

Northumbria Research Link

Citation: Young, Robert (2008) A Taxonomy of the Changing World of Design Practice: A vision of the changing role of design in society supported by a taxonomy matrix tool. In: Changing the Change: An international conference on the role and potential of design research in the transition towards sustainability, 10-12 July 2008, Torino, Italy.

URL:

This version was downloaded from Northumbria Research Link:
<http://nrl.northumbria.ac.uk/12013/>

Northumbria University has developed Northumbria Research Link (NRL) to enable users to access the University's research output. Copyright © and moral rights for items on NRL are retained by the individual author(s) and/or other copyright owners. Single copies of full items can be reproduced, displayed or performed, and given to third parties in any format or medium for personal research or study, educational, or not-for-profit purposes without prior permission or charge, provided the authors, title and full bibliographic details are given, as well as a hyperlink and/or URL to the original metadata page. The content must not be changed in any way. Full items must not be sold commercially in any format or medium without formal permission of the copyright holder. The full policy is available online: <http://nrl.northumbria.ac.uk/policies.html>

This document may differ from the final, published version of the research and has been made available online in accordance with publisher policies. To read and/or cite from the published version of the research, please visit the publisher's website (a subscription may be required.)

www.northumbria.ac.uk/nrl





A Taxonomy of the Changing World of Design Practice

A vision of the changing role of design in society supported by a taxonomy matrix tool

Professor Robert A. Young¹

Abstract

Design academics have advocated the need for design to re-orient towards more sustainable outcomes and for a change in the role of design in society since the start of the millennium. Design has entered a brave new world where boundaries are crumbling and design disciplines are blurring yet the word design has become hackneyed and references often obfuscate its real impact, particularly the emerging role of designers in contemporary society. This paper presents a vision of the role of design in our lives and society in the form of a taxonomy matrix, derived by comparing literature with reflections on design practice projects undertaken between academia, industry and the public sector, which demonstrate characteristics of the changing nature of design practice.

1. Introduction

Design academics have been advocating the need for design to re-orient itself towards more sustainable outcomes and for a change in the role of design in society since the turn of the millennium (e.g.: Cooper, Manzini, Young), when the UK Chancellor of the Exchequer hailed design as vital to the future of British Industry in 2005 and design was cited as central to the UK

¹ Northumbria University, Newcastle upon Tyne, UK, School of Design, Associate Dean Research and Consultancy, Director Centre for Design Research, email: robert.young@northumbria.ac.uk

economy in an influential government report (Cox), we knew that times were really changing. Design has entered a brave new world, a world where boundaries are crumbling and design disciplines are blurring. A world filled with 'T' shaped designers working side by side with scientists, engineering, computing and business professionals.

What then can we remark about design practice? Design became a hackneyed word over the last quarter-century. A conference presentation by Prof John Heskett made this point back in the early 1980s (Heskett 1987). The term is now used interchangeably with that of 'innovation' and is seen as a touchstone to denote contemporary thinking. The Design Council in the UK has been vigorous in its promotion of the link between successful innovation in business through use of design (Design Council), to such an extent that the association now has become accepted and automatic to many both in the worlds of design and business. Much less attention is given to articles which question this new orthodoxy for example James Heartfield's criticism of; 'The Creativity Gap' in the creative industries in the UK (Heartfield 2005), which argues that whilst: "Good business may lead to more and even better design. But more and better design does not, by itself, lead to good business. To imply as much is just hyperbole. But then the design business has never been short on that." This thinking shows that despite the Design Council's claim, 'design spending is the dependent, not the independent, variable' in business practice. .

Design has long been appreciated for its style and is seen to be synonymous with fashion, modern culture and aspirational lifestyle, but these stereotypical references to design have obfuscated its real impact, particularly the emerging role of designers in contemporary society. This paper presents a vision of the emerging role of design practice on our lives and our future society in the form of a taxonomy framework or matrix. It is derived from the comparison of design process literature with reflections on a selection of collaborative design practice projects and events undertaken between academia, industry and the public sector, which demonstrate characteristics of the changing nature of design practice.

