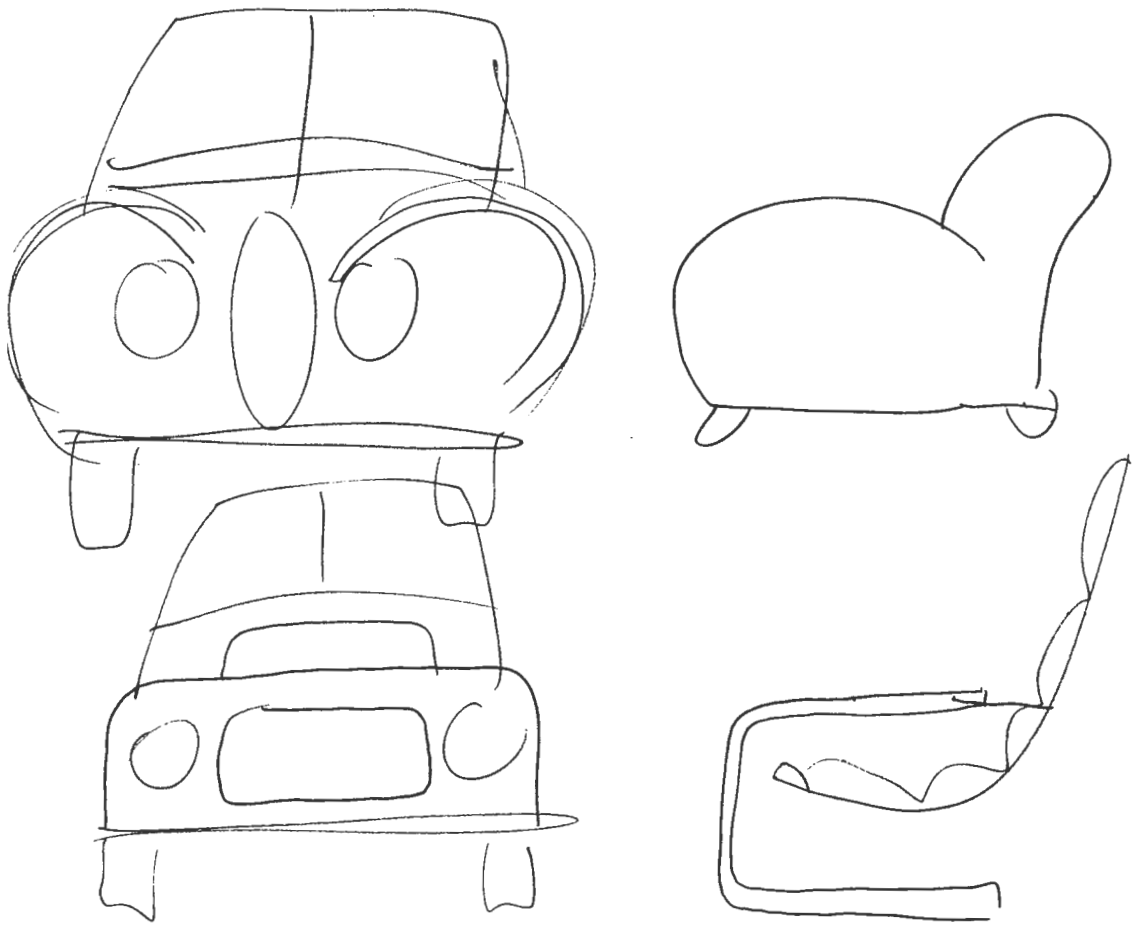
designjournalen

utges av Svensk Industridesign Vol 8 nr 1/01



Redaktionsfilosofi
Designjournalen strövar efter att publicera artiklar och fallstudier som visar att design är en viktig resurs, en del i undervisning av tekniker och ekonomer likaväl som designer, och en ytterst viktig del av företags verksamhet. Genom en medveten och effektiv hantering kan design bidra till att skapa konkurrenskraft och framgång.
Designjournalen utges en till två gånger om året och sändes gratis till alla medlemmar i Svensk Industridesigns Forskarkollegium. Designjournalen kan beställas till en kostnod av 100 kronor (exkl moms) för två nummer, eller 70 kronor (exkl moms) för ett nummer. Beställning till nedanstående adress.

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ISSN 1400-8963

Omslagsbild
Vid ett seminarium i juni 2001 om "Design on a global market" talade Peter Harbury am sin syn på vad som skiljer svensk och internationell design. (Peter Horbury är designchef på Volvo personvagnar.) Skisserna är hämtade ur det blädderblock där han visualiserade hur den svenska identiteten återspeglas i både klassiska strama svenska möbler och bilar jämfört med kontinentala mer svulstiga former. Det är en traditian ach identitet, som ligger till grund för den designprofil som bl.a. skall förstärka Volvo som ett svenskt varumärke.

Torsten Dahlin
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Design är bredare än upplevelse

Intresset för design är fortsatt ökande. Och intresset breddas. I media tar även ekonomijournalister upp industriell design som strategiskt och värdeskapande konkurrensmedel. "SvD Näringsliv, motiverar sin sommarserie om design med att, Design på 2000-talet handlar om pengar, om att öka sin omsättning och att försvara sina marknadsandelar. Därför är design ett ämne som förtjänar större utrymme i affärspressen. Men betydelsen av design gäller inte bara varor riktade mot privatpersoner utan även produkter som lanseras mot näringslivet." En viktig aktör i svenskt näringsliv är fackföreningsrörelsen. I LO-tidningen ger Wanja Lundby-Wedin sin syn på varför vi måste satsa på design och marknadsföring. "Aldrig har kopplingen mellan design och sysselsättning varit så uppenbar som nu." Hon efterlyser ett gemensamt åtgärdsprogram för fack och näringsliv som hon anser båda länge underskattat betydelsen av design och marknadskommunikation. I fem punkter formuleras åtgärder för att öka kunskap och kompetens om värdet av kommunikation och design inte bara för konsumentmarknaden utan även för traditionell industri. För Designjournalens läsare är utbildningssektorns accelererande utbud av designkurser välkänt. Denna utveckling är både glädjande och oroande. Oroande för att det inte finns tillräckligt med lärare, med risk att glädjen och intresset förbyts i misstro och svikna förhoppningar.

För att möta all denna efterfrågan krävs krafttag från olika håll, men det krävs också samlade grepp. Förslaget till ett gemensamt program för fack och näringsliv bör kopplas till regeringskansliets satsningar inom designområdet i ett brett nationellt handlingsprogram för integrerad designkunskap och kompetensutveckling. För att möta detta behövs ökade resurser på kunskapsutveckling och forskningsanknytning. Utbildningsdepartementet satsar på konstnärligt utvecklingsarbete. Det är gott och väl för den traditionella designutbildningen men otillräckligt för att svara mot behoven av breddning mot teknik- och ekonomi. KK-stiftelsen satsar på upplevelseindustri och skräddarsydda utbildningar för små och medelstora företag i syfte att genom produktutveckling, innovationer och industridesign skapa nya kundvärden. Det är lovvärt men man måste komma ihåg att design inte bara finns i den så kallade upplevelseindustrin. Då har man varken bidragit till näringsliv eller utbildningsväsendet på ett tillräckligt seriöst sätt. Design är bredare än upplevelse.

Innehåll

Den kritiska massan för design i en kritisk tid

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Designer är en viktig del i utvecklingen av samhället och inte minst i den nya ekonomin med nya teknologier och media. Design och designer var viktiga i den gamla ekonomin också, men det är nu som design uppmärksammas på ett sätt som sällan förr. Kraven på designers kompetens är också större än någonsin. Regeringen satsar pengar i designutbildningarna, designforskning och näringslivsstöd. Företag bygger upp designavdelningar och anlitar designer mer än någonsin. Detta är en internationell trend.

Påsken 2001 var Universidade de Aveiro i Portugal (departemento de communica-Vao e arte) värd för European Academy of Design Conference. Det var den fjärde konferensen i EADs historia. Några kanske kommer ihåg att SVID var medarrangör av konferens nr två i Stockholm i april 1997? Då hade vi ett stort antal artiklar som fortfarande finns tillgängliga på SVIDs hemsida (under fliken "läsbart"). Årets EAD konferens var mycket intressant och det är därför tacksamt att vi får publicera några av artiklarna i detta nummer av Designjournalen.

Temat för årets designkonferens var "d3 desire designum design". Professor Vasco Branco, ansvarig konferensarrangör, skriver med anledning av detta följande:
"Globalisation and the trends in communication technologies are changing the way people and organisations think and act. Design and designers contribute to the changing environment, in the ways in which they interpret and translate the material world. Design operates at both global, regional and local levels, at strategic and operational levels, in personal, social and environmental contexts. This conference is about setting the agenda for design research, for reflecting on design and design research now and in the future."

Konferensen i Aveiro gav en glimt av den forskning som pågår internationellt. Inte minst i länder som England och Australien pågår det intressanta projekt både inom grundutbildning, fortbildning och forskning. Det finns nu flera tidskrifter, akademiska sådana, med fokus på design och industriell design - förutom Designjournalen. Vi har den brittiska Design Journal, (Ashgate Publisher, UK), där ni kan hitta fler artiklar från EAD konferensen, The International Journal of New Product Development and Innovation Management (Winthrop Publications Ltd, UK), och inte minst Design Management Institute's The Design Management Journal. Alla dessa tidskrifter rekommenderas varmt för den som är intresserad av att se vad som händer inom designområdet.

Det är visserligen en spännande utveckling, sett ur designsynvinkel, men det är inte bara på gott. Det finns en del farhågor som lyfts fram. Naomi Gornick, själv designer, har länge arbetat även som lärare i design management, bland annat på Royal College of Arts i London och Brunel University (tekniskt universitet), och kämpat för att öka designers förmåga att klara spelet i företagen och även inta managementpositioner. Eftersom fler och fler företag uppmärksammar design blir ju frågan om vem som ska leda och besluta i designfrågor aktuell. Var ska design positioneras i organisationen och vem ska vara design manager - en designer eller en manager? Hur stor ska en designavdelning vara? Vad jag själv har kunnat konstatera i min forskning om integration av design i större organisationer är att det krävs en kritisk massa av designer i företaget om design ska ha en strategisk roll. En svala gör ingen sommar - en ensam designer i

företaget gör inte design till en strategisk resurs. Maktspel? Javisst.

Det råder samtidigt en eufori över design - men är det designens lycka? Är det så att design idag uppfattas ännu mer som styling, mode, lyx och yta än någonsin tidigare? Naomi Gornick pekar på faran att euforin över design kan vara designfunktionens dödgrävare. Det är en kritisk tid för design. Naomi Gornick diskuterar vad hon kallar "Designers dilemmas". Ska designer tjäna konsumenttrender eller bidra till samhällsutvecklingen? Det har ju historiskt sett funnits ett seriöst samhällsengagemang i designerkåren. Alla som har arbetat för att främja och föra fram design - kunde de (vi) förutse att masskonsumtionen skulle galoppera iväg med design. Är det som Frank Height säger i Naomis artikel "vi har skapat ett monster" relevant eller enbart en stark överdrift?

Det talas allt mer om behovet av designforskning - även om vi kanske inte riktigt vet hur och vad. Designskolorna har börjat visa ett allt större intresse för forskning och försöker hitta formerna för detta. Chris Rust och Adrian Wilson beskriver i sin artikel hur man utvecklat tekniker för att rapportera en praktikledd forskning. Därmed besvarar de också sin fråga om det är möjligt att presentera en visuell avhandling. Med tanke på regeringens nya satsning på doktorsexamina i kreativa, konstnärliga områden är detta en mycket aktuell artikel för svenska universitet och högskolor.

Grundutbildningen har ett stort ansvar att sörja för en adekvat utbildning och förbereda studenterna på deras framtida yrkesliv. Utbildningen har bland annat förlängts till fem år och måste naturligtvis omfatta mer för att motsvara kraven från nutida yrkesliv. Men det går inte att bara förlänga utbildningstiden i all oändlighet och göra mer, utan det man gör måste förändras och gamla saker måste bort. Men vad är "gammalt" och vad kan ersättas? Vad finns det för nya pedagogiska metoder? Geoffrey Cabon beskriver i sin artikel om "Free-choice", ett experiment där man använder museer för att vidga perspektiv och få en mer kreativ process. Speciellt med tanke på att designprocessens metoder och tankesätt får en allt större applicerbarhet på områden som kanske inte omedelbart ses som designuppdrag. För att visa på detta berättar Geoffrey Cabon att australienska skattemyndigheten beslutade att utveckla en "integrerad skattedesignkapacitet" för det australiensiska skattesystemet. Deras ansats för utvecklingen av systemet baseras på samma sorts tänkande som t.ex. Jim Faris, en australisk industridesigner, applicerar på produktdesign, och Mary Montagne på informationsdesign. VD:n för Skattebudgetgruppen var enligt Cabon mycket entusiastisk över hur designtänkandet skulle förenkla skattesystemet, som "var allt annat än enkelt". Bosse Ringholm borde kontakta australiensiska skatteverket!

Keith Russels artikel om "Puppy love" - vi blir förförda av design på samma emotionella sätt som vi blir av bedårande valpar. Han ansluter därmed till delar av Naomi Gornicks artikel, nämligen att designer har skapat ett konsumtionsbegär som kanske inte var avsiktligt.
Vi har alla relationer till de objekt vi omger oss med. Vi förförs av produkter. Många objekt är svar på våra begär. Men vilka är dessa begär? Hur kan vi utveckla en förståelse för den vuxna människans relation och kärlek till tingen? Forskning om vår relation till objekt är en central fråga i dagens konsumtionssamhälle.

Designjournalen avslutas med en artikel av Gunnar Sandin, doktorand vid Lunds Tekniska Högskola. Den är en del av hans avhandlingsprojekt om redundans (förutsägbarhet) som en kreativ egenskap. Hur bedömer vi estetiska egenskaper och hur mycket spelar förutsägbarheten in i denna process? Hur får man fram ett budskap i den estetiska upplevelsen av ett objekt? Det finns mycket spännande forskning på gång även i Sverige.

Objects of Desire: The Designer Leading or Being Led?

Text: Naomi Gornick

Naomi Gornick is Associate Professor of Design Management at Brunel University, UK. She advises on development of advanced postgraduate courses in the UK and elsewhere. She has been a consultant in advanced programme development in London Institute and Kingston, Middlesex and de Montfort Universities. Formative years at the Design Council led to a career dominated by initiatives undertaken to integrate UK design and industry. She was founder Chairman of the CSD Design Management Group in 1981.

For the last twelve years Naomi Gornick has initiated, developed and directed post-graduate Design Management programs at the Royal College of Art and Brunel University. Her aim is to create design-based professionals with senior management capability. Many of the one hundred graduates from these programmes are now in senior positions in leading UK companies. Naomi Gornick is a design management consultant for clients in industry and design both in the UK and the US and lectures widely. In September 2000, Naomi Gornick was invited to be a Keynote speaker at the annual IDSA (Industrial Designers Society of America)in New Orleans She is a member of the judging panel for the annual IDSA Awards to be presented in Boston, August 2001.

