is often claimed to have been Shostack’s [30] article arguing that Kotler’s marketing logic with its product focus was not suitable for service companies. During the following decade the academic focus was the goods and services dichotomy [20] and IHIP² emerged as the best-known model to define and describe services [42]. With the turn to service dominant logic [e.g., 36] this dichotomy between service/products is questioned. Service and goods create a single customer experience from the customer’s point of view. Consequently customer participation and co-creation have decisive roles in the recent service marketing literature. Firms cannot deliver value, instead value is co-created with the customer. But while the customer determines the value of service innovation, it is the firm that is responsible for developing the proposition [12] That the firm is responsible for the management of the co-creation process and development of the value proposition is a position that is currently strongly held within the marketing literature.

Within the service management/marketing discourse service design has been treated similarly to how product design has been treated in relation to products. Edvardsson et al. [5] describe it as, “*In the design phase the service concept is developed into a service*”, thus making service design a distinct phase. This means that service design is seen as an “add-on”, like styling or something that enters quite late in the process. This

¹ There is a strong tendency within design to go from service design to social innovation, citizenship design or other similar concepts. We do exclude these in the overview since we are focused on the relation towards service management.

² IHIP stands for **I**ntangibility – services are not tangible, therefore they cannot be judged before consumption, for example, compare a sweater with a bus trip; **H**eterogeneity – the people that take part in the service delivery process, provider and consumer, are unique at each occasion, therefore it is not possible to reproduce a service; **I**nseparability of production and consumption – services are consumed and produced at the same moment, hence the planning and development process must be different; **P**erishability – service cannot be stored or saved [42.] Zeithaml VA, Parasuraman A, et al.: 1985 Problems and Strategies in Services Marketing. *Journal of Marketing*. Spring85;49(2):33-46.

is fundamentally different from the descriptions of service design in the design discourse, where its holistic character is emphasized [e.g.,22, 34].

Service innovation and the difficulty of categorizing an innovation as radical or incremental

Research about *service innovation* mirrors early discussions within service marketing, namely, differences between services and products, and the extent to which the innovation processes are different [7]. Innovation in service can be seen as “*renewal of human behavior*” [35:26], based on the view of service as “*fundamentally a behavioral act*” (*ibid.*). Innovations in service are often both technological and behavioral, as well as a combination of the two.

Service innovations can take place in the three dimensions of capabilities, processes and outputs [31]. Realizations of innovations in one dimension almost always require changes in the other two (*ibid.*), which makes the relation between these three dimensions complex. From a service-logic perspective radical innovation is about changing the customers’ role in the three other dimensions, i.e., as user, buyer and purchase Michel et al. [21], as well as how the firm creates value through the integration of resources.

Gallouj and Weinstein [7] argue that when the service is co-created with the customer, the dichotomy between radical and non-radical innovation is disrupted. They describe ad-hoc innovation as typically characteristic for service innovation, happening in direct relation to and interaction with the customer at the realization of service. Deciding what is a radical innovation in service becomes an issue of deciding what is a major change for the stakeholders in these various dimensions [31].

Radical or incremental innovation in service is a complex issue related to the behavioral act and varying roles of multiple actors such as users and employees, multiple processes and the realization of service, and the suggestion is to regard radical/incremental innovation rather as a spectrum than a dichotomy.

Theories of user involvement in (service) design

The customer has a central role in the development as well as the realization of service in both *service design* and *service management*. The focus on co-production - or even co-creation - of the service brings the customer/user into a central position. In the following section we give an overview of different approaches to the user within the service design area.

User-centered³ design

Sometimes different types of user involvement are gathered under the common label of user-centered design (UCD) [26]. Other sources separate the different approaches and suggest that user-centered design is one approach that lays along side other user involvement methods [27].

Sanders and Stappers [27] discuss two main – and opposing - perspectives of designer-user involvement, designing for users or with users. In the first perspective designers see themselves as experts and people as users/customers, the authors argue that the approaches of user-centered design is within designing for users. The main concepts in user-centered design include methods and approaches that aim at meeting the needs of the user by collecting, analyzing and interpreting data. The key issue is to find out different ways to approach user's needs, dreams and expectations, whether recognized or un-recognized (e.g. [26]), by experiencing the service through the customer's eyes [33:34].

Design with users takes another position where the people are seen as the experts in their respective domain [27]. People are truly valued as co-creators. Methods and approaches from the participatory design tradition [6, 9] as well as user-centered design approaches from interaction design [11, 22] are often related to this approach.

Human-centered design (HCD) is another concept, described by Krippendorff [17:26] as deriving its criteria from stakeholders lives and then made available to the community. Krippendorff studies design from a hermeneutic perspective as a meaning-creating activity. HCD is also described in the ISO 13407:1999 standard as consisting of four distinct principles with the focus on how to involve users and their demands in the design process, as well as the design process as such.

User-driven innovation is another similar concept used to frame the relation of the designer to the user in innovation processes, where the users actually lead the innovation process [26] which can be related to the concept of lead-user innovation [41]. In the product innovation context, where the innovation capability of the users is discussed, Herstatt [31] argues that there also are service lead users.

Design Driven Innovation

Design is making sense of things, argues Verganti [38, 39], influenced by Krippendorff's [17] thoughts on designers' practice and focus on the human perspective and relation to human-centered design. However, this aspect is distanced in the concept of *design driven innovation (DDI)* [40]. Here designers should take an expert position together with other experts in the network and then propose solutions *to* the customers rather than creating them together *with* the customers. Don Norman, a former spokesperson for user centeredness in the tradition of interaction and experience design, also argues against close interaction with users for reaching innovative results [24].