The research underpinning this paper was undertaken to address a challenge now facing design and designers to better articulate its substance. But if we are to move Design beyond its stereotypical reference, (within industry this would move it out of the studio and into the boardroom) then we need to inspire and convince people with more than our innate creativity. First we need to fully understand how design thinking and processes can and does add value to businesses, products and services in the private sector but also organizations, communities and their endeavours in the public sector. Then we need to communicate these benefits and show clearly how design can and will act as a catalyst for positive, sustainable change to the economic, political, ecological and social future of our countries and their societies – now and in the future. Developing this understanding requires an ability to reveal more of the tacit understanding that Designers bring to the contexts of their work (Polanyi). Communicating the benefits is a real challenge to designers and design academics, which typically spend their time concerned with the objects of designing rather than portraying the benefits of the design process to others not trained as designers.

Obviously Design will not achieve this change in isolation. Although it has a central role to play, it is only by working with different disciplines and partners that it will be able to deliver the holistic solutions that will drive change forward. Northumbria University, School of Design has a history of working collaboratively with companies and organisations on design practice learning projects to explore the forefront of evolving design practice. This paper and its presentation at Changing the Change intends to take its audiences through a journey of design, specifically how it has evolved within a generation. It does this from reflections on the practice of the School's work and the work of other notable projects with external collaborators and on multiple academic

perspectives of the teacher, researcher and design practitioner. The journey does not dwell on the outcomes of designing but on the synthesis of reflections of its purpose and rationale.

The synthesis of the vision described in the paper is assisted by three aspects which have been recurrent throughout the author’s research into and through design practice, in order to frame it. These concern design *contents, processes and contexts* (Young 2004, 2005, 2008). This frame works in conjunction with the three types of knowing referred to by Polanyi in his book; ‘The Tacit Dimension’; tacit, implicit and explicit knowing (Polanyi). The frame of reference considers:

- The traditional role of the designer
- Design as a Creative Process
- The increasingly strategic use of Design and design thinking in business and society
- Why design is continuing to grow in importance and how it will affect our wellbeing and sustainability
- What are the emerging challenges and opportunities for the Designer and the Designer’s influence on society?

The frame or triad of key aspects (content, process and context) is used to discuss the research reflections in the body of the paper against each of the considerations above.

The paper is based on the author’s reflection on experiences within the Northumbria University School of Design, where the academic and pedagogic aims concern engagement in design practice learning. The reflections therefore represent considered views which have evolved from a research, research-led practice and academic teaching position within a School that is regarded as a leading provider of design practice learning and associated knowledge development. The paper uses a matrix (Table 1), which is progressively added to using triads of descriptive terms to assist the synthesis of thinking in relation to the bullet points of consideration above, to portray the author’s reflections from design literature and selected design practice projects into ideas and insights (a vision). This is finally brought to a conclusion as an integrating vision to frame the nature of the changing state of design. The matrix therefore represents a taxonomy (or tool) which provides both narrative and artifice to understand and engage with the change as a topic of learning, research and design practice.

The Changing Role of Design - Taxonomy Matrix of Triadic Descriptors					
Matrix	Traditional Design	Creative Process	Strategic Design	Growth of Design	Emerging Design
Content					
Process					
Context					

Table 1: Taxonomy Matrix of Triadic Descriptors

2. The Traditional Role of the Designer

The Changing Role of Design – The Traditional Role of the Designer					
Matrix	Traditional Design	Creative Process	Strategic Design	Growth of Design	Emerging Design
Content	Material				
Process	Making				
Context	Modernism				

Table 2: The Traditional Role of the Designer

Content

The chosen descriptor to characterize the content of traditional design practice is *Material*. This refers to the traditional role of the designer as the specialist who conceptualizes and configures the physical nature of a product or artifact design. The selector and manipulator of materials into things, products and artefacts. A superlative example of this content is the Apple I-Phone, which is described as surpassing expectations with its user interface and attention to product detail.

The concepts of beauty and order in content creation have arguably moved from the application of precise rules – prescriptive principles of beauty and order, such as the concept of entasis in the definition of the shape of a column in the context of traditional architecture – to assimilative processes of learning the art of design in design practice teaching studios. This contemporary approach concerns much of our man-made environment, and has led to the development of a tacit way of knowing and doing design.

Typical early contributory theory was based on knowledge built on concepts of historicism (e.g. the history of art and design where the emphasis was on the artifact and then the lives of the artists and designers themselves rather than the process of designing). Consequently, the branch of design history which has been perceived by practising designers as most relevant to their work was that of phenomenology for example the work of Margolin and Balcioglu T (Margolin & Balcioglu 1998).