Design is at a crossroads: now more pervasive and at the forefront of modern consumerism, yet the designer's traditional role is under intense scrutiny by both clients and design practitioners themselves. This study focuses on four dilemmas found in the development of design management, the quality of dialogue between designer and client, the status of design in organisations and the education of designers. Designers play a major part in society changes but should make a more serious contribution to a larger range of discussion embracing consumer, market and global issues. The paper outlines recommendations and academic routes for achieving maximum contribution from the design community, both in practice and education.

This paper looks at the steady progress of design endorsement by companies and consumers over the last two decades and finds a number of lingering inconsistencies still to be addressed. The author's focus and activity during this time has been to raise the status of design both in the profession itself and in organisational management. In effect, this study introduces an evaluation of an educational experiment carried out over the last twelve years in the industrial design departments of two major UK academic institutions, the Royal College of Art and Brunel University. These post-graduate programmes, initiated by the author with a team of specialists, evolved from a perceived, and documented, need for change. (Hayes 1983, among others).[1] Despite progress made by this and other activities, research findings would indicate that there remain four persistent dilemmas:

The first is concerned with the optimum position of design in an organisation and the type of personnel who 'own' it and manage it most effectively. The field of design management has evolved through practice and research. The question is raised as to whether design management is a management discipline, a design discipline, both or neither.

The second dilemma is that design appears to have reached the stage of public and corporate recognition that it has always aspired to, but at a level that may not

reflect its true range of activities and its true worth to society.

The third finds designers' influence now at its highest point. At the same time, designers may be falling short of clients' expectations as well their own by accepting an anachronistic view of their range of responsibility. Designers now operating in the field of design management are brave but too few, as yet, to create meaningful change.

The fourth dilemma could be seen as the basis for the three above: UK design education has an outstanding international reputation, yet it could be argued that patterns are set during college years in some institutions that unwittingly encourage isolation and hinder graduates' integration and flexibility in an unpredictable world.

Design and Industry in 2001

The dichotomy that was endemic between design and industry in the UK has abated, but not vanished. Years of bridge-building activity between design and management cultures undertaken by government, academic and professional institutions have not been completely ineffective. Most companies are now aware of the enhanced value that design can bring to their organisations. Management personnel know that design is vital in innovation strategy but may struggle to integrate it successfully in their businesses. In many organisations, design management has become a welcomed resource. How company personnel are selected for design-related decision-making is still a subject attracting much deliberation.

The question is discussed as to whether management-trained personnel can fully understand the potential of design thinking and processes or whether people with a background in design are more suited to champion design in organisations. In practical terms, both types of background experience and training are required as design management personnel.[2] It could be argued that the emphasis on managerial design decision-making in organisations creates an imbalance. Design has been appropriated by non-designers or so it would seem. In effect, managers in the current climate, in thrall to design thinking, could start to think of themselves as designers. 'Silent design' may have found a voice.

This is a slippery slope for designers and managers. As David Walker says: Managers can easily assume that verbal processes define all tasks and take the lead. Management writers sometimes set out to capture the simulations of design in language, ...(to) make it controllable...(but) the flow of (design's) specific iterative processes cannot be defined in this way. The best that management writing can achieve is good recipes, but there is a gap,' he says, 'between good recipes and good cooking.'[3]

In establishing the balance between the contribution of the two main disciplines, it seems essential that the design community be equally active in the building of design management principles and processes. Despite the reluctance of many designers to accept this premise, we are seeing the steady emergence of people with a design background who successfully champion and integrate design in organisations. Several factors contribute to this development, including the emergence of higher education programmes in academic design institutions as already mentioned. [4]

Here sits the first dilemma: Who owns design in business and industry? Who manages it most effectively? Marketers, production engineers, accountants, designers in management roles? or all of these personnel possibilities? How has design management evolved over time? In the meantime how have design practitioners fared in this new scenario of almost universal design awareness.

The Golden Age of Design

It was with this phrase that Time magazine last year quoted Mark Dziersk, then

1. Hayes, Chris Assaciates. "The Industrial Design Requirements of Industry " (London The Design Council, 1983), 25-282.
2. Gornick, Naomi "The Designer as Strategist: A New Management Role" D. M. J, Vol. 9, No 2; Spring (1998) 43-48
3. Walker, David "The Soup, the Bowl, and the Place at the Table"
D. M. J, Vol. 4 No 4; Fall, (1993) 14
4. Gornick, Naomi et al., "New MA Courses in Design" Co-Design, Vol.2 Spring (1995) 64-73

President of the Industrial Designers Society of America, when the main article entitled 'The Redesigning of America' was devoted to overwhelming consumer capitulation to design and brand. Designers are now playing a key part in deciding what tomorrow's world will look like. In all the main design disciplines: products, environment, communication, media they contribute to the way society is evolving. The question is whether this euphoria will last, especially with the recent US economic retrenchment. It is difficult to determine, in this whirl of new product offers, whether the consumer is leading the designer or vice versa. However, seriously design has wanted to present itself in the past, the marketplace is now almost totally biased towards design as style and fashion. Function is out. Form is in, says Time. [5]

Understanding increasingly rapid and unpredictable changes in consumer behaviour is a key concern of most organisations. Consumers are more confused than ever before; their purchasing patterns reflect this predicament. Hamel and Prahalad maintain that a company must be much more than customer-led in looking to the future. Industry foresight has to embrace the 'total imaginable market.'[6] On many levels, designers are expected to understand this idea and to help their client companies anticipate future trends. They are well-suited to do so. A few leading design consultancies, the Doblin Group and IDEO for example, undertake extensive user research for their clients. Many other designers are guided by an innate intuition about consumer behaviour without formal evidence to support their ideas.

Larry Keeley, President of the Chicago-based Doblin Group argues that average designers lack skills to describe basic kinds of innovation or how much difference they might make once achieved. Understanding the differences between scale-improvements to known product shortcomings against a new product within a category and further, against inventing a new product category is not seen as part of a designer's recognised knowledge base and more to the point, not seen as part of a designer's range of responsibility. Enterprises expect innovation from designers without being overly explicit about their concerns and requirements. Innovation methods need to be systematically understood by all involved in the process. [7]

Many designers are equally concerned about their contribution to society as a whole as well as consumer trends. In the competitive race for new ideas, the speed of product development necessitates incremental adjustments to existing models that can add more to style than to function. Some designers would far rather operate at the other end of the innovation spectrum and tackle the pressing problems of urban mobility, for example, rather than configure new features for an existing car or even contribute to the development of a totally re-cyclable model. This represents a continual tug-of-war in many a designer's psyche.

There is nothing new in this conflict (which could reflect global world trade discussions in Davos and Porto Alegre): Graphic designers have recently re-issued an international 'Design Manifesto' (originally constituted in 1964) signed by luminaries such as Gert Dumbar, Katherine McCoy, Milton Glaser and Vince Frost exhorting designers to take on more serious work than simply pandering to advertising industries demands.[8] The Manifesto declares: 'Commercial work has always paid the bills... This, in turn, is how the world perceives design. The profession (is involved in) manufacturing demand for things that are inessential at best. There are pursuits more worthy of our problem-solving skills. Unprecedented environmental, social and cultural crises demand our attention.'

Misha Black (Professor of Industrial Design at the Royal College of Art 1959-75) talked about about this conundrum:

'... many designers yearn for commissions with social purpose...If people mutate', he said 'why should not the objects they desire equally change and counterchange? The essential characteristic of the designer is an unquenchable optimism, and as often as not the ability to anaesthetise his (or her) intellect to allow for momentary belief in the validity of his (or her) task...' [9]

This dichotomy was also evident in the philosophy of US designers Charles and Ray Eames who worried about the social responsibility of the designer. Their biographer Pat Kirkham writes: '...many of the products they (the Eameses) designed were associated with consumer lifestyle. They would have been horrified at the late 1980s cult of 'designer' objects; however, if that phenomenom was a result of the concern with the saleability of manufactured objects through appearance... when the Eameses were at the forefront of promoting design for a new lifestyle - then they must be seen as part of the process that led to it.' [10]

And there you could say, go all of us who were promoting design with the same evangelistic zeal over the last two decades. Could we have foreseen that one day mass consumerism would gallop away with the design message without our being able to control events or even to voice our concerns. 'We have created a monster' Frank Height announced to awestruck industrial design students at Brunel University recently. (He was Professor of Industrial Design at the Royal College of Art following Misha Black)

Here is the second dilemma: Design appears to have reached the stage of recognition that it has always aspired to, but at a level that may misrepresent its true range and worth.

Time of Change

Larry Keeley, concerned about the role designers play in the larger global scenario, wrote in 1990: 'We have entered a time of change for the design profession. It is largely manifest in new client needs, which seem way ahead of design strategies and services. ... either design professionals will recognise what is needed and learn to provide it, or the whole field will be eclipsed by others (like advertising and marketing management) who move in to fill the void. To lessen such a threat, design professionals should begin seeking new directions in earnest'. [11]

The world ten years later has changed dramatically. Design, in all disciplines, is now acknowledged as a valuable resource. Designers, now in positions of increased influence towards their clients and consumers, may not be using this influence effectively enough. It is not sufficient to be seen solely as occasional magicians. Keeley has sounded a warning note to all. Designers need to know more and take on more challenges. Exclusion from major design decision-making processes in client companies while other disciplines are stepping in need not be a permanent state of affairs.

The work of designers directly affects the way people live and work. Constantly critical and searching for improvements in products and services they intuitively understand much about the way society is changing. In whatever area they practice: interiors, graphics, industrial design, media, their main purpose is in developing conceptual ideas into usable and aesthetic objects. David Walker says: 'Designers make shapes which shape the future.' Although intuitive knowledge is highlighted in the drive for more creativity these days, it is not all foolproof. Designers need more skills and knowledge to sustain their original ideas. [12] The question is: are designers willing and able to take a leap to find new directions? Only an exceptional few seem to be able or want to enlarge the parameters of their work.

This is the third dilemma: With their influence now at its highest point, designers are falling short of clients' expectations as well their own by accepting an anachronistic view of their range of responsibility. Designers now operating in the field of

Design appears to have reached the stage of recognition that it has always aspired to, but at a level that may misrepresent its true range and worth.

5. Gibney, Frank Jr., and Luscombe, Belinda "The Redesigning of America" Time Magazine (June 26, 2000) 48-55
6. Hamel, Gary, Prahalad, C.K., "Competing for The Future" (Boston: Harvard Business School Press, (1994) 108-115
7. Keeley, Larry "Seeking the Secret Keys ", D. M. J., Vol. 9, No 3: Summer(1998) 24-28
8. "First things First " Manifesto 2000
9. Black, Sir Misha "The Black Papers on Design" Ed. Avril Blake (Oxford: Pergamon Press 1983) 8
10. Kirkham, Pat "Charles and Ray Eames: Designers of the Twentieth Century " (Massachusetts: MIT Press 1995) 379-380
11. Keeley, Larry "Demass Design" 1990
12. Business and Design broadsheet: (The Company Membership Forum of the Chartered Society of Designers Autumn 1998)

With their influence now at its highest point, designers are falling short of clients' expectations as well their own by accepting an anachronistic view of their range of responsibility.

design management are brave but too few as yet to create meaningful change.

Design Education

There seems to be an invisible limit to the accepted range of a designer's responsibility, contained, as it were, by the project in hand, and no further. It could be argued that this 'limited responsibility' factor is not accidental and may well be a facet of the education norm. Design students are often not encouraged directly to understand, and therefore may not be interested in, the context of their work for industrial clients or the wider implications of their actions. This may not be surprising in the UK (and elsewhere) when design schools are normally located in colleges of art and design. The atelier/studio environment can be overly introspective for the individual when there is little or no emphasis on those elements relating to an industrial or business context.

There has been a long standing conundrum in Art and Design education. Should design be taught in schools of engineering and technology as in the German educational system or is it nearer in nature to Fine Art? Misha Black said: 'Art and Design... share the common attribute of creativity.

Over the past 15 years (written when Black retired from the RCA) I have oscillated, like an erratic weathercock, from the view that industrial design is a problem-solving activity owing alliegance only to engineering, to the opinion that its linkage with the fine arts is as important as its dependance on technology.

"...now, as I leave the School of Industrial Design at the Royal College of Art, I am sure that industrial design is a definable activity with specific attributes which distinguish it from engineering design, and that education for its profession can most effectively be conducted at colleges of art and design. An engineer can properly be satisfied if a product works efficiently, while the industrial designer has only completed his task when it is acceptable to the operator or consumer, when it meets the practical and emotional needs of the society for which it has been produced." [13]

It is argued that the alliance of art and design in one educational institution creates a teaching and learning anomaly. Professor Black, and many others, have wrestled with the question. Out of this anomaly the conundrum arises. Artists normally start work with a blank page and a personal perspective and designers have a given set of constraints including the clients' brief, economic and industry sector demands, health and safety regulations, for example.

Design students have the benefit of working alongside the inspiration of artists but may be denied, in that environment, knowledge of the 'real world' in which they are eventually going to work. Like the artists in this atelier/studio, they have also been taught to start work with a blank page. Hence their pre-occupation with 'Blue skies' projects or 'Starting from Zero' philosophy. In certain respects this can be seen to be the natural innovative stance of the designer, the magic; and in certain instances it is effective, as in fashion. But for the larger view, many feel this approach is flawed. Eames maintained that constraints actually encourage creativity. There remains a nagging concern amongst many in the design community that the development of design students' creativity may be hampered by the inclusion of studies relating to wider intellectual and practical skills.

In general, the outcome of this debate has been to accept the conundrum as a given and to delay action to facilitate change. The design curriculum, already filled with abundant creativity teaching has little room for additional contextual knowledge and skills which many educationalists believe can be learned by graduates once in employment. In a 1995 survey of Design Departments in UK Colleges of Art and Design, the author found a desire on the part of educationa-

lists to develop contextual business studies and significant improvement in the number of design courses offering these subjects; the standard reasons given for their non-inclusion being lack of time and resources [14]

A recent survey of Art and Design Graduates career patterns indicated findings of a more sober nature which would suggest little progress has been made [15]. The study sets art and design education in the modern world of graduate employment. In essence, design graduates exhibit most of the attributes that employers require - communication, teamwork and interpersonal skills. However, it is questionable whether the graduates themselves are aware of this, whether they get assistance from their institutions to make the most of their attributes and, fundamentally, whether those teaching in the sector are aware of their employment prospects.