³ A note on the concepts *centered* and *driven* is probably needed. The words are seemingly used interchangeably as in user-centered innovation, user-driven innovation. However, an important distinction is that in the first case the user is in the focus but not explicitly leading the process, as in user-driven innovation. Supposedly the same would apply for the design-driven version.

The concept of DDI suggests that rather than co-creating solutions with the customer, the firm and designer should propose *new meanings* to the market. The designers then take on an interpretative and propositional role rather than ‘merely’ functioning as the facilitator between the users and the company. Further, the focus moves from technological or functional innovation to innovation of meaning. Most examples of DDI are related to product design, but it is also suggested for service design.

Theoretical conclusions and the research problem

This paper takes a *service design* perspective regarding *service management* as a related sibling discipline. Though researchers study the same phenomenon – the user or the customer and how to create more value for and with him/her – the areas have different roots: they refer to different empirical practices and professional groups (designers versus marketers). Another, more distant area is *design and innovation*, with its roots within the encounter between design and engineering culture. However, Verganti’s notion of *meaning creation* that regards the design process as an inherently meaning-creating process can be applied within the service sector as well as for products..

There is, however, one obstacle in this transformation of Verganti’s theoretical perspective into service design, namely, the concept of design driven innovation. This is problematic for two reasons: first, theoretically it stands in sharp contrast to Vargo and Lusch’s view that service must be, and always is, created with the customer and, second, we have practical difficulties in placing our empirical notions within the dichotomous approach of DDI.

Our research question therefore can be re-formulated as: *How to reconcile Verganti’s notion of design as meaning-creating activity with a service design perspective that puts the user in the center?*

The empirical study

This paper relies on interviews made in a broader ethnographic study that focused on professional design practice in a service context. One of the authors (Wetter Edman) followed a large Swedish design company and two of their service design projects with respective clients. One client was a multinational industrial company that was taking the rather common strategy to extend their service concept. The other client was a traveling company, i.e. a more traditional service company. As a researcher, Katarina Wetter Edman conducted fieldwork shadowing persons in their daily work in the design and client companies [3], participated in meetings and workshops (ibid.), and conducted both formal and informal interviews [18].

The interviews analyzed in this paper are part of data collected from a separate series of interviews with designers in three different design companies (one of them being the company of the ethnographic study and the other two companies we found most interesting to talk to in a Swedish context). The aim of these interviews was to obtain a broad view of how service designers work and how they make sense of the area of service design.

Eight designers⁴ employed at three different Swedish design consultants were interviewed, individually or in couple. The material also includes a recorded meeting with 2 designers and a client. They were all experienced design practitioners, but their experience of service design differed. The companies ranged from (1) mainly focusing on product and interface design, to (2) having an explicit focus on design strategy, and (3) having a wide range of design competencies but with roots in product design, moving towards service design through interaction design and design management.

The interviewer used an interview guide inspired by Kvale [18] see fig.1 below:

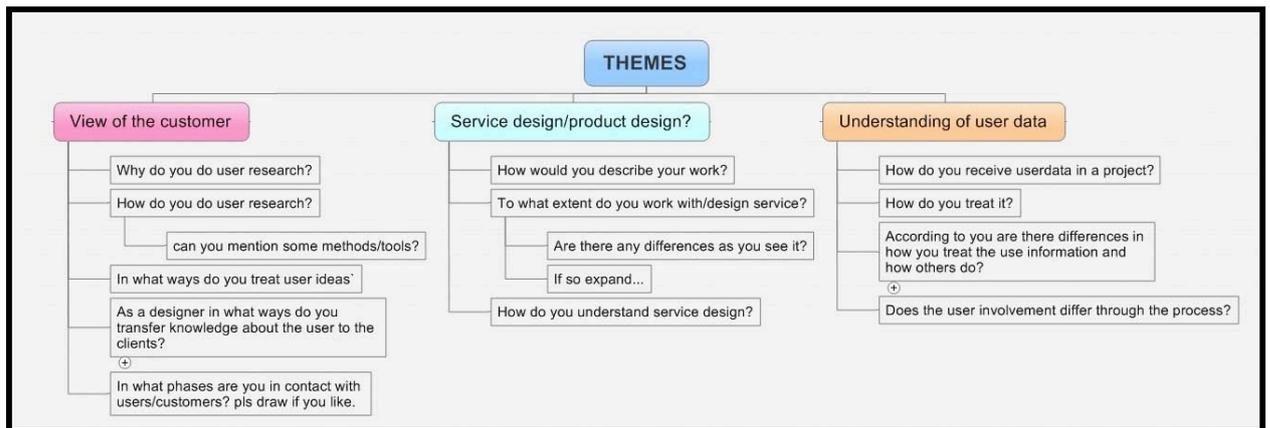


Figure 1 Interview guide

All the interviews were recorded and transcribed by the researcher. The total material consists of about 100 pages of transcribed interviews. For this paper we read the transcribed interviews and independently looked for interesting quotes that relate to our research questions. After gathering the quotes and comments (a total of 55 pages), we worked together to thematise the quotes and relate the themes to arguments of the paper. As the reader might notice, we have been inspired by, but not followed the grounded theory technique [8]. Instead, we have used a more abductive reasoning [1, 4], where on the one hand we problematized “the Design Driven Innovation” perspective and its relevance within the service design area, and on the other hand used the data we already had to validate our intuitions.

When looking at the validity of the material, the context of the interviews must be taken into account. The interviews took place in Sweden in a Swedish context (although all the companies have clients in Sweden and abroad and therefore could be regarded as international or part of the western European “international“ sphere). The year was 2009, which was a specific period in the development of service design practice. However, the narrative style and the transparent way of reasoning in our analysis makes it possible for the reader to judge for him/herself the trustworthiness of the reasoning and conclusions.