Another important generic characteristic of design practice disciplines is the growth of importance in human centred thinking about design problems. This has naturally led to content or knowledge to support designing derived from the human sciences, specifically human factors, ergonomics and usability – being themselves not pure academic disciplines but aggregates of theory.

Process

Making is the chosen descriptor to characterize the process of traditional designing. Another keyword descriptor could be *Magic* in reference to the description of the process of designing, or lack of it, involving the creative leap that designers often dismiss as magical in fear of becoming too prescriptive about the intuitive nature of their way of working. Other characteristics of the process include:

- Learning to see – through sketching
- Seeing beyond and seeing differently, seeing from different perspectives which is the basis of the creative impetus and process
- Ways of knowing involving designing are largely tacit rather than explicit or even implicit.
- The importance of pattern matching and recognition and coalition across complex sets of data in visual, tactile ways.
- The ability to combine unrelated structures and to get out more than you put in
- Ways of communication
- Ways of learning and exploring

Craft skills were and are of utmost importance to traditional product creation and development. These enable a journey of exploration, of thinking in the round, the refinement of ideas about the configuration of form to the point of specification of surfaces, edges, patterns and relationships. Again, Apple products are an excellent example of this process of form giving, where the designer captures the zeitgeist at the point of product launch in terms of functional elegance and desirability of the product as a cultural icon.

Context

The legacy of traditional design practice is that of Modernism, however, the paradigm that drives the context of product and artefact development is *Materiality* or consumerism. Other keyword descriptors characterizing the traditional use of design in society for the purpose of this synthesis could include; *Measure and Man-Made world*.

The traditional role of design is 'design in context', where the context is set by business and other disciplines have a greater influence in decisions about what is designed, produced and consumed. In the face of the contemporary problems in society, rather than the traditional role of the designer being seen as a passage to a better world, many now believe that it is generating more problems than it is solving (Thackara). Other characteristics of the context include:

- Two and three dimensions – but increasingly now the 4th dimension, brought about by the advent and development of digital technologies and the subsequent convergence of design disciplines i.e. industrial and graphic design in the context of screen-based products.
- Art and Science divided
- Types of knowledge and learning preferences, include kinaesthetic as well as aural and visual
- Developed sense of intuition
- Right brain thinking and thinking flexibly with both halves of the brain
- Design includes logical and deductive processes as well as inductive or abductive processes (Buchanan).

The context of traditional design practice also saw the emergence of Design research in the 1960s.

3. Design as a Creative Process

The Changing Role of Design – Design as a Creative Process					
Matrix	Traditional Design	Creative Process	Strategic Design	Growth of Design	Emerging Design
Content		Method			
Process		Meaning			
Context		Multi-sensorial & dimensional			

Table 3a: Design as a Creative Process

Content

The chosen descriptor to characterize the content of design as a creative process is *Method*. Design methods, based on the notion that design could be described as a scientific process, was the focus of early design research work in the 1960s. This work became seriously questioned by its proposers, who realised that scientific method was at odds with design method. For example, designers don't normally ask why, rather why not? Their approach is more about optimism rather than skepticism.

The outcome is that the majority of design research as a theoretical concern has not made an impact on the work of practising designers. Most of this work attempted to produce increasingly more accurate models to describe the design process. The aspects of what designers concerned themselves with i/e/ content and the situation of its occurrence i.e. context were largely ignored (Young 2004).

Process

Meaning is the chosen descriptor to characterize design as a creative process. The School of Design at Northumbria has a strong profile and interest in developing knowledge about the creative process by observing and reflecting upon its practice. This has resulted in our work being described as Practice-based research, Practice-led research and Research-led practice into designing.

In this sense our work, indeed most of the work of design researchers in our sector could be seen as the generation of reverse engineered theory. We work in the opposite direction to most other disciplines. As Shon explained, we move from the murkiness of real world practice to eventually derive explicit theory and knowledge. Whereas, the academic norm is to move from

established pure theory, to applied theory and then case study based on the experience of professional engagement (Schon 1991).

Our ways of thinking and thinking styles move over different stages of divergence and convergence. We also go round in circles in order to progressively refine our thinking about design problems and usually work both ends against the middle of a project to ensure that the best ideas are realised within a deadline. This requires qualities of discernment and holistic thinking and the capacity to zoom into granular detail and out again to conceptual schema.