In general, design courses have not helped them to develop teamwork and interpersonal skills or good written communication skills. Many graduates worry about the lack of professional and business studies components on their programmes. Career guidance was not seen as an important element. There is a relatively poor level of contact with the world of work, insufficient work-linked projects, or work-experience opportunities, such as embedded placements. Design graduates have enormous potential in many new fields. It appears from the UCE study that many graduates may leave college at a disadvantage without realizing the value of their knowledge and skills and the career directions they might usefully adopt.

This is the fourth dilemma: UK design education has an outstanding international reputation, yet it could be argued that patterns are set in many institutions during college years that unwittingly encourage isolation and hinder graduates' integration and flexibility in an unpredictable world.

This educational predicament could account for Keeley's findings and exhortations. Designers are achieving results in spite of elements lacking in their education. How much more effective and dominant could the profession be with added dimensions to educational curricula. There are signs that these issues are beginning to be considered. In a recent study by the National Society for Education in Art and Design (NSEAD), Martin Bouette suggests that universities ensure that taught skills can match design students complex career possibilities. He adds that there is a need for work placements to be built in to the curriculum. [17]

The Emergence of Design Management Education

The pressing need for change no doubt contributed in the late 80s to the proliferation of post-graduate design programmes at many UK academic design institutions including those of the new field of Design Management Education [18].These now exist, each with its own particular focus, at an increasing number of UK Design institutions including West Surrey Institute of Art and Design, University of Central England, Middlesex University, de Montfort University, Staffordshire University, Sheffield Hallam University.

With David Walker (formerly at the Open University), the author established the first MA Design Management programme at the Royal College of Art from1989 to 1991 subsequently moving to Brunel University where the new programme, MA Design, Strategy and Innovation, started in 1993. There are now 100 graduates from both institutions, 70% of whom are now employed in industry, many at senior levels. The objective was to create 'new design professionals' with enhanced management capabilities who would take up roles in industrial organizations to help champion and integrate design on a long term basis. The programme's emphasis is on formal practical audits and internships (placements) undertaken in

13. Black, Sir Misha "Design needs Art" (Design Magazine 1975) Ed: Avril Blake (The Black Papers on Design Oxford: Pergamon Press1983) 209-210
14. Gornick, Naomi "Business and Management Studies in Design Courses:" (London: Design Council 1995) 5
15. Blackwell, Alison and Harvey Lee "Destinations and Reflections: Careers of British Art, Craft and Design graduates" (Birmingham: University of Central England 1999) 127-130
16. Tabor, Emma C., et al "Exploring Design and Innovation" (Surrey, UK, Brunel University 2000) 12-19
17. Dumelow, I, MacLennon, H., and Stanley, N., "Planning the Future" Bouette, Martin "Crossing the Abyss: Identifying Career Ambiguities within Art and Design Studies in Higher Education" (Wiltshire, UK: NSEAD 2000)
18. Gornick, Naomi "New Design Professionals: Development of Design Management Courses" (Co-Design: Milton Keynes UK Vol.3. 1995) 30-34

manufacturing and service companies. [19] The programme is devised for those with an interest in working at the interface between design, business and industry. It is for those who want to act as interpreters, champions of design, catalysts for innovation and corporate change in organisations. [20]

It was always the programme's intention that students continue to use their innate design thinking and follow the pathway most suited to their skills and predilections. The outcome of graduate employment destination patterns can be gauged, in part, from students' final dissertation research topics that include titles (from Brunel) such as:

- Examining Market led Design Responses

  The World in the Palm of your Hand' An investigation into the feasibility of the mobile Internet

- The Technology Scout: how an individual can best discover, evaluate and communicate emerging technologies

- One Hit Wonders: Can Industrial Design Consultants Consistently produce Innovative Design?

- Measuring consumer brand experiences: Addressing the nature of the consumer's relationship of a brand on and off line

Conclusions

In examining the key question 'Are designers leading or being led?' this paper has outlined a number of dilemmas that emerge from the investigation. Design can be seen to have reached a position of power and yet there appear to be problems attached to its popularity.

In looking at the position of design in organisations and the type of personnel who 'own' it and manage it most effectively, the question is raised as to whether design management is a management discipline or a design discipline or both. It could be seen that the effectiveness of design decision-making requires a team of specialist players. Keeley insists that too often designers feel that issues of corporate strategy are none of their business. They presume that they will be told what the client strategy is and then create a design within that framework. This attitude keeps their work at minimum level. Most designers can contribute far more to the success of an enterprise if they imagine themselves into the business and imagine every possible moment of customer interface with a company. Designers get to know their client companies well. They are in a good position to advise on the best way to have design represented in the organisation. They are the ones who should lead improvements in this area and not expect other disciplines to suggest solutions on their behalf.

Design appears to have reached the stage of recognition that it has always aspired to, but at a level that may not reflect its true range of current activities and its true worth to society. Employers crave new ideas and want risk-takers, lateral thinkers and creative problem-solvers. In a new joint Brunel University and Design Council publication investigating creative design curriculum development, major global and scientific breakthrough issues are discussed which directly relate to present and future design activity. These include issues relating to sustainability, ergonomics, digital systems, nano technology, internet and biotechnology, for example. [16]

With their influence now at its highest point, designers may be failing to grasp their enhanced range of responsibility. Designers need to make a serious contribution to a larger range of discussion, similar to those in design management roles. There needs to be a developing dialogue with clients that embraces the evolution of current design research, including the strong amalgamation between design, anthropology and sociology. Designers

19. Gornick, Naomi; Inns, Tom, "Working Partnerships: Organisational Learning in Industry and Academia through Design Knowledge Initiatives" (DMI Conference Frankfurt 2000)
20. Gornick, Naomi "Design jumps on board" Design Week (London: Centaur 29.9.2000) 15

need to use the growing body of research that is fast developing not only in many international institutions but especially in their own design schools. It is no longer sensible to carry out a project without considering and discussing its wider context.

Leaders in organisations are continually looking for insight into the complex world they inhabit both internally and externally. They need their consultants in all disciplines to help them re-appraise the culture of their organisations in order to move on. Designers must be part of the discussion to help facilitate creativity and innovation in clients' corporate thinking. A continual complaint by designers of their client companies is that they are insufficiently innovative and averse to risk. Designers, in general, must now take the initiative and lead innovative thinking methodically in their client organisations. They must become part of the risk-taking culture.

Finally, UK design education is amongst the best and yet students are insufficiently prepared for an increasing range of potential career activities. A careful analysis by tutor and student of individual student skill strengths and weaknesses will enable graduates to have more confidence in their approach to employment possibilities.

Design now covers a wide domain. It is important that several information spectra are presented to students including the range of potential client or employment organisations, range of new design activity and range of recognised roles. Whereas once it was envisaged that a design graduate would set up in their own business or join an existing consultancy, there are now no hard and fast rules. Graduates from the Brunel MA Design, Strategy and Innovation programme have work titles such as Ambassador of Imagineering at Orange, Vehicle Integrator at Ford, Environment Engineer at Nokia, Design Manager at the Design Council and North American Vice President of Product Development and Marketing, London Taxis International.

This is the difference between leading or being led. Why are designers waiting to be asked to dance? They need to raise their eyes from the drawing board, move away from the MAC and begin to make meaningful connections with the turbulent world outside, as contributing participants, not distant authorities. It means accepting much more responsibility, tackling issues that they might not have thought possible and pushing out some boundaries that they may have made for themselves. Designers can use their newly acquired influence to effect change for both clients and consumers. It could be argued that they may be squandering that influence, and potential leadership, at the very moment they need to use it.

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"Free-Choice" Settings for Design Learning

Text: Geoffrey Caban

Only a small component of design learning is completed in the traditional design academy. Learning about design emanates from real life experiences, and takes place in many other settings including the workplace, museums, and a wide range of community-based organisations.
This paper describes the development and testing of a methodology for evaluating design learning in a particular "free-choice" setting, namely, the museum. It discusses the results of a pilot study conducted with focus groups of design students. The methodology was adapted from Falk's model of Personal Meaning Mapping, and the results of the study indicate that museum-related experiences can contribute significantly to the students' design learning.

In a recent paper presented at the Re-inventing Design Education Conference at Curtin University in Western Australia, I argued that only a relatively small component of learning takes place in the traditional setting of the university. A study by Falk (2000) has identified three sectors in a learning infrastructure, namely the school, the workplace and the free-choice learning sector. According to Falk, the term "free-choice learning" refers to the type of learning that occurs when learners have control over what, when, why and how they learn. He claims that though it is a little appreciated fact, most of the learning in the United States occurs in the last of these three sectors, namely free-choice learning. "Typically, free-choice learning refers to the type of learning regularly facilitated by museums, science centres, zoos, aquariums; and a wide range of community-based organizations including libraries, youth groups, environmental and health-related organizations and faith-based organizations; print and electronic media including books, radio, television and film; and the increasingly important, the internet " (Falk, 2000, 4).

It is in the best interests of design educators to know more about design learning in free-choice settings. In particular, we

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Geoffrey Caban's research interests are in the areas of design education ond design history, and his recent work focuses on design learning in non-conventional settings including the workplace and museums. He is the author of a number of books and journol papers in these areos. He is associated, as Director or member, with a number of industry and professional bodies in design and related fields.

should know more about the degree of compatibility between designers' learning styles and free-choice experiences, about the potential of particular free-choice settings for design learning, and ways in which design schools can enhance free-choice learning experiences. As we become more aware of the forces and influences associated with the "information age", we become more concerned about the inadequacies of traditional learning and teaching models. Fortunately, many design schools have begun to query some aspects of the traditional design curriculum which reflected a view that the design school could provide the total learning experience.

Of particular significance in the search for new settings for design learning is the theory of constructivist learning (Hein, 1995), which is not new but is enjoying a timely revival. Constructivist theory maintains that individuals construct their own meanings according to their personal experiences, and that they learn by accumulating experiences from a wide range of sources. While many design education programs have recognised that there are valuable sources of design learning outside the academy and have made some efforts to accommodate this through cooperative education programs and community-based projects, there is room and opportunity for a greater emphasis on non-conventional ways of facilitating design learning.

Link between free-choice learning and new applications for design thinking skills

I believe that there is a direct link between free-choice design learning and new applications for design thinking skills. By giving design students greater control over what, when, why and how they learn we facilitate new applications for their design skills and we can alter the stereotype of the design graduate. And there is considerable evidence that this stereotype needs some variation. The diverse range of skills and abilities of graduate designers are not appreciated nor utilised by a large section of the community. Whilst many design graduates make valuable contributions to society, very few have influential roles in industry, government or community sectors. Yet there are indications of an increasing appreciation by some large organisations of the many applications of skills in design thinking.

I attended recently in Canberra a conference held by the Australian Taxation Office. Among the guest speakers was Jim Faris of the American design consultancy Alben Faris Inc. His consultancy specialises in strategic thinking and creative design of interactive experiences and includes as clients Apple, IBM, Netscape and Sony. Another guest speaker was Mary Montague of Montague Leong Design in Sydney which, from a base of graphic design and visual communication focuses on information design. Strange guests at a tax conference! What were they talking about? A corporate identity for the ATO perhaps, or a new web site?

Following advice from Tony Golsby-Smith, a consultant in design thinking and what he calls 'strategic conversations', the Australian Taxation Office made a decision a year ago to develop an 'integrated tax design capability' for the Australian tax system. Their approach is based on the same sort of design thinking that Jim Faris applies to product design, and Mary Montague to information design. I was surprised and impressed by the enthusiasm with which the 300 ATO employees at the conference appeared to have embraced the new approach, described by Faris as "one of the most ambitious and important design projects in the world". Among the memorable moments at the conference was the admission by the Executive Director of the Treasury Budget Group that the new Simplified Tax System is anything but simple, but that the STS Mark 2 will be significantly improved as a result of the new 'design thinking' approach.

I've used the Taxation Office example to demonstrate the diversity of applications for design thinking skills. I believe that through encouraging greater diversity in learning opportunities we can facilitate greater diversity in the application of these skills. Thus my interest in free-choice learning.

In a recent effort to explore the potential for design learning in a particular free-choice setting, I undertook in collaboration with the Powerhouse Museum in Sydney a research project titled "Design Learning in Museum Settings". The project was funded by an Industry-Link Seeding grant, and the Powerhouse Museum was selected as the focus for the research because of the design emphasis in its exhibits.

In previous papers (Caban, 1998 and 1999) I had looked at the opportunities for design learning in the setting of the work place. I had referred to the work of Gibbons, Limoges, Nowotny, Schwartzman, Scott and Trow (1997) to argue that there has been a transformation in the mode of knowledge production towards what Gibbons et al call "Mode 2 knowledge". This form of knowledge is not defined by the traditional cognitive and social norms that govern basic research or basic science, but it emanates, by contrast, from a broader range of considerations and is intended to be useful to someone in industry, government or the more general community. "Mode 2" knowledge is carried out in a context of application, is transdisciplinary and is characterised by heterogeneity, social accountability and reflexivity.

My main aim in these earlier papers was to explore new applications for design thinking skills, and this has also been a general aim in the museum study. The specific objectives of the Powerhouse research were 1) to establish a theoretical framework for the evaluation of design learning in museum settings, and 2) to develop and test a methodology for this evaluation.

General learning in museum settings

While some evidence is available of the valuable role of museums as general learning environments, not much is known about the value of museums in the development of learning in specific areas such as design. Museum curators and design educators have access to a wide range of information on learning theory that can be applied, in general ways, to learning in museum settings.

Hein (1995) drew upon the work of Dewey (1938, 1963), and upon Pepper's four world views on how knowledge is constructed (1981), to consider four learning approaches that have relevance for museums. As well as the currently fashionable constructivism and the behaviourist learning model he discussed also the more traditional models of traditional lecture and text and discovery learning.

Applying these four learning approaches to museums, Hein suggested that there could be four different kinds of museums. These include the Systematic Museum, based on the traditional lecture and text model, the Discovery Museum, based on the discovery learning model, and the Orderly Museum based on the behaviourist learning model. The learning features of the fourth kind, the Constructivist Museum, are that the viewer constructs personal knowledge from the exhibit, and the process of gaining knowledge is itself a constructive act. The focus is on the visitor, not on the content of the museum.

Among other research which informs learning theory in museum settings is Hooper-Greenhill's work (1999) on transmission versus constructivist models of communication, and also her use of hermeneutic approaches to understand the process of meaning-making in museums.

Learning styles of designers

While researchers into learning theory have looked at learning in some specific areas such as science, there has been little or no help to curators on how they might

allow for the learning styles and learning needs of design students. Empirical studies indicate that the learning styles of designers are systematically different from those of other professional groups, and this has obvious relevance to designers' ways of viewing the world and responding to different environments.