⁴ All but one of the 8 designers interviews are product/industrial designers by training and experience, the eighth designer was trained as a graphic designer. They are all increasingly working with service design.

Notes from the field

The following stories exemplify the difficulties of placing them in either design driven innovation or user driven innovation.

User driven does not necessarily mean that the designer is a script for the user

The designers we talked with – who work within the Scandinavian tradition, though some of them come from other countries and all work internationally -- all stress the relation with the user as something very positive and important. This is exemplified by the following quote:

“I think it is beautiful when a person likes a solution but he doesn’t know why. But he knows he likes it... and I think that my challenge is to realize why he likes it. If I ask him he says ‘I don’t know’.”

The quote does not only tell us that the designer likes the relation to the user and thinks it is important. It also shows that he places himself - the designer - in the center of the meaning creation process of understanding what is going on and what is needed. It also tells us that the designer wants his relation to the user to be without any mediator such as marketers or other investigations.

The quote also demonstrates that the designer does not regard himself as a script for the user. On the contrary, designers stress the importance both of seeing what the user does not see, and the importance of the designer’s own creative ideas:

“Participatory design, or user driven design, there is a place for it, I see it as a part of the process. Definitely, but... not necessarily that they [the users] are the ones that are going to grab the pen and design the final solution. They [the users] design in little steps, little pieces of the puzzle.”

Though he claims he works with “participatory design”, the design ideas do not follow directly from the user; it is rather “a part of the process” or “little pieces of the puzzle”. The designer’s role is to have the whole puzzle and put it together, to look from a more holistic perspective and integrate it with other actors in the network. It is neither a distance from the user nor from a broader network. It is difficult to place this designer within the dichotomy of UCD and DDI because he belongs to neither of them, or maybe to a combination of both of them.

Design (innovation) as an oscillating movement/spiral between user and design centeredness

The designers we spoke to all stressed that they worked with the user in different ways throughout the design process. The type and intensity of involvement of users/customers varied. There also seemed to be different notions towards what kind of

ideas can be generated in cooperation with the user, and what knowledge could be created within different stages of the process.

“[In the early process], they [the customers] are more of a source of inspiration and a well of knowledge. It is not until you clearly know what the area will be that they actually can be a part of the creation.

“You couldn’t [involve users] at the stage we’re at; it’s really high [abstraction] level. Nothing tangible to even give [to] users, you couldn’t. It’s too high level to bounce ideas to users.”

In the early stages there is an emphasis on the inspirational quality of the contact with users and their context. The information gathered is, as the first quotation above mentions, more of a source of inspiration than directions on what to create. Later, as in these quotations the designer see himself or herself as superior at understanding abstract relationships in relation to the user/customer. The designer takes an expert position and the user is the layman. In this stage we can see that the process is directed in two ways; in the first part of the process it is user centered, the designer needs and wants the users for inspiration. However, the process is also design driven; the designer moves away from the users and demands space for his or her own reflection, where the designer is in control. But then, later in the process, when the problem/solution is more specified, the users are again invited to co-create with the designers. If the users are involved too early there is a risk that their ideas lack relevance for the project:

“It is not bad and they can do fantastic things, things that this company usually doesn’t do, but it isn’t new and therefore contradicts the basic thoughts of innovation.”

It appears that the designer thinks that customers/users lack the contextual knowledge that is relevant for the commissioning firm. This knowledge and awareness is part of what the designers develop in the more design-driven parts of the process, which also points towards awareness of where the design practices has one of its core skills, as interpreters of the users context and meanings:

[We] document it [the users context], and include it. Many times it has some changes done to it and then we can’t start from them SAYING this. Instead we have to think about what they MEANT when they said it. This is a job that we often have to do and then we integrate it [into the process]. “

The same designer says:

“From our point of view there is no possible development that can be done without the involvement of customers.”

The quotation emphasizes the importance – from the designers’ perspective - of interpreting what the user is saying. The designers put themselves as an interpreter and transformer of what the users say. This interpretative skill is necessary to do a good design job. However, this “design driven” interpretation is not to the same as a total distancing from the customers. What the users say and do is the most important material

the designers have to work with, as expressed in the second quote; however, the designer is still needed as an interpreter.

“It’s pink and it flies and you know ... it glows” - understanding the user is not easy

The designer in the following example also remains in between UCD and DDI. The main trust lies with the designers’ own processes, but a movement in-between the dichotomy is apparent. Service design seems to ask for an increasing amount of co-creational activities, and the designers in this study (who are moving from product design to service design) increasingly integrate users in the creative parts of the service design work. However, they sometimes find it difficult to know how to work with the co-created material.

“ [The users ideas] are kind of wild and in loud colors and often go for this dream thing. This dream, it’s not like a tangible thing. And what do you [the user] mean by ‘it’s pink and it flies and.. you know ... it glows’? “

Here, the designer first takes on the role of an expert and judges the way the ideas are presented as naïve, and therefore not valid. In this first statement there is a total rejection of the users ideas, they are seen as invalid and also presented in a way that is incomprehensible. However, somewhat later the same designer says:

“After we had kind of done this as well [their own normal design process], this was like first time we’d done it, so we are learning how to interpret these ideas, so then ”Ah ha!!!” If you take this through the pinkness and the fly-ness, they [the users] had specifically told us what they wanted in a kind of emotional themes. “

Here, an understanding of what the user ideas could bring emerges. The statement develops – from a rejection of the users ideas and representations towards showing an interest in them. Interesting enough the designers had to conduct their own, proper design process in parallel to understand what the users expressed through their sketches.

“We didn’t know how to understand it [the representations]. It wasn’t until this point that we saw exactly what we were trying to create. They [the users] had given us new input and ideas to go in the directions they wanted. [...] We need to better understand how to interpret people’s co-creation ideas.”