But the most enigmatic aspect of our process as designers and the biggest point of intrigue for those who are not is the point of generation of creative ideas. This aspect baffled the early design research movement in the 1960s, who attempted to develop a design science method. Perhaps the most informative work that has researched into creative insight is that of Davies and Talbot – *Experiencing ideas: identity, insight and the imago*, published in *Design Studies* 20 years ago (Davies and Talbot 1987). This draws on a series of interviews they conducted with RSA Royal Designers for Industry about their moments of insight.

They produced a list of key experiences based on the analysis of interviews with the RDIs. (Table 3b) which some would say bears more relevance to religious experience than professional experience.

Having an idea & knowing it's right is based on the experience of:

- Oneness
- Transcendence of self
- Experience of paradox
- Certainty of knowledge about something being worthwhile
- Deeply felt pleasant ecstatic feelings
- Defies analysis – impossible to analyse
- Sense of involvement in something that is ultimate and universal
- Sense of the sacred
- Unique sense of harmony and synthesis
- Effortlessness
- Sudden occurrence
- Obviousness
- Originality, individuality distinctiveness
- Ineffability impossible to articulate or translate into the experience of language

From Davies and Talbot, *Design Studies* 1987

Table 3b: Key Experiences of Creative Insight

Imago refers to a state of consciousness or being in which there is experience of final perfect form. The glimpse of a higher form of consciousness. An immediate consequence of imago experience is that the person experiencing it is motivated to seek it again and again. Its reward induces an addiction, a kind of Eureka fix.

Changing states of design now means that designers have to be T shaped people (Iansiti 1991). That is people with a core discipline (the downstroke) and the ability to communicate and work flexibly with other disciplines (the cross-stroke). “Not to be confused with a ‘Jack of all trades’ T-shaped people have a core competency, but can easily branch out. And they possess curiosity, empathy and aren't afraid to ask why” (Brown 2007).

Context

The chosen descriptors to characterize design as a creative process are *Multi-dimensional and Multi-sensorial* . Other characteristics of the context include:

- The Post industrial society
- Theory – practice divide
- Davies and Talbots’s research was also corroborated by Michlewski’s PhD in the School of Design at Northumbria concerning the affect of design culture on organisations in terms of theories, methods tools and techniques, making meaning and making things happen (Michlewski 2006)
- Embracing complexity and ambiguity, Embracing personal and social empathy and Engaging polysensorial aesthetics (Michlewski 2006)

An interesting outcome from the growth of importance of design in society is the Design Council’s interest in mapping the design process to make it more accessible to others. Whilst this might result in better recognition for the work of designers it might also be seen as too prescriptive of the design process.

4. The Increasingly Strategic Use of Design Thinking in Business and Society

The Changing Role of Design – The Increasingly Strategic Use of Design Thinking in Business and Society					
Matrix	Traditional Design	Creative Process	Strategic Design	Growth of Design	Emerging Design
Content			Modality		
Process			Mimesis		
Context			eMotion		

Table 4: The Increasingly Strategic Use of Design Thinking in Business and Society

Content

The chosen descriptor to characterize the content of the increasingly strategic use of design and design thinking in business and society is *Modality*, Modality refers to the channels of communication and data flow and different modes of being— other keyword descriptors include; *Mannerisms*, which are an important point of study in people for strategic design.

Perhaps the most obvious sign that we need better methods of designing and planning is the existence in industrial countries, of massive unsolved problems that have been created by the use of man-made things, e.g traffic congestion, parking problems, road accidents, airport congestion, urban decay and shortages of such services as medical treatment, mass education and crime detection (Jones). Strategic design content includes Interaction design, Interface Design, Usability and User Centred Design, System operated Product Design, Experience Design and Service Design, which are all concerned to varying extents with the complex relationships between people, products, places and processes.

Here, content knowledge of human factors elements is crucial. Also, the level at which design problems are framed and decisions are taken about them (Fig. 1). The author's work to reconcile the changing states of design content with adequate processes to facilitate student learning for appropriate contexts, was initially based on a detailed review of a complex system design project. Levels of design decision making were found to reside at different levels of design content. Getting the right conditions to improve decisions about content were found to be crucial (Young 1989).

Typical contributory theory here is based on knowledge built on adaptations of social science disciplines such as anthropology and ethnography but translating data from the use of these disciplines into people-centred design opportunities.