Newland, Powell and Creed (1987) explored the learning styles, perceptions and cultural styles of designers in an attempt to define precisely how designers perceive and learn about their world. Their study drew on Kolb's work on individuals' learning styles, Leary's work with interpersonal communications, and Pepper's four world views explaining individuals' ways of reconstructing their sensory perceptions. Testing their ideas by questionnaire survey, they concluded that designers are what Kolb has called accommodators, ie. they have the ability to involve themselves fully, openly and without bias in new experiences, and are better suited to an intuitive, artistic approach than a systematic, scientific one. Their strengths are in doing things, carrying out plans and tasks and becoming involved in new experiences. They are divergent thinkers with imaginative abilities and an awareness of meaning and values.

Cross (1991) has observed that although the amount of research into the ways designers think is limited, some consistent patterns in the research results can be discerned. Referring to research evidence which suggests that designers use particular forms or styles of reasoning, Cross has presented the following observations:

1. designers habitually treat problems as though they are ill-defined;

2. designers use a solution-focusing cognitive strategy for problem resolution, whereas scientists use a problem-focusing strategy;

3. designers use a particular form of reasoning which is different from the conventionally acknowledged forms of inductive and deductive reasoning and which can be described as 'abductive' (suggesting that something may be rather than must be or actually is).

Recent research by my colleague Jenny Wilson at UTS indicates that students who have entered tertiary design courses in recent years have diverse learning styles and are increasingly less likely to have all the characteristics suggested by Cross and others. Wilson argues that awareness of this increasing diversity, by students as well as lecturers, can be utilised to broaden the scope of design graduates and increase opportunities for the application of their individual skills (Wilson, 2000).

It is useful for appropriate museums to be aware of the available knowledge on the learning preferences of designers, and to look for opportunities to provide for these preferences in museum experiences.

Creative learning and museums

Caban (1991) surveyed a sample group of industrial designers, interior designers, visual communicators, and fashion and textile designers to determine the skills and competencies considered most important for their design practice. Thirty three skills and attributes were identified, and while communication skills, technical skills, and skills in research and analysis were considered to be of great importance, the only skill considered by all the sample to be integral to their design activities was "creative thinking". No definition of creative thinking had been provided to those surveyed, but their responses indicated that they considered creative thinking to be central to the generation of innovative solutions to design problems, to the evaluation of ideas and proposals, and to the translation of design proposals to outcomes.

For the purposes of the Powerhouse research project, it was decided to investigate whether creative-thinking skills could be enhanced by museum experiences. Pursuing this direction was a challenge

due largely to the lack of consensus on what is meant by creativity and creative learning. Did we mean learning about creativity, or learning to be more creative? As objectives, is either or are both achievable in museums? The area of creativity has been researched by numerous groups including cognitive scientists, psychologists and visual artists but, as Edwards (1995) has pointed out: 'we still have no generally accepted definition of creativity – no general agreement on what it is, how to learn it, how to teach it, or if, indeed, it can be learned or taught'. (Edwards 1995:2).

Briskman (1981) argued that in order to investigate how creativity is possible, we should not look for psychological processes or traits leading to creativity, but rather for the 'aspects of products which lead us to evaluate them as creative'. Getzels and Jackson (1962) identified a wide range of creative qualities including playfulness, humour, variety, social concern and insight, personal introspectiveness, and inventiveness. Gruber (1981) pointed to two seemingly opposed approaches to creative work. One emphasises sudden moments of insight, dramatic reorganisations of ideas, and the other the slow construction of ideas, treating creative thinking as a growth process.

Edwards (1993) drew on the work of Roger Sperry on the separate functions of the brain's left and right hemispheres to argue that there are ways of increasing right brain thinking and thereby enhancing creative thinking. According to Csikszentmihalyi (1998), the ability to think creatively is not limited to exceptional individuals, but can be fostered in systematic ways through environments that encourage and nurture a creative approach to problem solving. In appropriate environments, people can be stimulated to have encounters that stimulate creativity.

"The quality of the encounter that leads to creative experience consists primarily in the openness during the encounter and in the repeated and varied approaches to the object, in the free and open play of attention, thought, feeling and perception. In this free play, the person experiences the object in its manifold relations to himself and also tentatively tries out, as it were, a great variety of relations between the object thus approached and other objects, ideas, feelings, and imagination".

(Csikszentmihalyi, 1998)

Towards a strategy for enhancing creative learning in museums

In developing a methodology for evaluating creative learning in the setting of the Powerhouse Museum, the investigators decided to utilise Falk's work on Personal Meaning Mapping (Falk, 2000). This work seemed particularly appropriate for the study because of its underlying principles, namely, that the effectiveness of the learning depends on the degree of personal engagement and meaning, and that personal engagement and meaning differ from individual to individual.

If the museum is to be a true 'free-choice' setting for design learning, it is important that students retain control over what they learn in this setting (Falk, 2000, 4). It was not the intention of the investigators, therefore, to recommend structured learning experiences in museums. Rather, through knowing more about the potential for creative learning in the museum setting, we aimed to assess the value of some general and specific museum experiences in design learning.

John Falk, who is Director of the Institute for Learning Innovation in Annapolis, Maryland, agreed to join the investigators as a research consultant. A methodology, based on Personal Meaning

Mapping (PMM), was developed for testing in a pilot study involving UTS students in industrial design, interior design, fashion and textiles design, and visual communication. Students were randomly divided into four groups and assigned to one of four different types of museum-related experiences, which included visits to all exhibits, visits to selected exhibits, and information sessions on exhibits without an actual visit. Each student was assessed, prior to and subsequent to their museum-related experiences, on their baseline knowledge and understanding of 'creativity' as it applies to design, and the resulting scores were statistically compared.

The specific research questions posed were:

1. Does exposure to a museum-related experience affect design students'
   - awareness of issues underlying creativity and innovation?
   - understanding of the relationship between creativity and innovation and design?
   - appreciation for the role that museums can play in facilitating creative and innovative design?
2. Can the new methodology of Personal Meaning Mapping be utilised to help understand the role that museum-related experiences have in affecting design students' awareness, understanding and appreciation of the relationship between creativity and innovation and design?

According to Falk (1999), Personal Meaning Mapping is based upon a relativist-constructivist approach to measuring learning. The combination of prior experience and the new experience result in learning, but the resulting learning is unique for each individual, situated within the context in which it was learned. PMM is designed to measure how a specified educational experience uniquely affects each individual's conceptual, attitudinal and emotional understanding. The major insight of PMM is that quality educational experiences affect change; the better the experience, the greater the change. Thus, what is most profitably quantified is not "what" but "how much" someone learns.

Specifically, PMM measures change in an individual's learning along four semi-independent dimensions. The first dimension focuses on an individual's vocabulary. More specifically, this dimension attempts to document the **extent** of a person's awareness and understanding of a particular topic by looking at the vocabulary they use to discuss this topic. The second dimension looks at the **breadth** of a person's understanding. How widely do they understand a particular topic? How many different ways do they, conceptually, approach the topic? The third dimension investigates the **depth** of a person's understanding to document how deeply and richly someone understands the specific concepts they use. Finally, the fourth dimension looks at the **mastery** someone has of the topic in question. This dimension follows a novice to expert continuum to document the way in which a person combines the extent, breadth, and depth of their knowledge. For instance, Falk Moussouri & Colson (1998) contended that a group of experts could all hold very different opinions on a given subject, and could all think about the subject in very different ways. Yet all could be acknowledged as experts.

Results of Study

The study provided evidence that museum-related experiences could, in fact, contribute to the learning experiences of design students. In particular, the data showed that most students showed significant changes in their understanding of the role that creativity can and should play in the design process. Results from the Personal Meaning Mapping assessment showed that all groups improved in both the extent and breadth with which they thought about creativity within the context of design. In particular, museum-related experiences provided students with

a concrete framework with which to think about issues of creativity and design. Students also showed an across-the-board change in their mastery of this topic. Students evidenced significant broadening, deepening and enriching of their understanding, demonstrating significant movement along the novice to expert continuum relative to this issue. However, though some members of one focus group showed significant improvement in their depth of understanding, this enhanced depth of understanding was not the rule for most students.

In understanding these results it is important to appreciate that the educational experience of each student was brief – each experience lasted only one hour or less. Hence, it is not surprising that there was little change in depth. However, it is worth noting that despite this brevity, all students showed significant increases in their learning about the relative role of creativity within the design process. There was an increase in their ability to describe creativity within the design context, as measured by extent scores, in their ability to conceptualise creativity within a design context, as measured by breadth scores, and in their ability to holistically understand and discuss the topic, as measured by mastery scores. The study would thus suggest that museums do have a strong potential for facilitating the learning of tertiary design students relative to creativity.

It is appreciated that this was a pilot study conducted with relatively small sample sizes, and that the study did not shed much light on which specific pedagogical approaches best met the needs of students. A future investigation will be necessary to tease out what approach, or combination of approaches, best facilitates this type of learning for this type of student.

Conclusion

This pilot study provided important support for the hypothesis that museums can foster conditions under which creativity and innovation in the design process can flourish. A larger scale study is planned to more carefully craft both the educational experience provided students and the research questions posed. The follow-up study will pose the following questions:

How does a multi-exposure museum design experience affect the extent, breadth, depth and mastery of tertiary design students' understanding of creativity and innovation?

How does a multi-exposure museum design experience affect the ability of tertiary design students to conceptualise a real world design project, in particular their ability to create design that accommodates the needs and interests of the public?

How does a multi-exposure museum design experience affect tertiary design students' appreciation for the role that museums and other comparable public institutions can play in facilitating creative and innovative design?

The museum is just one example of a setting in which valuable free-choice learning can take place. The value of the museum experience can be enhanced by greater awareness of its potential as a setting for design learning, and the experience can lead to new applications for design skills.

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A Visual Thesis?

Techniques for reporting practice-led research

Text: Chris Rust and Adrian Wilson

This paper describes an approach taken to the use of visual material as a significant part of PhD thesis in an Industrial Design research project. The aspiration to make creative work central to the thesis has been debated in a wide range of disciplines, but there are few examples of successful practice, especially in design. The authors sought to make visual material central to the process of developing a PhD thesis and worked with a research student to put this into practice. The process was beneficial to both the student and his audience and it is hoped that this approach provides a starting point for further development of practice-based research.

In Design, as in other areas of scholarship concerned with creative practice, there is a continuing debate about the nature of research and the forms in which research is communicated. The United Kingdom Council for Graduate Education has, for some time, worked on developing understanding of research in "The Creative and Performing Arts and Design" (CPAD). This grouping includes Music, Creative Writing, Performance & Dance, Theatre and Fine Art, as well as Design. The process started with a report into practice-based Doctorates (UKCGE 1997) and is continuing with a study of approaches to research training by a group[1] which includes one of the authors of this paper.

In general these are newer academic disciplines, although Music has been well established within universities (in the UK) for a very long time, while Fine Art and Design are relatively late arrivals, often in newer universities. In all cases there is concern about the forms for communicating research but this appears to be a smaller problem in Music, where the concept of a shared disciplinary language, which is not written in conventional text, is well established. By contrast, within the Design community, there is continuing and sometimes heated debate about the nature of research, including the appropriateness of the conventional thesis form. A visit to the archives of the Design Research Society email discussion list for the first half of 2000[2] will provide a snapshot of this debate.

Within Design, of course, there is a wide range of research for which these issues do not appear to be important, where the methods used are closely related to well-established practice in Physical Sciences, Social Sciences or the Humanities and the

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1. UKCGE Working Party on Research Training in the Creative and Performing Arts and Design, 2000-2001

2. May be found at http://www.jiscmail.ac.uk/lists/drs.html

traditional forms of writing are effective and appropriate. However we believe that there is potential for creative individuals in Design to make distinctive and significant contributions to research and that there is an opportunity for such people to develop both new methods of enquiry and appropriate forms of communication which may be more direct and accessible than a conventional text.

There are examples from other fields which may illustrate the issues. A colleague in creative writing, has reported a PhD project (Harper 1998) in which the central activity was the writing of a novel. The novel, on its own, did not make clear the nature and outcomes of the enquiry which had taken place and, in other similar cases, research students have provided a conventionally structured and argued thesis to allow the research to be understood and examined. In this example, however, the student chose to provide a series of fictional documents (spoof interviews, correspondence and diary entries) representing a debate about the novel, which fulfilled the same purpose but allowed him to use the form of communication in which he had the greatest competence, and one with which his audience was also very familiar. In this case, because the "thesis" was a written text, the departure from normal forms may not have been apparent to the university authorities but in practice it was a radical shift.

Within Design, Lars-Henrik Stahl (2000) has described a process in which PhD students in Architecture frequently start with high ambitions to "Make a dissertation instead of writing one". This early idealism is eroded as the research proceeds and text begins to dominate to the point where the artefacts are reduced to illustrations of arguments and discussions in the text. Stahl links this shift of emphasis to an increasing concern, as the student progresses, with "theoretical implications on a meta level" and it is reasonable to suppose that students' increasing awareness of theoretical issues and the widest context of the research can undermine a wish to allow artefacts, which are often local and specific, to speak for the research.

A new research student who hopes to "make" their thesis is seeking to make a huge jump into the unknown. Without a practical, reasoned approach, starting from an understanding of what can be achieved, it is not surprising that students abandon their aspirations once reality intrudes. It may be more practical to consider a progressive approach in which relatively limited but achievable goals might lead to something that would be useful in itself and a step forward in understanding the role that artefacts might play in future "made" theses.

Rivka Oxman (1997) has suggested that "a sequence of sketches can act as record of reasoning processes which can be inferred from transition states from one representation to a subsequent representation". In the project described below, drawing was used extensively to gain understanding of anatomical and mechanical problems and to visualise and develop design concepts. In fact the term "creative reasoning" was coined by the research group when seeking to explain, to an audience of scientists, the use of iterative cycles of drawing and/or making and evaluation at the heart of the investigation. This view of artefacts representing reasoning processes may be self-evident to many practitioners but it is worth establishing as a working principle for researchers, which may help them to prepare the ground early in their work for a thesis which gives a significant role to artefacts.

A Visual Thesis in Design?

Recently, we had the opportunity to consider these issues in a practical context in the supervision of a PhD project carried out by the Industrial Designer, Graham Whiteley. This project, aspects of which have been described previously (Rust

1998, 2000), was conducted largely through an investigative, experimental use of practical design activities. The aim was to identify new mechanical principles for prosthetic and robotic arms.

The researcher had previously published refereed papers on his work for Medical Physics audiences (eg Whiteley 1999) and it would have been possible to produce a conventional Medical Physics thesis. However there were a number of reasons why this approach would have been unsatisfactory.

Firstly the examiners for the PhD were drawn from both Medical Physics and Design and it was important to ensure that the work was comprehensible from both perspectives. It was also intended that the thesis should be accessible to a wide audience, including prosthesis users and professionals in manufacturing and prosthetics services, since one aim of the research was to stimulate practical developments in this field. It was felt that this multi-faceted requirement could be supported by the use of visual material which might be understood from several viewpoints in parallel, whereas a text alone may be danger of speaking to a single audience.