Finally, the designer acknowledges the quality of the users ideas and representations as positive contributions to the design process. However, the designer certainly does not take the representations from the users literally into the design process. Instead, the designer tries to interpret the meaning and integrate that into his or her own proposal. Again. It is impossible to place them into the dichotomy of UDI or DDI.

Introducing “the meander” as the relation between the user-designer as a bridge between UDI and DDI

Our empirical material shows that when the designers transfer from a product design practice to a service design setting, they are constantly moving between *user centered* and *design driven* perspectives. With each move their understanding of the users increases; therefore we can talk about a spiral of increased understanding or a dialectic process. We choose to use the metaphor of *a meander* to emphasize that there are certain places in the flow of the relation where the designers work themselves or in their own network (similar to design driven innovation – see Verganti) and other places where they work in close relation with the user in different ways (similar to user-centered design). Based on the material presented above, we argue that it is not possible to draw a sharp line between design-driven innovation and user-centered design, at least not in service contexts.

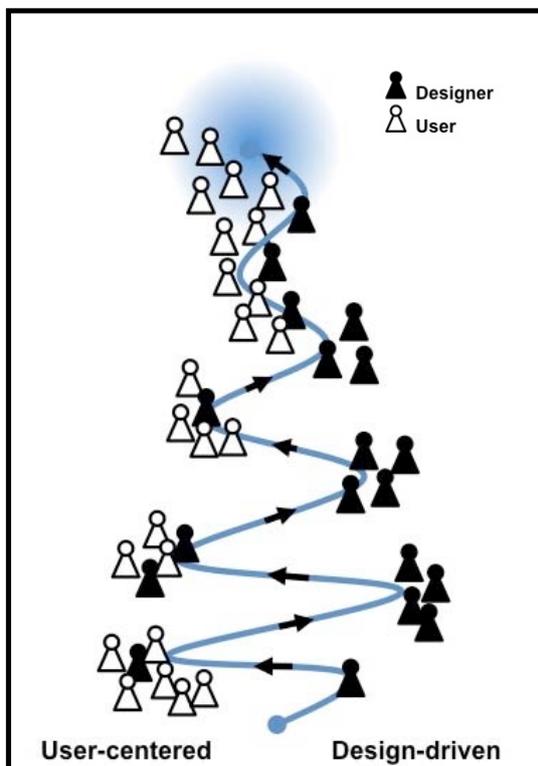


Figure 2 The Meander

We propose that the service design process consists of several moves, as in a spiraling movement. With each move the designers move either closer to the users' context and networks or retract towards the designers' context where integration with several other perspectives is possible. We suggest that meaning creation activities are mainly performed in the stages where the designers attempt to be in their own context. In this way this concept aligns with the concept of Design Driven Innovation, however, we argue that, at least in service, this activity is not possible without close interaction with the users at various stages throughout the process.

Summary

In this paper we have demonstrated that the dichotomy between design driven innovation (DDI) and user centered design (UCD) that Verganti proposes for radical innovation is problematic in the service design context. Instead, we propose a new model that builds on the metaphor of “a meander”. This suggests that the design process encompasses moments of both user driven relations and moments of design driven innovation. These moments complement each other in a hermeneutic spiral - or a meander. The concept of a meander is also chosen to point at the designers resting in different places or having phases of both UDI and DDI within the same design process.

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Connected clothing: Exploring the redefinition of fashion design through wearable technologies.

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Abstract

This paper proposes that new types of ‘mindful’ communication methods could enhance and nurture long distance relationships, developed through clothing that integrates wearable technologies and smart materials. The paper further argues that this significantly redefines the nature of fashion design practices, suggesting a new multidisciplinary model for fashion design education and practice.

Connected clothing draws upon continuing doctoral research within the fields of fashion and textile design that addresses the question raised by Agamanolis: “how can we bring back intimacy in communication technologies?” [1]. If two people are geographically remote from each other can intimacy be enhanced by embedding technologies used in communication devices within clothing design? The research is addressing this question by drawing on the inherent aesthetic and emotive qualities of craft practice and using them as a tool to project personal connections and bonds between users, and between the users and the worn device itself. It combines a review of literature and practices in this field with practice-based explorations of the concepts proposed.

Wearable technologies, according to Wallace “are fast emerging phenomena” [35]. However, much research in this field tends strongly towards the technologically driven and market-oriented. This paper builds on previous research by the principal author that explored how virtual communication methods can be more personal and tactile through the use of smart materials and sought to define new methods of remote connectedness.

This research addresses needs that arise from increasing pressures for people to work away from home over short and long-term durations. There is therefore a need to enable people (partners/family members) to communicate in an intimate way over distances allowing them to connect and maintain the intimate bonds. Within a market framework

that is focused on function over beauty and connectedness, there is an opportunity to develop intimate communication devices for the consumer and, in doing this, to create a new direction for textile-clothing products.

The conference paper provides an outcome of the literature and practice review, a summary of the methodologies applied through the research, and an agenda for future research. The exhibition will present experiments with innovative technologies, recycled materials and novel forms to create interactive garments that ignite conversations, body awareness and intimate touch, and develops further work previously exhibited at the Centre for Contemporary Arts, Glasgow [23]. The exhibition provides prototypes that delegates are invited to wear. Their physical engagement with this work will itself be used as part of the continuing research.