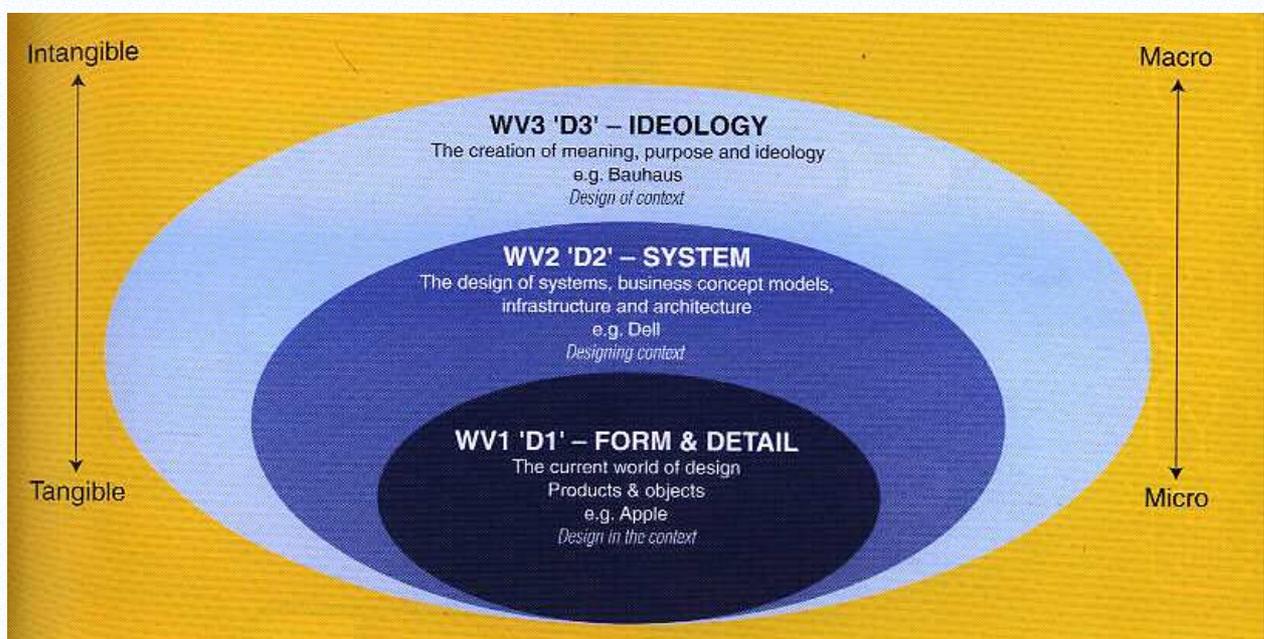


Fig. 1 Model of Levels of Design Content

Process

Mimesis is the chosen process keyword descriptor to characterize the increasingly strategic use of design and design thinking in business and society. Imitation and empathy in the design of services and systems of operation to mimic and complement the behavioural patterns of people. Other characteristics of the process include:

- Not so much learning to see as learning to listen (DASH 2007)
- Key skills are communicating across disciplines and facilitation
- Key approach of designers is using prototyping techniques to fail early to succeed sooner in interaction and interface contexts for new product development.
- Key purpose is to describe the journey – to identify the touch-points
- Main feature of service design is, that unlike our concept for traditional product design that goes in cycles of starting and finishing a new generation product and going to market, service design starts and just continues – to be refined and evolved
- Product development in the past has been infatuated with the destination – rather than the journey, with outcomes rather than the process
- This is a key learning change for the way we will have to train designers in the future, including the approach of the trainers to the learning process.
- It's lifelong and continual.

Context

eMotion is the chosen context keyword descriptor to characterize the increasingly strategic use of design and design thinking in business and society. Other keyword descriptors include:

- Movement
- The strategic role of design is 'designing context' (see Fig.1)
- The strategic role of design in respect of activities such as service design requires a very different approach to the professional dominance of 'the designer know best'
- The context lies in the fourth dimension, where time and experience are more important than materials and physicality
- Currently the majority of industry and public sector are not familiar with the nature of service design from the user perspective
- They are unable to easily comprehend the risks involved in service delivery
- Risk assessment is at the heart of all new design projects.