The research had resulted in a great number of drawings and 3-dimensional objects, which together represented and made explicit the processes which had been followed. It was clear that the quality and nature of this material was important evidence of the research and would help to validate the outcomes.From consideration of other research in prosthetics and robotics (Caldwell 1995, Hannaford 1995) it was evident that the quality of experimental devices had a bearing on the success of the research and written descriptions did not always express the subtleties and complexities involved - one of the continuing problems in reporting the work has been the different values and meanings placed on activities and language by the different academic and professional communities involved.

To take a simple example: the term "model" is widely used by designers to refer to physical, as well as conceptual artefacts. However, when the word is used in the medical physics community, it is generally taken to refer to a mathematical model. This conceptual division may seem trivial but it pervades the thought of both communities and requires a writer to be constantly vigilant in providing qualification of terminology whereas, with a good quality image of a model, it is immediately clear what is meant.

A further consideration was that, although the researcher had engaged with a great deal of knowledge and thinking in the medical physics field, he was not intending to put his work forward as medical physics research, directly comparable with other work in that field, and needed to signal the interdisciplinary nature of his work to the examiners. Finally, he had a great deal of ability and experience in graphical communication and was able to develop ideas and communicate with much greater effect through visual media than through text.

Taking account of this we believed that visual media should play a significant role in the thesis but we had no real scheme for making this work. Much of the debate about forms of thesis in Art and Design starts with the assumption that a "body of creative work" would be best examined through an exhibition and this approach, which is explicitly provided for in some university regulations, is widely used in Fine Art, usually through a combination of exhibition and text. These two elements may be complementary or the text may be used to provide a commentary on the work. Neither approach is satisfactory - the first can lead to confusion about the relationship of theory and practice, we have heard research students state that "my work is 50% theory and 50% practice", and both approaches raise the problem of providing a permanent record of the research, sufficient for others to understand fully what happened.

This lack of suitable models was a significant problem for the research supervisors since, in most fields, a PhD student is not expected to invent the form of their thesis and is able to refer to many examples of previous theses in their field. Our student had very few relevant examples, and none which seemed to be appropriate for his situation.

Development Process

Confronted with this problem, our response was to bring all the 3D and 2D material from the research together, spread out on a very large (2.4m x 1.2m) table and with suitable refreshment available. We (supervisors and student) spent an evening discussing specific objects and drawings, reminding ourselves of their role in the research and the connections between them, attaching post-it notes with comments and reminders. A researcher in another tradition might have had a great weight of notes recording their work and have written several chapters of their thesis at this point. However it became very clear that the visual "archive" which we had was far more useful to us as a record of the research since all the events, decisions and connections of the past three years were laid out in view and instantly, concurrently accessible.

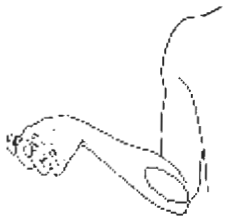
Of course this was dependent on our memory of the actual events and would be meaningless to a person who had not taken part in the research, but it was a good illustration of the power and richness of physical artefacts as a record. This was also very relevant to the fact that, in contrast to earlier, reductionist work in this field, it had been considered important to take a holistic approach, and we believed that the ability to consider many issues in parallel is greatly aided by the use of rich objects and drawings.

At this point we still had a working assumption that there would be an exhibition and that provided a starting point for the process of compiling the "thesis". The approach agreed was to construct a series of composite images, comparable to sections of an exhibition. Each of these would bring together the objects and drawings relevant to a specific issue or event in the research. From there, we hoped to move forward by adding text as appropriate.

The first outcomes were encouraging. A series of composite images was compiled, describing the development and evaluation of principles for an analogous finger joint. As well as bringing in drawings and photographs from the research, some new illustrations were produced to illustrate anatomical or technical issues and also to provide some "wayfinding" for readers who were not familiar with anatomy. From this it was possible to identify, for each image, a list o "bullet points" which required clarification in text and to move on to the written descriptions.

For the student, this was a very productive and helpful process. It was natural to work from his images and models (his visual notebook) and he developed the narrative and structure of the thesis far more quickly and fluently than his earlier experience of starting with a text.

Some principles were adopted for the page format of the thesis, the most important being that the figure title for each image should also provide a heading for the supporting text which must be on the same page. Where the text required more than one page it was necessary to repeat the image on the second page or consider whether to reconstruct the image to provide two new composite images. A system of referencing individual images back to the archive was devised, using a drawing number and grid overlay, and further wayfinding help was provided by using small anatomical diagrams at the top of each page. It was not possible to use double line spacing while keeping text and images together so the University Research Degrees Committee approved the use of single spacing. Fig 1 shows a sample page from the thesis.



Development of an Anatomically Analogous Forearm
Concept Development

Fig 1

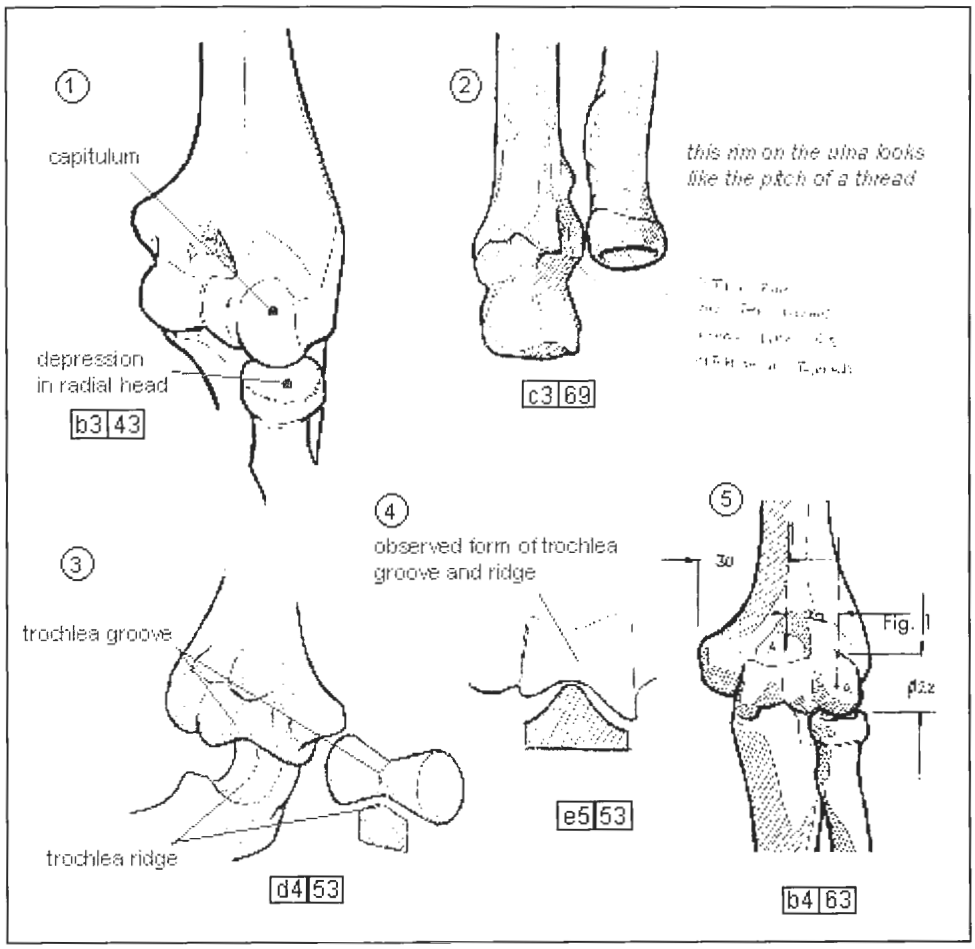


Fig 1 Observational Drawing of the Forearm Joints at the Elbow
Observational drawing studies from three-dimensional skeletal models indicated the capitulum to be approximately spherical, and the proximal head of the radius to possess a similar spherical concave depression. These observations were subsequently checked against the anatomical literature (Norkin and Levangie 1992) and wos found to be correct. Initial literature review indicated that the humero-ulnar joint possesses a single degree of ratational freedom (Norkin and Levangie 1992). This possessian of a single degree of freedom has been attributed to the highly contiguous fit of the trochlea ridge of the ulna within the trochlea groove (Kapandji 1982). However, the trochlea groove and trochlea ridge of the skeletal madels was palpated and a large amount of freedom of movement was perceived. From observation of the form of the trochlea, it is evident that the groove is not sharp but akin to the depression around an hourglass (4). An observation confirmed in the literature (Norkin and Levangie 1992). The skeletal trochlea ridge of the ulna appears slightly sharper in its convexity than the trochlea groove is concave. This was initially attributed to the absence of cartilage in the skeletal joint. However, reference to photographic cross-sectional studies indicate the trochlea and trochlea notch not to be totally contiguous on the lateral border; possibly permitting a medio-lateral rotation (Guyot 1990). Due to the observed differences in the trochlea natch and groove it was reasoned that if a medio-lateral articulation exists it is likely to be close to the centre of the trochlea groove. Estimates of the distance between the centre of the spherical capitulum to the centre of the trochlea groove were made and marked on the observation drawings (5).

As the thesis developed it became apparent that an exhibition would not be helpful to the examination or add much to the picture presented. An exhibition might provide a compact overview of the work but it would not convey its real substance. While practice in many areas of art and design leads quite naturally into exhibition, which is often the principal output, it is arguable that industrial design is primarily concerned with providing outputs for "clients" who are interested in producing or using artefacts. In this research, the "clients" are those who may employ the knowledge arising in further research or for practical application, for this group the thesis is an appropriate outcome.

The project has also led to the production of a small batch of "test-rig" models of analogous skeletal arms which are being supplied to other research centres who wish to use them for investigations into artificial muscle and control problems. Again, this seems to be a more useful and appropriate output than a public exhibition. Although there are plans to exhibit the work at suitable venues in future, these are seen as opportunities to generate interest in the work, rather than to inform people at a deeper level.

There remained the problem of a full permanent record of the practical work and steps were taken to ensure that the drawings and models (several large boxes full) could be archived by the University

Library. However, it was eventually clear that this would not be necessary for comprehension of the context, scope, methods or outcomes of the research since the images in the thesis recorded most of the significant material in sufficient detail. The archive will be kept, as planned, in the hope that it will be helpful to scholars who wish to conduct their own research into designing and researching in this field. For most practical purposes, however, the printed thesis should provide a sufficient record.

The thesis follows a conventional chapter structure, following the layout principles described above for the descriptive sections dealing with context and research activity, but using a more conventional format to discuss methods and conclusions. The final document does not, on first inspection, appear unusual and a new reader will approach it as they would any other text. However, from the experience of the research group, it appears that, once a reader has gained an overview of the work, they will use the images as their main aid to navigating the thesis and refreshing their memory, the text being consulted when specific details must be checked.

The text was written in short sections relating to the composite images, but care was taken to ensure that the text narrative flows through each chapter and, probably, this has been helped by the method of starting with a series of images which establish the structure of the narrative.

Technical Issues

The choice of software used to compile the thesis was unusual. Despite having access to a range of sophisticated software tools for graphics and document production, we chose to use Microsoft PowerPoint, which is widely used for compiling slide shows, but is not thought of as a method of producing large complex documents. There were two for this.

Firstly, PowerPoint is almost universal software, being available on the majority of personal computers used in education and business. This meant that there were no barriers to distributing copies of the developing thesis to supervisors and colleagues who could provide advice or help with proofreading. In the longer term it would not be difficult to distribute all or part of the thesis in data form, or to convert it to Acrobat or html format for the world wide web. This is very important since the wide use of computers and the internet has made the distribution of large documents much easier and less costly but we have seen several examples of attempts to do this which fail because they use software (chosen for its technical features) which is not compatible with the majority of computers available to the audience.

Secondly, PowerPoint lacks some of the sophisticated tools available in other graphics programs, and will not produce images of the highest quality, especially when printed at large scale. However these apparent drawbacks result from very significant advantages. The basic graphical editing tools provided meet every need encountered in this project, they were very easy to learn and use and gave quick results. Arguably, a more complex program would have been more difficult to master and slower in use. Similarly, PowerPoint stores images in a very compact form, which may compromise quality but allows a great number of images to be included in a document without an excessive burden on either data storage or speed of use.

Conclusions

This project is a long way from the "Holy Grail" of a thesis constructed entirely of creative work (Biggs 2001), and we do not wish to suggest that such a thing will ever arise in Design. Nevertheless, from a Designer's perspective, we see no harm in this idealistic vision and it has helped us to recognise what can be achieved and seek an appropriate form.

From a pragmatic attempt to construct a thesis that reflected the nature of the research, we believe that we have evolved

a useful form for recording and organising design research. The form developed has since been adopted by design students and researchers at several levels in the university. From discussions with design researchers in other disciplines, it seems to answer a number of problems facing researchers, especially PhD students, confronted with the need to record and report their work in a thorough and rigorous way.

A specific outcome has been the recognition that the wide assumption that a "body of work" is likely to require an exhibition may not be true for many researchers in design, and it is important for designers to recognise their audience and the purposes of disseminating their research. Our approach has also unlocked the problem of ensuring that a full record exists after the examination - arguably this is a fuller record than many Science PhDs which do not provide unequivocal evidence of any practical work which was carried out.

The process is greatly helped by computer resources such as digital cameras and scanners, which have only recently become ubiquitous, and the decision to use PowerPoint software was a lucky break . Perhaps the main factor in producing this thesis in this way was that the resources were there to do it.

The principal benefit has been In the accessibility and communicability of the research. The thesis has been read and found useful by people with widely differing backgrounds and purposes, it lends itself to wide dissemination and the use of visual material is beneficial for researchers who wish to carry out further practical work in this field and need to understand some of the practicalities involved.

The thesis (Whiteley 2000) was examined in December 2000 and the degree of PhD awarded with no amendments required.

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Puppy Love: The Tongue of Design

Text: Keith Russell

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Dr Russell has made significant contributions to the recent international debate on PhDs in Design and Design Education.

The object-relations of design are haunted by desire. Objects, as the outcome of design, lay silent claim to an innocence not permitted to other objects of human invention and intervention. Even the stone we come upon in the river bed, has about it, features of our own attending that transform the stone from a thing invented (literally "come upon") to a thing apprehended (something taken hold of which, in turn, takes hold of its holder). The transformation of apprehension is the common-place of aesthetics but the seldom-mentioned of design. While chairs may not yearn to be sat on, as humans we yearn to sit: our desire is made manifest in our sitting. This paper offers a theoretical basis for exploring the object-relations of design, including the affect-relations we form with objects, within an enlarged account of the philosophy and psychology of objects.