Introduction

This paper proposes that new types of ‘mindful’ communication methods could enhance and nurture long distance relationships. Mindfulness [38] refers to a complete awareness and understanding of a situation, experience or process; to be truly mindful of something is to have unimpaired focus and achieve complete concentration on a current activity. These mindful methods of communication will be developed through clothing that integrate ‘wearable technology’ - “garments with built-in electronics or electronic devices and new materials that enable functions far beyond conventional ranges of applications” [36] and ‘smart textiles’ - materials which have the ability to change, controlled by an external stimuli e.g. temperature, UV levels, moisture, electric or magnetic fields, stress or pH. This paper summarises research that explores the need for these new garments as enablers of communication and considers how they can be tailored to meet the individual’s needs. The focus is on the tangible garment as an embodiment of emotion and preciousness, not a consumer product with a necessary limited lifecycle.

There is an emerging context for this research that embraces:

- i. Increasing remoteness and distance in human relationships.
- ii. The development of technologies to deal with this phenomenon.
- iii. Doctoral research in craft, fashion and design that is exploring wearable technologies.

Within a market framework that is focused on function over emotive qualities of connectedness and the objects that enable it, there is thus an opportunity to develop emotive communication devices for the user and, in doing this, to create a new direction for textile-clothing products. New developments within the world of wearable technology “are fast emerging phenomena” [35]. However, much research in this field strongly tends toward being technologically driven and market-oriented. This paper aims to explore the literature and practice surrounding these new technologies as a way to enhance communication through creating a multi sensory experience for the user. This paper aims to demonstrate that it is possible to heighten the connection between two people whilst they are separated by distance through using touch, visuals and audio

as emotional stimuli. It aims to present the potential of these types of communications to sustain relationships and bonds and will highlight the need for these instant, but personal communication methods. This builds on the principal author's previous research into the field of smart materials and wearable technologies, where interactive garments were used as tools to ignite conversations, body awareness and intimate touch between wearer and non-wearer, and wearer and garment [23].

A summary of the methodologies applied through the research will be presented as a way of generating, analysing and storing data. Knowledge swatches, visualisations, categorising and tagging data will be discussed within the design practice and how these can be used to inform the development of the research and its allied creative practice.

An agenda for future research will be outlined, focusing on the potential of the emerging area of the wearable technology and smart textiles as a tool to instill personal connections and bonds, through clothing design, between users, and between users and the worn device itself.

Context

What is the need for developing new 'mindful' methods of communication? Economic changes bound up with globalisation are increasing pressure for people to work away from home over short and long term durations. There is thus a need to help people (romantic partners/family members) communicate in a substantive emotive way over distances allowing them to connect and maintain the bonds of relationships whilst apart. Pfauth believes that by reserving "*a few moments a day for quality communication, will definitely lead to stronger and more intense relationships.*" [27]

It is proposed that this type of quality communication could be achieved through integrating wearable technology and smart materials within clothing design. In the context of this study, clothing design was championed as the communication conduit due to the garments' close-proximity to the body and direct contact with the skin. This choice is an important factor as, according to Cholewiak and Collins [5], the skin is the largest sensory organ belonging to the human body. Therefore if a multi sensory communication device is to be successful in stimulating multiple senses in a single communication, the sense of touch would play a major role within the experience. While body to body communication is not possible due to physical separation it is important to simulate this physical connection through other means. The importance of generating these mindful methods of communication, as tools to sustain the intimate bonds of relationships, while the subjects are lacking physical contact, should be acknowledged. Since humans learn and respond through sensory experiences [2], it is important to stimulate these senses through physical touch when designing an emotive communicator.

Poupyrev, Maruyama and Rekimoto [28] affirm that the sense of touch is five times faster than the sense of sight. While this emphasises visuals as important factors in creating initial attraction, feelings of closeness and intimacy are developed and enhanced by touch. This is curious because most current and emergent communications technologies focus on visuals and sound, such as the mobile phone, *Skype* (video conferencing), e-mail and text messaging, and not on touch. To achieve a more thoughtful embodiment of the physical intimacy achieved from face to face interaction, communications must evolve and shift to be tailored to the users needs becoming more

multi-sensory, and in particular emphasising tactile connectedness.

It is not only important to understand the 'need' for physical interaction between humans, but also the importance of such communications being undertaken in a mindful way. As stated above to be mindful is to have a complete focus on a situation, experience or process. Mindfulness then, is an important practice to undertake when engaging in long distance communication(s) with a loved one. It will focus the mind of the 'communicator' and prevent them from 'flitting' their attention from one thing to the next [38]. This will ensure that the message is not misinterpreted, ensuring the recipient will understand and feel the true emotional intent. This urge to be constantly connected to the world via the internet, mobile phone and email often leaves the consumer emotionally detached and unable to focus on a single task. [32]

With the emergence and rising popularity of social networks, within the last decade, it has become important for users to stay constantly connected. The level of personal intimacy must be considered here. Communications which solely offer an outward visual display are not sufficient when designing emotive communications as there is no depth to the communication. It is important to consider the level of intimacy being shared to make sure that the appropriate communication channel is used; a private message shared via a public tweet or wall post does not value the emotive qualities of the message. Being mindful of the process of these communications and the intimate nature of the messages can avoid this intimacy being lost or diluted due to the availability of the emotion, broadcasted by online social networks.

This paper proposes that for consumers to feel truly connected, this must happen through a mindful, multi sensory exchange.

Literature and practice review

In order to begin looking at the redefinition of fashion design through wearable technologies, it is important to firstly explore other contemporary practices and research to evaluate if this is a viable approach.

A review was conducted of related research and creative practice in the field, which was first mapped visually as a means of identifying relevant typologies of practice. The following visualisation (figure 1) was used to plot out various contemporary practice within the field of interaction design focusing on wearable technology and smart materials. These research and creative practice exemplars come from varying investigations into the current technologies from thesis work (Sometimes [24], Blossom [24] and Intimate Controllers [6]), conceptual ideas (Mutsugoto [15], PING [10], and Butterfly Dress [30]) and also from marketable products (Hug Shirt [9], Exmobaby [12] and Pillow Talk [21]).