In the indeterminate world of strategic design and service development where complex contexts of user needs, desires, emotions and aspirations apply, the problems of collecting and interpreting user data for the design process has a greater similarity to the nature of processing evidence in a court of law than conventional user centred product design and development. In this situation the point of interpretation can be as enigmatic as the search for truth in the face of expedient legal procedures. In a recent real-time TV drama on BBC TV; 'The Verdict' trailer was: 'The truth is what we choose to hear and believe'. – Designing on this basis needs to be based on trust and integrity or a very close reference to roles and responsibilities for those addressing the design brief!

5. Design's Growth in Importance and its Affect on our Wellbeing and Sustainability

The Changing Role of Design – Design's Growth in Importance & its Affect on our Wellbeing and Sustainability					
Matrix	Traditional Design	Creative Process	Strategic Design	Growth of Design	Emerging Design
Content				Mutation	
Process				Mediation	
Context				Memorable	

Table 5: Design's Growth in Importance and its Affect on our Wellbeing and Sustainability

Content

The chosen descriptor to characterize the content of design's growth in importance and its affect on our wellbeing and sustainability is *Mutation*. We are now seeing the growth of people-centred solutions. Even our dear NHS has seen the need to move from a service based on medical resource capacity, driven by the available clinical personnel, to a patient focused service! We are moving (mutating) from industry can-do (well at least in the west) and the expansion agendas of nations to service content based on the emancipation of people in society, connected by viral communication systems and global multinational industries. Society is in awe of Innovation and creativity and all things design! Design is the new money. People, companies and public organisations see the need to be different or differentiated – to stand out!

Typical contributory theory here needs to be based on knowledge built, not only on the application of social science disciplines but also political science and arbitration skills.

Process

Mediation is the chosen process keyword descriptor which underpins the growth of design's importance. Other appropriate descriptors include; *Manoeuvre, Management, Multi-processing*.

The increasing understanding in society is that to contend with many of the social, environmental problems confronting our future sustainment we need to employ much better 'joined-up thinking'. Designers' capacity to think holistically and follow through to detailed practical solutions is becoming increasingly appreciated. Designers are happy dealing with the complexity and ambiguity that many other disciplines find intractable. Design has the ability to work in counterpoint using both deductive, analytical and rational problem solving as well as inductive, creative and intuitive processes.

Whilst the advantage of designers using prototyping techniques has already been mentioned under the strategic design consideration above, the concept; of failing early to succeed sooner in new product development, has to be questioned as to whether it is the best best strategy when you are working with people as the object of your designing! The process of 'real-world' working by people in organisations is that; anecdotes constitute their experience upon

which decisions are made – design needs to be aware of this. Even in the midst of complex science issues and data, practical decisions are made this way, when scientific procedure stops.

So design can assist science to get across to lay people. It helps to translate scientific concepts in ways that people can engage. Design performs the role of mediator in complex social and technical contexts very well because it is good at seeing all points of view and honouring those that make them. It is also good at pattern matching potential solutions.

Context

Memorable is the chosen context keyword descriptor for this consideration.

Companies are curious about the level of creativity that designers can bring to bear in relation to their organisation because they are becoming increasingly aware that design is influential in changing the creative and innovative performance of businesses. Nevertheless, as GJ Galbraith famously remarked, the business of business is business (Galbraith) and businesses are naturally risk averse to the untried and tested. This is a challenge to the creative professions and for designers who wish to expand their level of influence in and through their work to the greater sphere of concern. And the proclivity of design is to have an ambitious sphere of concern. In this context of growth of design, a mantra principle of sustainment to emulate is that of Gaia! This eschews professional arrogance and requires real collaborative working.

Whilst designers have been described here as optimists, the concept of Utopia is realised as being unattainable. Designers are right brain thinkers in an increasingly right brain world. The prize for industry is that they seek after the most memorable experiences that will leave their customers and users coming back for more! But brand reinforcement cannot be the only target.

6. Emerging Challenges and Opportunities for the Designer

The Changing Role of Design – Emerging Challenges and Opportunities for the Designer					
Matrix	Traditional Design	Creative Process	Strategic Design	Growth of Design	Emerging Design
Content					Multiplex
Process					Multivalency
Context					Morality

Table 6: Emerging Challenges and Opportunities for the Designer

Content

The chosen descriptor to characterize the content of emerging challenges and opportunities for the designer is *Multiplex*. For how do we teach the Wired Generation or the Mosaic Generation – Generation Y otherwise known as the Millenials (Sharp)?