Some things leap out and lick you. Puppy dogs, especially, seem to fill this position of desire-as-an-object. Puppy dogs are the manifestation of an unavoidable sensory connection: there is no resisting the tongue. While other animals and even people may wish to fill this category of desire-as-an-object, there is none quite so successful as the puppy dog at breaking the barriers of subject and object. Here desire seems playful, cute and a form of love that only the most cynical and hardened could resist. With puppy dogs we are the fools.

Locating desire, outside, in an object, is part of the puppy love affair of design. It is not enough that objects may become the object of desire: "I must have that painting". Design has plenty of such objects parked on the enormous back lot of the dream-soul. There is a half of a century of such objects-of-desire neatly rusting. Compared to desire-as-an-object, desire-for-an-object is a relatively calm affair. It is open to cultural persuasion, to peer pressure, to the vanity of acquisition. Desire-as-an-object goes beyond these pleasant and mostly domesticated sins.

The Tongue of Design

To make a puppy dog of a thing is to give design a tongue. Take a need, convert it to a want, manipulate it into a desire: such is the catch-cry of everyday design marketing. Going beyond desire-for-a-thing places marketing and design in the realm of the fantastic. Here the central project of design is announced, pictured forth, brought into the light and shown. Design, no less and no more, takes as its purpose, the magic function of

manifesting desire-as-an-object. In the end, design seeks to make its own puppy dog so that it may be forever held in the aura of puppy love. Like the queen termite, design is in very real danger of being licked to death.

In the work of certain design groups, ALESSI for example, this magic side of design is clearly announced. Their objects play the game of philosophy, even against the advice of Herman Hesse's Magister Ludi:

"Probably you too sometimes incline, as most good Glass Bead Game players do in their youth, to use our Game as kind of instrument for philosophizing. My words alone will not cure you of that, but nevertheless I shall say them: Philosophizing should be done only with legitimate tools, those of philosophy. Our Game is neither philosophy nor religion; it is an art sui generis. One makes greater strides if one holds to that view from the first than if one reaches it only after a hundred failures. The philosopher Kant - he is little known today, but he was a formidable thinker - once said that theological philosophizing was 'a magic lantern of chimeras'."[1]

Is design "an art sui generis"? Or, is design simply a making evident what we may already know, from philosophy, if we only bothered to philosophize? And, is all this talk about design a genuine talking or merely a verbal form of "a magic lantern of chimeras"? The puppy tongue is much too quick an answer. The licking goes on and on, but our questions receive no reply.

Pretend Dogs

Alessi, in taking up the psychology of Winnicott, pretends to offer puppy-dog-designs: objects that structure desire; objects that are open to use as transitional objects. Such transitional objects present themself as a concretization of desire as desire is experienced by a person in transition. Or, put simply, children tend to locate their transitional (growing) identity in a relation (play) with an object (toy). While Alessi's account is interesting and somewhat challenging (or sticky), the point here is that Alessi, faced with designed objects that are designed to be puppy dogs, is then faced with a need for a psychology of objects-as-they-are-found-in-relations to account for the deliberate structuring of desire in and as objects. This shift from the aesthetic to the ethic is at the expense of the poetic. That is, Alessi offers us, via Winnicott, an account of the use, but this is not the making. Libidinous glee is too much like profit: it offers to justify an outcome without offering an inspection of the whole experience, experiment, process. Winnicott's own accounts of play and objects of play, help us slow down the hyperactive puppy tongue found in ALESSI products.

I hope it will be understood that I am not referring exactly to the little child's teddy bear or to the infant's first use of the fist (thumb, fingers). I am not specifically studying the first object of object-relationships. I am concerned with the first possession, and with the intermediate area between the subjective and that which is objectively perceived [p. 3]

The transitional object and the transitional phenomena start each human being off with what will always be important for them, i.e. a neutral area of experience which will not be challenged. Of the transitional object it can be said that it is a matter of agreement between us and the baby that we will never ask the question: "Did you conceive of this or was it presented to you from without?" The important point is that no decision on this point is expected. The question is not to be formulated. [Italics in original.]

This problem, which undoubtedly concerns the human infant in a hidden way at the beginning, gradually becomes an ob-

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1. Hesse, Herman The Glass Bead Game: Magister Ludi, trans. Richard and Clara Winston (Harmondsworth, Penguin, 1972),133-34.

vious problem on account of the fact that the mother's main task (next to providing opportunity for illusion) is disillusionment. This is preliminary to the task of weaning, and it also continues as one of the tasks of parents and educators. In other words, this matter of illusion is one that belongs inherently to human beings and that no individual finally solves for himself or herself, although a theoretical understanding of it may provide a theoretical solution. If things go well, in this gradual disillusionment process, the stage is set for the frustrations that we gather together under the word weaning ... It is assumed here that the task of reality-acceptance is never completed, that no human being is free from the strain of relating inner and outer reality, and that relief from this strain is provided by an intermediate area of experience which is not challenged (arts, religion, etc.). This intermediate area is in direct continuity with the play area of the small child who is "lost" in play. ... Should an adult make claims on us for our acceptance of the objectivity of his subjective phenomena we discern or diagnose madness. If, however, the adult can manage to enjoy the personal intermediate area without making claims, then we can acknowledge our own corresponding intermediate areas, and are pleased to find a degree of overlapping, that is to say common experience between members of a group in art or religion or philosophy. ... This intermediate area of experience, unchallenged in respect of its belonging to inner or external (shared) reality, constitutes the greater part of the infant's experience, and throughout life is retained in the intense experiencing that belongs to the arts and to religion and to imaginative living, and to creative scientific work [pp. 12,13, 14].[2]

Co-ludens - Playing with the Dog

But puppy dogs, in their licking, are not normally the topic of art or religion or philosophy or "creative scientific work". Indeed, the slippery, sensory, co-lusion that attends the moment with a puppy's tongue is not normally part of any discourse outside of the co-lusion of touch. Winnicott has most pleasantly shifted attention from the libidinous to the social in a way that is similar to Alessi. The socially reproduced object-as-desire as manufactured and sold by ALESSI, is an object-as-desire that has already gained social status as part of the acceptable range of objects; it has become approved, through formal production, as a mediating object. Or, in other words, because the parent makes no comment about the child's super-sensuous moment with a licking puppy tongue, the libidinous aspects of the event are not made apparent. If, however, the co-lusion between child and puppy tongue were to be interrupted by a parent eager to contest the transitional playing, then, as Winnicott points out, "we discern or diagnose madness". It is, afterall, a kind of madness if not maddening, to allow a puppy's tongue to swamp our face.

Does this mean that mass produced dildos bought in a shop, have their full libidinous power constrained by well-ordered expectations of a socially recognised use? Are such objects well-tempered? The modified nature of the ALESSI object is pointed to by Christopher Waller in an "interview" with Alessi:

If the language of objects expresses our dreams, aspirations and anxieties, then the unconscious message of ALESSI products is of a society desperate to escape back to the reassuring realm of the child where fantasies are still possible. Why else would we need a sugar filter called Gino Zucchino? Gino Zucchino, designed by Guido Venturini in 1993, is a bright, plastic, amorphous form with a large, inanely grinning face, whose stated function is to sift impurities from a mass-produced, artificially processed foodstuff. Gino has more of the attributes of a toy than of a cooking utensil. But to dwell on these aspects of the product is to miss its irony.

2. Winnicott, D. W. Playing and Reality (London: Tavistock Publications, 1971), 3, 12, 13, 14.

Gino is an item of mass production, the implicit function of which is to be cathartic – to make us feel happier about the products of industrial process. As Alessi is fond of saying, "There is no difference between a coffee-maker or a teapot and the Linus blanket or a teddy bear."[3]

From this interpretation it would seem that the ALESSI object is designed not so much in an effort to constrain desire through the certification of desire by mass production, but rather, the ALESSI object is designed to de-constrain the already constrained desire of mass produced objects. This de-constraining would seem to be an inherently wayward and retrospective activity and therefore it would seem to be in conflict with the developmental and childhood psychology of Winnicott. The direction, in Winnicott, is forward to adulthood; the direction in the ALESSI seems to be backwards in a reverse spiral.

There is a fundamental difference, in Winnicott's psychology, even if not in ALESSI's ideology, between the transitional object of childhood and the object of daily use, or utility, of adulthood. Even if there are traces of puppy-licking in the teapot, they are traces that point to the double function of the mother, in Winnicott's terms, as protector of the illusion and agent of the disillusion. To repeat, Winnicott says: "the task of reality-acceptance is never completed, that no human being is free from the strain of relating inner and outer reality, and that relief from this strain is provided by an intermediate area of experience which is not challenged (arts, religion, etc.)".
Such uncontested aesthetic relations with objects, are typical of what might be called adult object-relations.

Adult Objects?

While "aesthetics" is more correctly the science of the senses than simply an account of an authorised range of fine art experiences, it is important to remember that design objects, by and large, are outside of the general concerns of aesthetics. We are so busy sitting on chairs that we do not bother to call their object status into question. So, without an enlarged account of the aesthetics of design objects, simply moving to an adult notion of object-relations would be to collapse the illusion/disillusion dialectic established by Winnicott. Somehow we need an account of how the dialectic is structured in such objects. Dewey, in his Art as Experience, offers a sophisticated model of human development, in and through experience with objects:

Experience in the degree in which it is experience is heightened vitality. Instead of signifying being shut up within one's own private feelings and sensations, it signifies active and alert commerce with the world; at its height it signifies complete interpenetration of self and the world of objects and events. Instead of signifying surrender to caprice and disorder, it affords our sole demonstration of a stability that is not stagnation but is rhythmic and developing. Because experience is the fulfillment of an organism in its struggles and achievements in a world of things, it is art in germ. Even in its rudimentary forms, it contains the promise of that delightful perception which is esthetic experience [p. 19].

The existence of art is the concrete proof . . . that man uses the materials and energies of nature with intent to expand his own life, and that he does so in accord with the structure of his organism - brain, sense-organs, and muscular system. Art is the living and concrete proof that man is capable of restoring consciously, and thus on the plane of meaning, the union of sense, need, impulse and action characteristic of the live creature. The intervention of consciousness adds regulation, power of selection, and redisposition. Thus it varies the arts in ways without end. But its intervention also leads in time to the idea of art as a conscious idea - the greatest intellectual achievement in the history of humanity [p. 25].[4]

3. Waller, Christopher "The Transformer" ["Interview" with Alberto Alessi], 21C, No.2 (1996), 72-75.
4. Dewey, John Art as Experience (NY: Capricorn Books, 1934) 19, 25.

The grand developmental model of Dewey, touched with a kind of biological dialectic (we are made this way to be this way), allows us to relocate the puppy dog or object-as-desire outside of the trivial katharsis or recuperation of infantile object-relations that awaits us in the super-sensuous world of ALESSI teapots. But is this demand that Dewey places on us, to develop towards "the greatest intellectual achievement", too great a demand? May we not stay, like children, suspended between illusion and disillusion, uncontested in our feelings and experiences of objects? May we not go, like children of Alice in Wonderland (who never had children) into the dimension of puppy love? Can we not experience our object-illusions in an adult moment? Can we not be reconstituted within the object-relation of puppy love? Licked silly, does it matter, after all, whether we dissolve or resolve?

A major part of the difficulty here comes down to a general absence of fully worked out psychologies and philosophies of objects. The term "katharsis", for example, used so glibly by Waller, is a term that hides a whole realm of affects while describing one small part of the human soul or concrete dimension of the human. In its use, in the case of ALESSI, the term actually helps us define what is so limiting and debilitating about the approach to objects announced by ALESSI.

"Katharsis", in its use by Aristotle, in his Poetics, offers an account of the affect experienced through the reception of the dramatic genre.[5] Typically, this affect is seen to relate to the tragic mode of the dramatic genre with fear and pity being the defining emotions (offered by Aristotle) that are called up and cleansed in the experiencing of drama. When we extend this general pattern, to the comic mode of the dramatic genre, then we start to see how useful the term "katharsis" is to design and design objects. That is, comedy releases us from provoked and/or pent-up emotions, through katharsis, just as tragedy releases us from provoked and/or pent-up emotions. We need to recall that an unhappy ending was not seen by Aristotle as a requirement of the tragic; of most importance to Aristotle, was the portrayal of change, whether from high to low, or low to high, did not really matter, except that in the case of the high to low, we tend to be more drawn to the aspect of change as the key feature of our dramatic understanding.

For Aristotle, drama is the exploration of action as it relates to humans, through their fundamental apprehension of change. In a very real sense, for Aristotle, it is because we are aware of change, that we are aware. Change then points to difference as the key defining feature of human consciousness.

Kenosis and Object-Relations

But design and its objects do not typically fall under the description of actions. More typical of design, in philosophical and psychological terms, is object-relations. Such object-relations, when inspected through difference, point to another affect: kenosis. "Kenosis" means "self emptying" whereas "katharsis" means "self cleansing". Katharsis is then primarily about the restoration, through the experiencing of structured emotion, of a previous state of psychic economy. Kenosis, on the other hand, is primarily about the re-determination of the self, through the loss (or giving up) of an old self and establishing (or determination) of a new self. This model looks much like an Hegelian dialectic, with the thesis (old identity) being confronted with an anti-thesis (difference) resulting, through the dialectical process in a synthesis (new identity) where the original thesis and anti-thesis are taken up in the new thesis.[6]

Kenosis is typical of the lyric genre in that the lyric genre is typified by the structuring of identity, as difference, within a constellation of differences. That is, in forming our kenotic understanding of self in relation to and with objects, we

5. Aristotle. Poetics. Trans. Ingram Bywater, in The Works of Aristotle, Vol. XI. (London: Oxford University Press, 1946).

6. For an extended account of affects, in particular the affects of the lyric genre, see Russell, Keith, "Kenosis, Katharsis and Kairosis: A Theory of Literary Affects", PhD thesis, University of Newcastle, NSW Australia, 1990.

form our identity within the dialectic of illusion and disillusion described by Winnicott, and, within the developmental model of object-relations described by Dewey as the urge towards an aesthetic dimension.[7]

Such kenotic relations are typical of the reception of lyric objects where the mediating function of the object is defined by the play of differences within a potential constellation of differences. Whether this play is resolved as a new lyric identity or dissolved as a continuing play of differences is not simply a matter of the will or lack of will on the part of an individual. The chair, in its positive status, as an object of design, remains obdurate. The poem in its presentation, remains on the side of the guiding parent. Its formal structure clearly announces that the libidinous and the sensuous have been constrained with a purpose. Attempts to break down the formality of lyric objects, be they chairs or poems, are inherently perverse. That is, relations of transition are directional. Designed objects, within their innocence, seem to point back towards their designer/maker. Poems, in their deliberateness, point away from themself and away from their maker, towards the new identity of the reader.