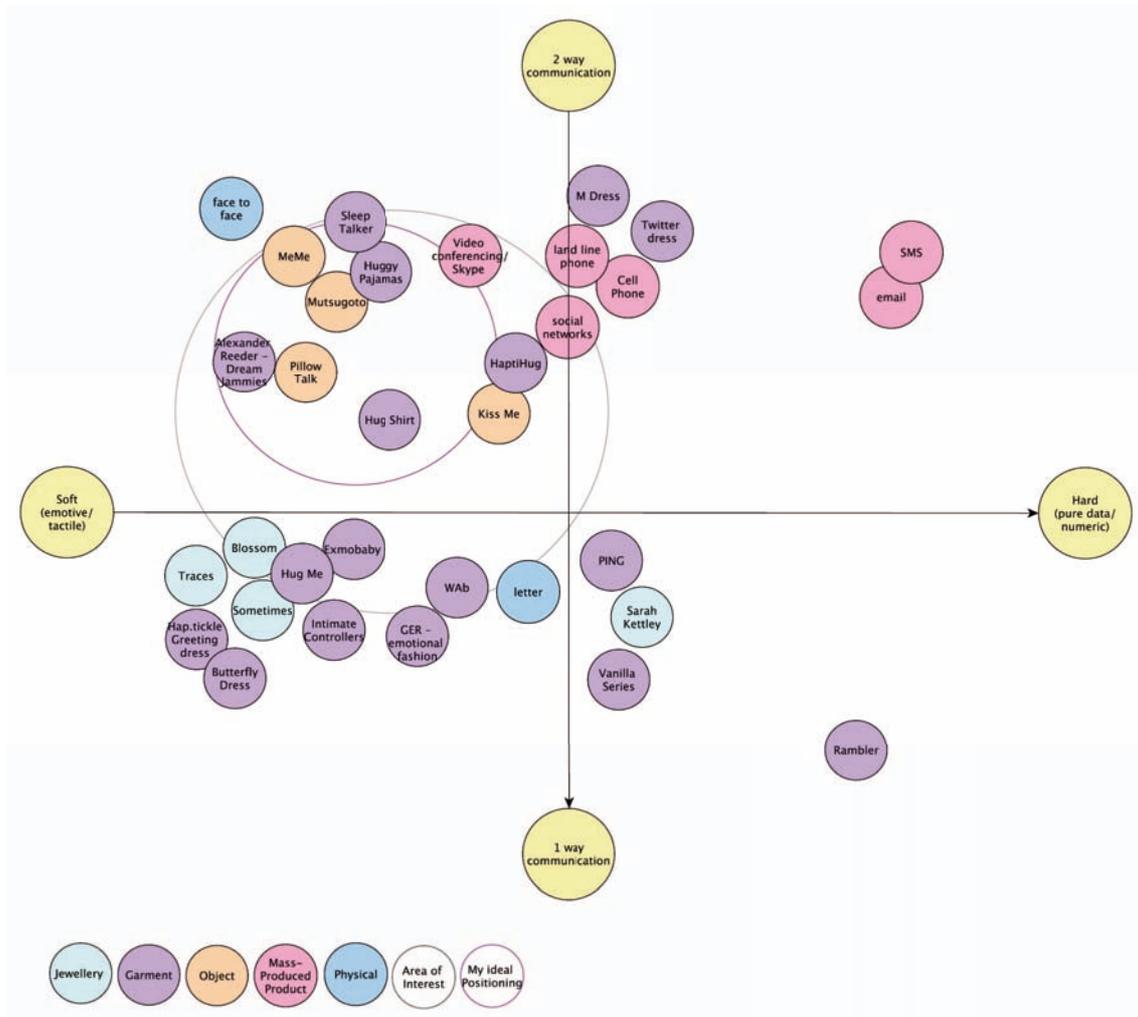


Figure 1 - Map of Wearable Communications in Contemporary Practice

The design concepts, products and technology used for analysis on the Map of Wearable Communications in Contemporary Practice (figure 1) above, were identified as key examples of wearable and non-wearable technologies, which focused on communication from a user to a device, a device to a user or between two devices connecting two users and the emotional values of each. These examples of communication portals were gathered through the principal researchers initial scoping study of the literature and practice surrounding the area of communication technologies, of both wearable and non-wearable. By identifying and using different methods to categorise and analyse this information, mainly visualisations and knowledge swatches, narrows down the focus for study and identifies where this research fits and underlines the relevance and value of it in today's society.

The projects have been mapped according to two dimensions: the vertical axis differentiates between one way and two way communications, while the horizontal axis differentiates between 'soft' data and 'hard' data. The projects have also been colour coded to denote whether they are garment, object, jewellery or product based.

Communications found within the **one-way hard communication** quadrant tend to focus on textual or numerical data. This data is factual and non-emotive; the communication conduit itself has no indication of the quality of the data produced. The

communication device simply sends or receives data to and from an external source. The wearables found in this section are used to show data through a single data stream. The information flows one way only, with no feedback loop to generate any sort of continuous interaction between the user and the device or between two separate users.

Rambler, '*Twitter Shoe*' [18], is a good example of this. It recognizes, sends and records information of the wearer's footsteps and pauses, and displays this information on the wearer's Twitter page, but provides no quality data on the wearer such as their emotional state, location or physical wellbeing; it simply records and posts each step and stop with a series of taps and full stops, offering pure quantitative data.