This generation thinks differently. They are also predominantly right brain thinkers. Their drift is to study the arts and humanities rather than science and technology. Dick Buchanan of Carnegie Mellon University talks about the importance of oratory for design education (Buchanan). One of the liberal arts and sciences advocated by the Greeks and then the Romans. It forms the 'Trivium' of subjects that scholars were meant to become proficient in. His point is to underline the importance of verbal exchange of ideas and the communication of understandings between designers and clients and users. Perhaps we can go further here in support of the importance of effective storytelling in order to meet the multiplex nature of design in the future. It is not enough to produce isolated representations of design intent locked into a drawing or model or artwork or even an animation that does not communicate the full extent of a new product or service context. Designers need to become the new chattering class!

Process

Multivalent is the chosen process keyword descriptor which characterizes the content of emerging challenges and opportunities for the designer. Other characteristics of the process include:

- Emergent design is about the power of ideas
- Creative thinking without boundaries
- Naming and framing skillfully to develop sophisticated design briefs, because the bigger challenge is not designing a solution to a problem but deciding what the nature of the real problem is and how it might be addressed
- The power of stories to communicate ideas for risk assessment by boards of industry and public sector organizations
- And of course – sense making and making meaning – always!

Context

Morality is the chosen context keyword descriptor which characterizes this consideration. The emerging role of design is 'design of context' (see Fig. ?). Examples of this type of design have already been piloted in the School of Design with companies such as Unilever and Philips (**Unilever and Philips Slide**). This form of design is:

- People focused
- Future facing
- Based on intrinsic creativity and modes of design thinking
- Requires high levels of craft skill and technique e.g.: film making and narrative building
- Putting creativity to work
- Making things happen
- Using design as an agent for change in society.

These are principles of Northumbria University, School of Design's philosophy of working. They are as relevant to design at this level as they are as a guide to support design activity at the traditional/contemporary end of design principles involved in product and artefact production.

Society is infatuated with immediacy 'right here-right now' and global industry has to operate in this context. The problem for many industries is that this context includes a process of due diligence around the testing and validation of new products and services before they can be realised or commissioned. This squeezes much of the traditional gestation process for new design thinking out of the process of new product development. Therefore, the role of leading

international University Schools of Design concerned with the development of design practice learning for real-world contexts is that of 'slow-reactors' in a fast reactor context! By this I mean that there is an important role for these Schools in the proliferation and development of vital ideas for consideration by industry in an off-line context.

The bigger challenge for education was alluded to in the Cox Report on Creativity in UK Business (Cox), that of building truly interdisciplinary programmes of learning to ensure the maximum capacity of industry to implement innovative business practice. This requires that students in the Schools of Design, Business and Engineering as well as other disciplines, are capable of understanding each other in the context of mutual learning. Northumbria is committed to embracing this integrated form of educational experience and is building a Design Lab (nuDIL) to pilot this type of working.

7. Conclusion - Towards an Integration

The Changing Role of Design – Towards an Integration						
Matrix	Traditional Design	Creative Process	Strategic Design	Growth of Design	Emerging Design	
Content	Material	Method	Modality	Mutation	Multiplex	Matter (Body)
Process	Making	Meaning	Mimesis	Mediation	Multivalency	Mind
Context	Materiality	Multi-sensorial & dimensional	eMotion	Memorable	Morality	Morphology (Spirit)
	< Micro				Macro >	

Table 7: Towards and Integration

Content

All of the derived triads or key descriptors, across the points of consideration are shown on Table 7! These show a movement from the material and physical and micro scale to the increasing concern with the evanescent and macro scale of design problems. It is not that the traditional domains of product and artefact creation are of less importance nowadays, just that the complexity of dealing with the human condition in the modern systems supporting our lives has become more prescient. This also requires a better fusion of mind, body and soul / spirit on the part of design activists to see projects through to successful completion.

Process

The problem for design is to assist the learning of tacit knowledge – (which is hidden or incapable of being described easily) in the design process to implicit knowledge (capable of being revealed through the development of skills and knowledge) to explicit forms of knowledge.

Design has evolved sophisticated ways of teaching (project-based learning) in order to help develop these different types of knowledge in its students. But the processes are still seen as largely esoteric by our colleagues in other disciplines. We need to become better at explaining

the values of our processes, even though the resulting outcomes (content) usually speaks eloquently to the world.