Conclusion

The location of design objects within the philosophy and psychology of an aesthetic dimension is crucial to the development of a science of design. While the work of Mikel Dufrenne, points to ways in which phenomenology can assist in the structuring of our understanding of our experiences of design objects, this structuring needs to be taken further, into a phenomenological account of the designing of objects and adult object-relations.[8] Design objects may best be described in a domain that exceeds the area of art objects. In this sense design objects may remain sticky in that they retain pronounced traces of the uncontested transitional object-relations typical of childhood object-relations. Opening design up to philosophy and psychology allows that this inscribing of libidinous traces is open to theory (showing). Opening design up to an enlarged understanding of object-relations allows that affect structures, such as kenosis, can be used in the dangerous business of coming face to tongue with the puppy love of the bright and shiny, slick and smooth, warm and furry, barking rasp that is desire-as-an-object.

7. See Herbert Marcuse's The Aesthetic Dimension: Towards a Critique of Marxist Aesthetics (London: Macmillan, 1978).
8. Dufrenne, Mikel The Phenomenology of Aesthetic Experience, trans. Edward S. Casey (Evanston: Northwestern University Press, 1973).

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Redundancy as Creative Property

Text: Gunnar Sandin

In this paper redundancy is regarded as a property of creative activity and aesthetic judgement. The analysis is speculative and mainly directed towards the study of messages. Redundancy appears in many forms in artefacts. It may be implemented as operative security function on a technical level or as an enforcer of a product's message on the semiotic level. In artistic evaluation of redundant phenomena, the conventional decision to avoid either overload or insufficiency may be suspended. Redundancy, as seen in the perspective of aesthetic judgement, may instead be treated as an unexpected source of creation.

When word and image concur in a cultural production, we quite often run into situations where one of these is accused of taking advantage of the other, or of dominating the other. This is common for instance in the debates about contemporary art: How much should the artwork speak for itself and how much could it depend on an external and explicit production of meaning? In these public discussions, as well as in many classic texts about images, it is not rare that prejudices show up; iconophobia as well as idolatry is reinforced, sometimes deliberately, sometimes less consciously, by the linkage of reductive notions of either image or text to other discriminating arguments with, for instance, political, societal or sexual content.[1] Also when evaluating the semiotic aspect in design there is often a preference of whether the appearance of a product should speak for itself or if it requires some sort of additional verbal signification. Whether incorporated in the product itself or externalised as written instruction, informational text is often looked upon, paradoxically, as both superfluous and necessary.

In this essay, I will recognise the difference between images and words, but instead of using the one against the other, I would like to discuss their concurrance in getting a message through. This discussion will mainly be about a feature common to both image and text. By adressing a property shared by both words and images, namely their mutual ability to fortify an utterance, we will see how they lend their services to situations where multiple perspectives appear contemporaneously. An utterance – here manysided as for instance a property of speech, as an expression in works of art, as the intentional "look" of a product, or as a general function in cultural production – may fortify itself, or secure itself, by the assistance of a certain kind of overflow, namely redundancy.

When we whisper the phrase "the cat moves so quietly" to indicate not only our story-telling position, but that of the cat in action, we use two concurring perspectives in one utterence.[2] We use multiple means in order to strengthen the message. We certainly then fortify the message,

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1. As shown in Mitchell, W. J. T. Iconology: imoge, text, ideology., (Chicogo 1984).

2. Uspenskij, Boris Poetics of Composition, (Berkely ond Los Angeles, University of Colifornia Press, 1973), 40.

but in cases like this we may also risk over-determination or even unintended self-caricature. The same principle goes for design, for instance when aiming at visual reinforcement of a product's affordance by using textual and other symbolic means in conjunction with formal properties; there is generally a limit to how much redundant information we can (or want to) accept. On a technical/functional level there are a lot of examples of redundancy in product design, for instance when a car is given two or more brake systems.

Exaggeration, co-operation and reinforcement are components of that which we call redundancy. The occurrence of redundancy in aesthetic production, as we shall see, is a game played on several levels.

Redundancy (+ & -)

A common rule in aesthetic activity is to avoid the overdone, to do only what is necessary, i.e. not more than the production calls for. This rule applies in several practical fields: to keep the tempo in the movie, the line should be spoken once and with clear voice; to maintain the enigma of an exhibited object, it should not be "too well" described, the door of a building should not be pointed out with extra signs saying "door", etc. The overdone is generally considered ugly. The "retake" is not preferred. What we have here is the aesthetic convention of questioning the superfluous. But as we all know, this is not a convention in sole control of creative processes. Both overflow and retakes are used as artistic or rhetoric strategies.[3] And further: in the languages and types of media at hand we have redundancy as an immanent and intended kind of overflow. These circumstances turn the question. Is it desirable, in aesthetic activity, or even possible, to avoid redundancy?

In classical rhetoric, redundancy is the use of too many figures, which is a sin against brevitas, the short and precise delivery. To avoid redundancy would be a continual stance against overflow, a stance recurring in the creative process as a strategy of reduction. But in this stance, in this repetitive guard against the overdone, lurks another type of redundancy. These manoeuvres of avoidance leave the final work clean but also diminished, since the strategy is to repeatedly cut off. An overflow of material risks being superseded by a superfluous reduction. The attempt to avoid one type of redundancy might open space for another.

In a repetition one may focus on the change that every repetitive gesture gives rise to.[4] Ideologies bear strains of redundancy in the repetition of themselves. Modernism, for instance, may be defined as the recursion of new moves.[5] The interesting trait in the case of modernism or ideologies in general, if we are interested in creation, must be the ability to detect the differences, remnants and modulations, unfolded by the repetitive moves.

When we award overflow a positive cultural charge, and give prominence to qualities like richness, extravagance, splendour and wastefulness - when production is marked by the plentiful, as in the folding of the baroque - then we have redundancy as such as the prevailing aesthetic principle. If redundancy no longer just serves as reinforcement of a message, but is the actual goal of an aesthetic activity, what is achieved apart from excess? In the production of overflow for the sake of mere consumption or lavishness, rules a state of irreversibility.[6] In such an economy redundancy, paradoxically generating grotesque growth, is given primary status. In baroque thinking, though, this is not a sufficient motive. The interest of the baroque is rather devoted to the quality of the changes of perception that goes along with the plentiful folding. In other words - we have in baroque thinking not mere overflow, but a modulation of overflow, partly led by the overflow itself.

In most contexts the redundant matter stands for that which can be excluded without losing the essentiality of an intended mission or enterprise.[7] For a human

3. Among the vast amount of examples could be mentioned repetition as installation strategy in exhibitions of monochrome painting, or the well-known line "a rose is a rose is a rose is a rose" by Gertrude Stein. Another example is incorporation of the retakes of one and the same scene, as elements in the final film-score, which has been done by for instance Sergej Paradjanov and Abbas Kiarostomi among other directors.

4. Gilles Deleuze does so in his investigations of the aesthetics of the fold, when he emphasises the differences between successive events in an inflection. As events of the non-straight line, every new position creates a radically new perspective. See the first three chapters in Deleuze, Gilles Le Pli: Leibniz et le Baroque, (Paris, 1988), transl. as The Fold: Leibniz and the Baroque, (London, 1993).

5. This is, by the way, perhaps the most significant feature of this particular ideology or cultural tendency.

6. George Batoille sees excess as an economical force stronger than income, balance, utility and book-keeping. Excess may be considered a consequence of the desire, or purpose, to exceed a gift. In a potlatch situation, in an irreversible economy, we will not get back what we spent but receive something essentially unexchangeable. 'The Notion of Expenditure', in Stoekl, Allan (ed.), George Batoille, Visions of Excess, selected writings 1927-1939 (Univ. of Minnesota Press, Minneapolis,1991), 116-129.

7. Apart from the natural use of the term in English, redundancy ties to many different scientific vocabularies, such as linguistics, information theory, mathematical statistics, psychology, etc. There are deviations and borrowings between these disciplines. In verbal language redundancy is sometimes treated as a static quality associated with synonyms, pleonasms, etc. In a general flow of information, redundancy is given a somewhat more "travelling" function: it is a dynamic part of a sent message, but does not constitute the informational substance, only fills in and confirms when there is a loss or uncertainty of some kind.

being to be declared redundant is to be declared as no longer needed for co-operation. In the social exclusion, whether one is the agent active or acted upon, the drastic change of state that is at stake is mostly motivated in terms of economy or emotion. Motives are sometimes obscure, they are indeed mixed, but in cases of exclusion they are seldom rendered as being aesthetic. But if we regard aesthetic judgement as essential to expectations of taste or order, or as force in compositional evaluation of a general set of items, then aesthetic, and sometimes formalistic, consideration is certainly present in the underlying complexity of decisions thought of as being mainly of ethical, social or political sort. One may consider for instance the lack of expected fulfilment behind the divorce, the sense of non-fitness behind a dismissal, the suitability to the patterns of the market, the absence of argumentation and reason in ethnic discrimination, etc. One may ask how often the redundant person is explicitly declared a pawn in an aesthetic game, and one may ask how the functions of exclusion are themselves redundant systems? The administration of the aesthetic capital in a social construction, whether it is a state, a company, or a union of any kind, does not stop at a passive judgement of a beauty factor, and does not yield to the consequences for those who were not involved in making the decision.

The redundant is the superfluous, but it is also that necessary overflow needed for a system to deliver its goods, and therefore to survive as such, to secure itself. In verbal language and in the digital flow of information it is, eventually and ideally, the intended content of the message that is to be delivered securely, sometimes with the aid of built-in redundancy, sometimes as redundancy manifested in another media, or "channel" of an essentially different kind.[8] In computer-based transmissions redundancy is manifested, hidden from the normal user, as extra-bits following every singular stream of substance-bits. In statistically oriented information theory, which is devoted to variation in one coded dimension (as opposed to contexts where the manifolds of communication are treated), redundancy is a protection against noise, that which threatens the message. A machine can handle as much redundancy as its memory allows – it doesn't get bored - but memory costs in the end. The weighing of the effective against the redundant amount of information is a central balancing act in transmission economies because of the choice of one type of channel and one type of code (binary) for that channel. A displacement of the vocabulary used in information theory (or its applications and relatives, such as statistically oriented psychology) has sometimes led to semantic confusions where redundant equals secure or reliable. In most fields, though, it is considered as a background resource, ready at hand, when normality is threatened.[9]

In architecture, one feature of redundancy is the absent but ever returning genealogy of styles, structures and proportions, making it possible to continue to create architecture by awakening chosen parts of its own history.[10] Another feature is the functional redundancy on the technical level, as when the number of columns, pillars or other load-bearing elements are multiplied or over-dimensioned. This principle has also been transformed into creative and visual design ingredients by architects. Elaborated examples of such a rhetorical use of redundancy are Peter Eisenman's 'House II' and 'House VI' (*fig.* 1, *fig.* 2, page 40). In 'House II' the columns could, if their task were only to bear the slabs, be taken away, replaced by the bearing walls, or vice versa. Either the columns or the walls are redundant. In 'House VI' redundant elements sometimes interfere with the expected space of an interior, such as an overflow of pillars in the kitchen and a staircase placed upside-down against the ceiling.[11]

8. Intuitively, there seems to be many types of crossings at work here, many ways for one function to 'help' another. A complete investigation however, of the interactions possible, between these functions, as far as redundancy is concerned, would require efforts not taken in this essay. To exemplify, lending both example and terminology from Charles S Peirce, a conversation between two people would consist of a conglamerate of sign-vehicles, i.e. symbols, icons and indices. The two latter function as brought-in assistants, as illustrations and gestures helping the conventionally grounded symbols of language to convey the message. Rabin, Richard Annatoted Catalogue of the Papers of Charles S. Peirce, (Amherst, Massachusetts, 1967), manuscript no. 200, 43-44.

9. Redundancy may be considered the basic precandition for any system that regulates its own rules (such as spoken language). It may then be used in three principal ways: First, as a means to stabilise a level relative to another level (as when syllables stabilise the use of letters, or syntactical forms stabilise meaning on the semantic level).
Second, as a repertoire of forms from which new varieties (pattern deviation) can be generated. And third, as a repertoire which can be used to express a new meaning or to ascribe a new regulative function. Finnemann, Niels Ole 'On the notions of Rulegenerating & Anticipatory Systems, in Computing Anticipatory Systems, (conference proceedings, Liege, 1998).

10. Compare for instance Peter Eisenman's description of how contemporary representation of architecture takes over classical features. Eisenman, Peter 'The End of the Classical, the End of the Beginning, the End of the End' in RE:WORKING EISENMAN, (London, 1993).

11. Sources: Eisenman, Peter et. al., Misreading: Houses of Cards, (New York, 1987), Susanne Frank, Peter Eisenman's House VI: a client's response, (New York, 1994). For an elaboration of the presence of redundancy in Eisenman's works, see Ståhl, Lars-Henrik Tre texter om förskjutningens estetik, (Lund, 1995) 20, 32-35, 120.

fig. 1

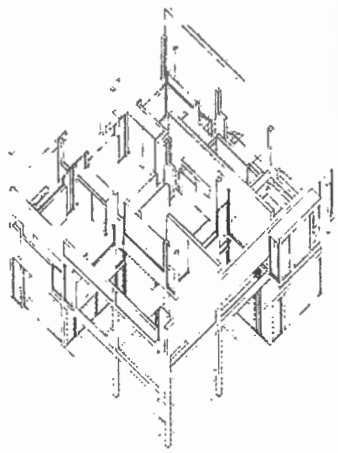

fig. 2

One case of redundancy in experiencing architecture by visual means is when we guess the function or the property of a building by "filling in the rest", given the view of certain elements or a rough form. When we see a contour of a town from a distance, we unhesitatingly conclude, using redundant architecture experience, that the sharp-edged roofs directed upwards belong to churches. This goes of course for every visual experience. A similar notion of redundancy can be found in semiotic analysis of pictures and pictoriality. Visual rhetoric is sometimes described as the unexpected singular event in a picture or in a pictorial sequence. The rhetorical moment enforces new meaning or modulates the expected overall meaning in the picture. We are able to perceive a break from the norm precisely because our expectations try to keep us in normal flow. Redundancy, seen as the experience we want to fill in, is thus, in the rhetoric moment, something that is present, but does not fit.[12]

To accept or to avoid

Maybe redundancy is such an unavoidable ingredient in communicative activity, that in order to catch sight of it as a function in an aesthetic process we should talk of it in terms of pre-redundancy and post-redundancy. With this dichotomy I envisage the process just before and just after the moment of determination effectuated with the help of redundancy.[13] If redundancy is considered to modulate an event, i.e. as pre-dominant agent at the moment where something is determined, then pre-redundancy is a condition dominated by insecurity. In pre-redundancy distortion, interruption, openness, vagueness, indeterminacy, noise, etc. are threats to normal flow and order. The desire here for the agent of redundancy is to conquer the not yet made-up, to fasten the loosely driven elements. The result is dependent on how this establishing desire is handled; it may for instance convert into bits of meaning on an expected level. This would be the general aim in information technology and formal language. In artistic activity one is more likely to operate a pre-redundant condition in several different ways; the openness may for instance be manifested as concrete part of the actual result, as in the traces of labour accounted for in a revisited architectural process, or as remnants from an act of performance, or in the brush-strokes of a hand-made painting.[14] A probable attitude in the artistic handling of a pre-redundant condition would be: accept-chaos-and-treat-it-as-a-resource, in other words, the will to not close this ambiguous situation, but to treat it as generator of temporary and accidental ideas and manifestations.[15]

In a post-redundant condition we would expect the reign of the newly established, of the precise and the absolute structure,

12. See Sonesson, Göran 'Approches to the Lifeworld Core of Pictorial Rhetoric', in VISIO, 1,3 outomne 1996 - hiver 1997, 50. Sonesson discusses the difference between redundoncy ond expectancy, ond proposes the lotter os the more adequate term when discussing break-of-norm.