Two-way hard communications are similar to the one-way hard communications but the data stream flows both ways. Email is a good example of this; information can be passed back and forth allowing for more interaction and connection between the users. These two-way hard communications are used mainly to send and receive information quickly and this tends to be predominantly textual or numerical data. These are favored within the business world due to the efficiency and immediacy of the communication. However, whilst visual and sound communications are well placed within professional relationships (which is where these tend to lie with phone calls, email and video conferencing), they do not have the capabilities necessary to convey the emotive connectedness needed to sustain more personal relationships. It could be argued that the way these technologies are used determine the emotive value of the communication, but this paper proposes that to be truly connected, communications must target multiple senses, especially touch, with one distinct communication channel.

This leads on to the emerging area of 'soft' communication. Soft communication is more tactile compared to 'hard'; it is focused more on emotional connectedness rather than the transmission of textual or numerical information.

One-way 'soft' communications: communications where the information is only flowing one way but the communication is multi-sensory and/or tactile. An important area to explore, especially for garment-based communications, these are highly emotive communication media. However, the emphasis on one-way communications means a lack of reciprocation in the exchange, thereby limiting the nature of the communication. Data within one-way communications cannot be sent back through the same channel it was received; i.e. through the garment. The user would need a third party connector (a mobile phone for example) to generate, process and send a new data stream containing the communication. To eliminate this need for a third party 'buffer', it is necessary to look at those projects in the final quadrant.

Two-way soft communications, are communications which are emotive, tactile and have the ability for the data to be free flowing between the two parties. This two-way soft communication holds the most potential for creating emotive and tactile communication garments.

Through the development of video conferencing and applications such as *Skype* it is now possible for communications to take place offering the user a multi-sensory experience, using visuals as well as sound. While there are many advantages to this type of communication, as highlighted above, they have been designed with work-life in mind, missing key emotive qualities needed for use in more personal relationships. These applications enable people to converse with colleagues worldwide, which can strengthen professional bonds, but do not have the intimacy needed to support more personal relationships.

However there is an opportunity to further develop, within fashion design, a multi-sensory experience of communication: Hayashi, Agamanolis and Karau propose that this technology is still lacking in conveying human emotion to any great extent, and argue that “sound and video used in conventional communication can sometimes emphasise distance rather than break it down... sound traps your partner in a box and video places them in an untouchable place behind a computer window” [15]. While Freeman suggested that “We may rely heavily on the Internet, but we cannot touch it, taste it or experience the indescribable feeling of togetherness that one gleans from face-to-face interaction... we will always have to communicate over distance. We might as well enjoy it and preserve the space and time to do it in a way that matches the rhythms of our bodies.” [13 and 14].

These propositions demand more emotionally responsive communication objects, ones that will enhance relationships and keep users connected, not just verbally but emotionally.

These types of communications found within the two-way soft communication sector offer users a more considered and tactile mode of communicating with loved ones whilst apart. They have the capability of evoking human emotions by mimicking human characteristics and bodily functions such as heart beat, facial expressions and skin to skin touch, while offering the user a real sense of intimacy, through the ‘object’ itself. They have been designed to promote beauty and emotion, not only functionality, which is the primary role within two-way ‘hard’ communication. These ‘hard’ communications address the initial problem of sending and receiving data from a distance, but do not address the innate human need to feel emotionally connected to other people and to personal objects [26].

Therefore this study has shown that there is a distinct need for promoting, instead of negating, human intimacy and connectedness using wearable technologies. These should be positive reinforcement tools for connecting users, and not a convenient mode of data transmission. They should also facilitate communication with emotion rather than with words or images. Hayashi, Agamanolis & Karau affirm that, “Human intimacy is a significant but often neglected part of modern life”. [15] Clearly the object-based products in the above visualisation (figure 1) are starting to bridge the gap between the mass-produced product (whose primary function is traditionally to send and receive information in the most efficient way) and actual face-to-face physical contact (which stimulate senses and emotions). However these need to be pushed further with a stronger emphasis put on the wearability, mobility and appropriateness of these communication devices.

There is another set of communication devices found outside the realm of the product. Based within the realm of fashion and textiles, clothing offers an ideal portal for richer sensory communications through its tactile interaction with the entire body.

This demonstrates the potential for mindful methods of communication that integrate wearable technologies and smart textiles within a fashion design context.

Baurley et al’s research paper [3] detailing the Communication Wear project explains the method of creating a multi sensory stimulating jacket for remote communication. This paper goes on to highlight the ‘want’ for this type of clothing that facilitates communication whilst wearers are apart. Through the studies it was shown that smart textiles which incorporated physical touch (warming, contraction) and visual aspects (led lights) were favored over traditional visual, text and sound based communications

and that participants viewed this type of shift into clothing from gadgetry as a 'natural progression'. The Communication Wear project further supports the argument presented by this paper for the importance of developing wearable communication fashions.

The above literature and design practice review has identified a clear opportunity where further research and design exploration could advance current research and product development within the field of wearable fashion as communication.

Analysis through Knowledge Swatches

Knowledge Swatches are a simple and flexible tool, used to capture and make sense of research information as part of a design research process.

The Knowledge Swatch tool was developed by Hazel White [37] and graduate design students at the University of Dundee to catalogue, to make sense of and to share design research in a useful format. One of the challenges for the designer (and others) is ordering research and development information into retrievable and communicable formats. The relationship and hierarchy of information is dynamic and comes in and out of focus as a project develops.

A method to catalogue, analyse and synthesise information in a creative and dynamic way during the design process was sought, that was shareable and tangible with diverse project stakeholders. An important driver was to encourage students to demonstrate their understanding of research papers and relevant projects, rather than simply collect the information in an unreflective way.

Designers gather information from a wide range of sources: observation of people, places, situations, books, academic journals, material tests, through sketching, taking photos, making prototypes etc.