Context

Design in society in the developed world – some would say the ‘wrongly developed world’ (Thackara) compares with the needs and aspirations of the emerging and developing nations. At present – 3 product groups in western society cause 70-80% of the total environmental impact in cities, i.e. Home and related energy use, mobility (air and road transport) and food (meat and dairy produce) (Thackara).

Aspects of growing concern in society that need creative and innovative solutions to help improve or alleviate them include:

- Diminishing natural resources – food, energy and water
- Terrorism and
- The increasing proportion of older people in society.

These represent real challenges for designers as part of bigger multi-disciplinary teams. We can begin to appreciate something of our current context by taking a look at previous worldviews of thinking in civilisations. This review, based on that depicted by Henryk Skolimonski, shows that the industrial era that we now live in can be referred to as ‘Mechanos’ (Skolimonski 1994). A view of the universe based on a clock-like metaphor, moving according to rational and deterministic scientific laws. The telling feature of Mechanos was the movement to detach thinking based on ethics and values from those of rationality, logic and science.

Following in the footsteps of Skolimonski, a bold step would be to suggest that the next paradigm should be based upon an attempt to unify the split which has previously appeared in Western civilisations as a result of Mechanos: to reconnect value and logic in our approach to the perception and design of our world. This would require a new form of education or learning to prepare the designer or ‘new creative professional’ for the context of their practice. Perhaps we can refer to such a new paradigm of learning and practice for the designer as ‘integro’. A concept previously presented by the author at the International Congress of Societies of Industrial Design in 2001, the thinking system upon which this paradigm is based would include human centredness & field perspective, sustainability, inclusivity and equity, holism and appreciation (Young 2001).

But before we get carried away with our aspirations here we need to remember that: very little, if anything, is completely new. It is the way in which existing elements are combined in novel and exciting arrangements and applications that determines creative opportunity, new applied knowledge and innovation. Also that the ‘imago’ of the designer is the elixir that drives his or her work. It is a fragment of the divine in our lives.

References

(Cooper and Press 2003)

Cooper R, Press M, *The Design Experience*, Gower Press, London, May 2003.

(Manzini and Vezzoli 2003)

Manzini E, Vezzoli C, *Product-service Systems and Sustainability: Opportunities for Sustainable Solutions*, United Nations Environment- UNEP, 2003.

(Manzini and Jégou 2003)

Manzini E, Jégou F, Sustainable *Everyday: Scenarios of Urban Life*, Edizioni Ambiente, 2003.

(Young et al 2001)

Young R, Cooper A, Blair S, Re-designing Design Education, Keynote address. In: ICSID Educational Seminar 2001 Seongnam, Korea, Book Chapter. In: *New Design Paradigm*, 2001.

(Cox 2005)

Cox G, *The Cox Review of Creativity in Business*, HMSO, 2005

(Heskett 1987)

Heskett J, Keynote address to the National Association of Heads of Three Dimensional Design Annual Conference, Birmingham, 1987. Restricted publication to NAH3D Members.

(Design Council UK 2003)

Design Council UK, *Design as an Ingredient to Growth*, Design Council, 2003

(Heartfield 2005)

Heartfield J, *The Creativity Gap*, Blueprint Broadside, May 15, 2005

(Polanyi 1983)

Polanyi M, *The Tacit Dimension*, Smith, 1983.

(Young 2004)

Young R, *Developing Models of Design to Enable Practice*, In: *Futureground*, Design Research Society International Conference, Monash University, Melbourne, November, 2004.

(Young 2005)

Young R, *Developing an Integrated Model of Designing to Aid Understanding of the Complexity Paradigm in Design Practice*, In: *International Conference on Complexity Science, Embracing Complexity in Design*, Paris, November, 2005

(Young 2008)

Young R, *An integrated model of designing to aid understanding of the complexity paradigm in design practice*, Reference: JFTR1248, *Futures*, 2008.

(Polanyi 1983, Ibid)

(Margolin and Teufik Balcioglu 1998)

Margolin V and Balcioglu T, *The Role of Product Design in Post Industrial Society*, Paperback, July 1998.

(Thackara 2006)

Thackara J, *In the Bubble, Designing in a Complex World*, MIT Press, 2006.

Young

(Shon 1991)

Shon D, *Educating the Reflective Practitioner*, Jossey Bass, 1991.

(Davies and Talbot 1987)