Traditionally this information might have been kept in sketchbooks, in ring binders, on desks and on walls. Designers need to carry this information with them: to share research, ideas and insights with a range of stakeholders throughout their project.

Information can be catalogued on websites, in blogs and in folders on our computer hard drives which makes it searchable and easily sharable over infinite distances with infinite numbers of people. What is less easy, is to compare and make links between different pieces of information - as screen based systems are temporally restrictive as only one page is in view in any level of detail at a time. Also, importantly, whoever controls the display, determines how long each piece of information is discussed and how it related to other pieces of information.

Knowledge swatches were used to further analyse and categorise the research and practice presented in figure 1. They consisted of key information and images concerning the research mapped and offer a visual library of information (figure 2).

The Knowledge swatches offer a clear 'snapshot' of a project by identifying key visuals and information, which can be used quickly to identify if a specific piece of design

research, is relevant to the study. This essentially categorises the data into an efficient way of data selection.

The individual swatches can be laid out arrayed and re-arrayed to make connections, tell stories, create timelines and synthesise seemingly disparate pieces of information. They can be fastened together into themes or a complete 'pack'.

The distinctive nature of this tool is to capture, synthesise and communicate theoretical and practical knowledge in a physical and visual way as opposed reductive textual methods as part of a design process. This explores the hermeneutics of learning, the theory that people learn and respond through doing.

These knowledge swatches are easily understood and digestible, offering the key information of a project which enables the users to gain a good insight into the projects, as well as providing further sources of information, from hyperlinks, books and papers, if more data is required. They are moveable and expandable, meaning that they can be used in a variety of settings and are easily amended and built upon as the projects grow or are commented on.



Figure 2 – Knowledge Swatches

Future research will concentrate on utilising the principal author's skill sets within a fashion and textiles framework and use this knowledge as a basis to construct beautiful, emotive and tactile communications that will be mindful of the users needs, wants and desires. These will have the capabilities to physically communicate their emotions remotely, whilst separated from their loved ones.

Practice-based work

The principal author's previous work focused on the field of smart materials, communication and clothing design [16]. Experiments with innovative technology, recycled materials and unusual forms created interactive garments that provoked conversations, body awareness and intimate touch. The work was invited for exhibition at the *New Media Scotland Cryptic Nights Event* at the *Centre for Contemporary Arts, Glasgow* [23]. The expertise developed enabled the researcher to develop the ideas further through feedback received at the event. This highlights the importance of prototyping, user testing, analysis of user-feedback and re-design before arriving at final prototypes that became an integral part of the methodology. The content of this paper builds on this earlier work into communication garments along with the understanding of and empathy within mindfulness to further extend the limits of this thinking and technology.

This previous research placed importance on participant interaction, emotions, situations, and the adapting of research methods to suit the individual's wants, needs

and desires. By utilising this methodological approach, future research will use this thinking as a focus to explore wearable technologies within fashion design in order to facilitate communication over distances between intimate partners and close family members.

Therefore, the aim for this subsequent research will be to establish a new mode of communication, utilising fashion and textile design methods and qualities as tools to develop emotive communication devices that will be differentiated from their product design counterparts through the methodology used. The relevance and value of these new communicators will be backed-up with evidence that they will aid emotive communication, through these new design methods.

The success and potential of these types of communication methods will be explored and analysed showing the market value of these products. This in turn will be evaluated with the intention to develop prototypes of instant wearable communication devices, which will empathise directly with the individual's needs and unique situations, and be tailored accordingly.

Conclusions

This paper has presented the argument for future exploration into the use of wearable technologies to connect people remotely, in an emotive way, through clothing design. It has highlighted the need for new types of 'mindful' communication methods within clothing design and suggested how they can be used as tools to enhance and nurture long distance relationships through the use of wearable technology and smart materials. It has drawn on research that examines the need for these new garments as enablers of communication and has considered how they could be tailored to meet the individual's needs. It has highlighted the main reasons behind the need for this new emerging context that aims to develop emotive communication devices for the user, which will inevitably create a new direction for textile-clothing products. It has outlined the key area where this future knowledge will be positioned and outlined some of the key contributors within the field of wearable interaction design. It has also put forward the case for the development and integration of the wearable computer within fashion design through craft, and the reasons why this could bring about a new fashion paradigm.

This paper has also highlighted potential future study into the field of wearable technologies as emotive communication devices and has hinted at possible solutions.

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The European Academy of Design

The European Academy of Design was formed in 1994, to improve European-wide research collaboration and dissemination and to promote the publication and dissemination of design research.

The Academy is headed by a committee of leading academics from across Europe, as well as from North America and Australia.

To date, the Academy has hosted eight international conferences. The last being hosted by The Robert Gordon University, Aberdeen, UK. The next being hosted by the University of Porto, Portugal, in association with ID+, Institute of Research in Design Media and Culture.

Since 1997, The Design Journal had been published in association with the European Academy of Design. This refereed journal, published three times each year, provides a platform for the dissemination of design thinking and research. It aims to encourage discussion across traditional boundaries between practice and theory, and between disciplines defined by working media, materials and areas of application.

The Academy also publishes the proceedings of its conferences.

Membership is open to all of those interested in design research, whether academic, student or practitioner.

The EAD Executive Committee

The Executive Committee consists of academics from mainly European countries, as well as several from outside of Europe. Their role is to steer the Academy and develop future activities. The Committee has a full meeting at each conference and a sub Committee meets quarterly to review progress and to programme conferences and other activities. Members of the committee independently collaborate on other activities such as workshops, held under the auspices of the European Academy of Design.

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Julian Malins: The Robert Gordon University, UK
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Emma Murphy: Graven Images, UK
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