13. I use these terms ideally, since the moment when redundancy is activated is not always determinable or even detectable. I have taken this dichotomy, parasitically, from the terminology describing dismissal on the lobour-market, ond the conditions before and especially ofter the moment of being declared redundant, of being unemployed. Martin, Roderick Working women in recession, (Oxford Univ. Press, New York, 1984).

14. Compare faktura (the factual evidence of the process) in Russian avant-garde and formalism.

15. For different principles of non-determinacy os o resource, see Sandin, Gunnar 'Under Design', in Forskningen Fortsätter, Arkitektskolan i Lund 30 år, (Lund, 1995), 79, where I briefly suggest some olternatives to utility-oriented design. Concerning non-determinacy os experimental strategy for creotion, see also Sandin, Gunnar & Ståhl, Lars-Henrik 'Kosmoletto: Design as on act of performance', in Semiotics oround the world: Synthesis in Diversity: Proceedings of the Fifth Congress of the International Association for Semiotic Studies, I. Rauch & G.F. Carr (ed.), (Mouton de Gruyter, Berlin/New York, 1997), 731-734.

waiting for new disorder to arise.[16] In a program, i.e. in something formulated before a realisation, the post-redundant state (of temporary satisfaction) is implemented as an if-not-proper-node waiting for a new disturbance of a predictable kind. In reality, as for instance in creative acts that (with necessity) neglects or forgets the existence of the program, there is rather an evaluation of the new situation regarding it on its own premises; it is here essentially impossible to know whether the determining act, the effect of the recently activated redundancy, promoted its own interest. The post-redundant state is in this case not necessarily satisfaction but skepsis or continued fluctuation.

To keep not only the interpretation open-ended, but also the formal circumstances of an art work, was the explicit goal set by the artist Öyvind Fahlström and manifested in his concept of the "non-fixed conglomerate meaning." This strategy, concerning actual fluctuation and movement of the parts that a work consists of, was developed by Fahlström both as paintings and as a written concept called 'Signifiguration' (*fig.* 3, *fig.* 4).[17] The avoidance of stabilisation is an explicitly stated aim for Fahlström. Furthermore, the graphic notation used in the writings of the theory is itself an experiment with the scale and position of the relation between image and text. This work thus functions on several levels of expression simultaneously; it is mediation as well as exemplification, poetics as well as practice.

Conclusory remarks

If we regard redundancy as a property of creative work, i.e. as part of the message sent by the creative agent, it submits to the author (artist, designer, executive, etc.) of the protocol that determines that act of mediation. Just as the writer of a novel "knows more" than the characters involved, the qualification of any communication act is partly done at a level hidden from the speaking part(s). Just as an utterance generally depends on the hidden complexity of conventions lying behind it, redundancy often appears concealed. In artistic evaluation of redundant phenomena, the conventional decision, to avoid either overload or insufficiency, may be suspended. Redundancy, and the vague condition just before and after the moment when redundancy "rescues" a message or an operation, may in an artistic act instead be treated as an unexpected source of creation or even a result in itself. In design processes this has its evident parallel on the semiotic level: a product must not always reveal its purpose "as quick and accurate" as possible. Another aspect of a "creative approach to redundancy" in design thinking would be a focus on the will to treat redundancy not as an insurance of one highly specific use but as operator of alternatives, still by means of a built-in overflow of functions. This strategy would for instance direct design thinking toward re-use of products, by treating them from the outset as second and third generation objects as well as first and only.

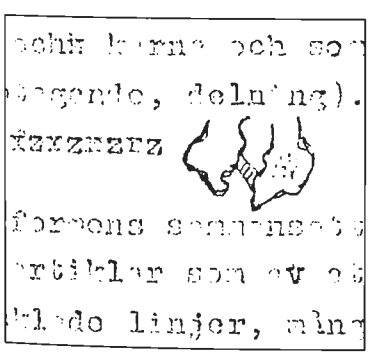

fig. 3

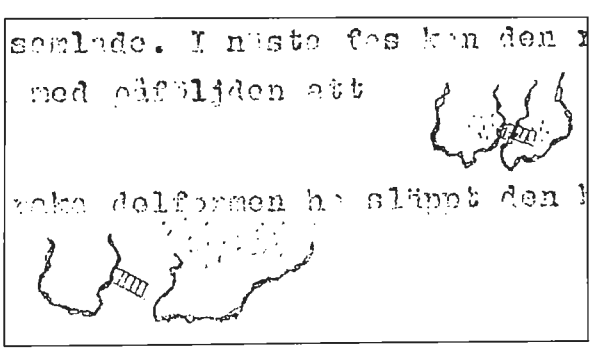

fig. 4

16. Also over-determination could in itself be considered a disorder, meant to change.

17. As an alternative to "the mute-fix emblem", Fahlström favours "the phase in o course of events". He thought of formation on the level of detail as well as on the level of the complete work as "not something that 'is' but something that 'is becoming.'" The quotes are taken from the unpublished document 'Signifiguration – am ny andlighet i konsten' from 1959 . An intermediate source here is Hjelmstedt, Lars, 'Kraftzacken och spårspiralen: om Öyvind Fahlströms signifigurationsteori' in Ord & Bild, 1-2+CD, (Stockholm, 1998), 92-103.

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Den socialt formgivna produkten

Författare: Ulf Mannervik
Utgiven 1997 Chalmers tekniska högskola, exp. för Form och Arkitektur
Ser vi industriell formgivning som en social förändringsprocess, framgår det att en rad olika personer påverkar en produkts form, personer med olika prioriteringar kring problem som den skall lösa. Produkten är socialt formgiven i bemärkelserna att produktutvecklarna skiljer sig åt i sina föreställningar om produkten och dess form växer fram under deras samverkan. Som social förändringsprocess är formgivningen inte begränsad till en enskild och skenbart fristående process, utan måste förstås i ett sammanhang där tidigare och parallella produktutvecklingsprocesser ingår. Produktutvecklarna knyter sig samma i olika allianser som sträcker sig över historien och korsar det enskilda företagets formella gränser. Studien visar bl.a. utmaningar som produktutvecklare behöver kunna hantera för att utveckla en väl sammanhållen produkt. Dessutom visar den villkor som industridesigner måste möta för att kunna skapa gehör för sin kompetens och få utrymme för sitt bidrag inom produktutveckling.
Pris: 176 kronor exkl. moms + frakt

Design

Utgiven 1985 av Design Center Stockholm
Huvudtemat för boken är design i den industriella processen. Boken förklarar vad industridesign är, presenterar dess pionjärer och den internationella konkurrenssituationen. Den redogör för attityder till design bland små och medelstora företag och tar upp relationen mellan design och samhällsekonomi. Tolv svenska företag från den stora koncernen till fåmansföretaget, intervjuas om hur de använder design som konkurrensmedel. Nio industridesigner med olika specialiteter belyser sina erfarenheter från samarbetet med industrin. Boken Design var den första publikationen från Design Center Stockholm och möttes med stort intresse 1985 när den kom ut. Eftersom den är en unik och innehållsrik sammanfattning av industridesignerns möjligheter att ge industrin ökad konkurrenskraft och brukarna mer för pengarna fortsätter vi att använda den √ giltigheten finns kvar!
Pris: 40 kronor exkl. moms + frakt

Design av företags- och produktnamn

Författare: Jens Bernsen
Utgiven 1994, Svensk Industridesign/Industrilitteratur, Stockholm
Ett bra namn är inköpsporten till identifikation, igenkännande och förståelse. Ett dåligt namn kan medverka till att man blir förbisedd eller feltolkad. Ett bra namn ger ett företag eller en produkt en god start, kanske även ett gott liv. Ett dåligt namn är en belastning. Utvecklingen av ett namn på ett företag eller en produkt är en designuppgift i sig. Boken kartlägger beslutspunkter som ligger bakom valet av namn och anger kvalitetskriterier för denna designuppgift. Boken är både på svenska och engelska.
Pris: 150 kr exkl. moms + frakt

Design for Product Understanding

Författare: Rune Monö
Utgiven 1997 av Liber

Industridesignerns uppgift är att forma tingen så att vi förstår hur de ska användas. Boken lägger därför tonvikten på produkten som ett tecken, dess budskap och kommunikativa betydelse. I flera avseenden bryter boken ny mark på produktsemantikens område. Design for Product Understanding är nödvändig vid utbildning av industriella och grafiska designer och ovärderlig för alla, som på ett eller annat sätt arbetar med våra nyttotings gestaltning. Den vill också öppna dörrar ut till vidare forskning på ett fortfarande jungfruligt område.

Pris: 288 kronor exkl. moms + frakt

En resa i design

Författare: Lisa Warsén och Per Leander
Utgiven 1999 av KFB, Kommunikationsforskningsberedningen

KFB har under ett antal år finansierat ett forskningsprogram om industriell design inom kollektivtrafiken. Detta arbete är nu avslutat och finns sammanfattat i en handbok, som heter Resa i design. Boke vänder sig till alla som arbetar med att förbättra kollektivtrafiken. De som arbetat inom programmet har funnit att industridesign är ett utmärkt verktyg för utveckling och management när det gäller såväl tjänsten som alla dess olika beståndsdelar. Design är synlig och riktar sig till både resenärer och personal. Dessutom manar design till helhetssyn. Läs boken Resa i design och få inspiration och idéer. Boken behandlar utformning av fysiska produkter, rumsmiljöer och information och hur man skapar en fungerande helhet med människan i centrum. Den beskriver både genom sin huvudtext och ett stort antal exempel hur design genomförs och hur design kan användas. Det handlar om att färdas väl. Om välfärd!

Pris: 350 kronor exkl. moms + frakt

Ett steg mot en hållbar framtid

Produktion: EkonoMedia Affärspress AB
Utgiven oktober 2000 Projektledare: Christer Ericson och Hans Frisk

Industridesign är ett kraftigt verktyg i kampen för att rädda miljön. Förr fokuserade man på utsläpp, förpackningar och sopsortering. Nu står det klart att miljötänkandet måste börja redan på ritbordet. När produkten lämnat fabriken är det för sent.
1998 startade projektet EkoDesign, initierat av Svensk Industridesign med finansiering från NUTEK, Näringsdepartementet, EU:s Småföretagsinitiativ och deltagande företag. Elva mindre och två större företag har med hjälp av specialutbildade industridesigner och miljöspecialister gått igenom och miljöanpassat sina produkter och olika arbetsmetoder. Målet med EkoDesign-projektet har varit att minska den totala miljöbelastningen med 50 procent- under tillverkningen, när produkten används och när dess livslängd är slut. Ett mål som vi lyckats uppfylla. Läs och låt dig inspireras!

Pris: 56 kronor exkl. moms + frakt

Handla

Utgiven 1997 av Tullbergs kultur & reklambyrå

Boken handlar om förändring, välfärd, arbete, lärande, konsumtion, arkitektur, design, kultur och framtid utifrån 1930-talets bok "acceptera". Författarna tar upp olika faktorer som styr utvecklingen av arbetslivet och för fram visioner kring lärande och förståelsen av kopplingen människa - maskin.

Pris: 368 exkl. moms + frakt

15% rabatt för designjournalens läsare. Boken finna att köpa via Nerenius & Santérus Förlag AB, tel. 08 - 34 44 74, fax 08 - 35 65 30

Svensk Industridesign - en 1900-talshistoria

Utgiven 1997 av Norstedts förlag

Telefoner, bilar, kylskåp, borrmaskiner, radio- och TV-apparater, skrivmaskiner, utombordsmotorer, skruvmejslar, häftstift... De massproducerade vardagsföremålen har i hög grad format 1900-talsmänniskans liv. Svensk industridesign är en omfattande antologi med texter om svensk industriell design under 100 år. Här finns forskarens syn på epoken. Här finns skildringar av designverksamheten inifrån. I några kapitel ställs de designade produkterna i fokus, i andra den utövande designern, i ytterligare andra produktutveckling och masskonsumtion. Sammantaget ges en mångsidig och inträngande skildring av vår tids mest typiska föremål: symbolerna för det svenska industrisamhället, folkhemmet och välfärden.

Pris: 327 kronor exkl. moms + frakt. Beställes genom www.bol.com

Sverige i god form

Författare: Ann-Kristin Myrman

Utgiven 2000 av LO, Landsorganisationen

Vi vill med skriften Sverige i god form bidra till en ökad diskussion om formgivningens betydelse för sysselsättningen och utvecklingen av svenskt näringsliv. Vi tror att det finns stora utvecklingsmöjligheter för företag som satsar på en genomtänkt formgivning. Det kan leda till sysselsättning, utveckling av arbetets innehåll och bättre produkter.

Det finns många aktörer vid en produkts tillkomst: formgivaren, konstruktören, som ibland är samma person som formgivaren, företaget, de anställda, den fackliga organisationen, köparen och brukaren. Alla kan bidra med mer än de gör idag. Alla har kunskaper som inte utnyttjas och inte samordnas. Vi tror att det finns både kunskaper och intresse inom våra egna led som inte tas till vara. Därför vill vi med Sverige i god form framför allt stimulera facket och fackets medlemmar att fundera på och undersök om en satsning på formgivning skulle kunna bidra till att utveckla det egna företaget.

Pris: 32 kronor exkl. moms + frakt

Tänk på saken

Författare: Folke Edwards, Gunilla Grahn-Hinnfors, Torsten Hild, Ingrid Sommar och Anders Westgårdh

Utgiven 2000 av Nordbok Publishing AB

År 2001 är ett av regeringens utlyst år för arkitektur, form och design. För att lyfta fram designlänet Västra Götaland utkom boken "Tänk på saken", ett praktverk i ord och bild om västsvensk design. Närmare 100 utvalda västsvenska föremål, som är designade och/eller producerade i Västsverige. Från bilar till porslin, från möbler till ostar, från servetter till motorsågar. En del föremål är klassiska, andra är samtida. Boken skall skänka kunskap kring design och inspirera till ökat designtänkande bland företag, myndigheter och organisationer. Boken skall vara en upplevelse för dem som tar del av bokens texter, bilder och grafiska form.

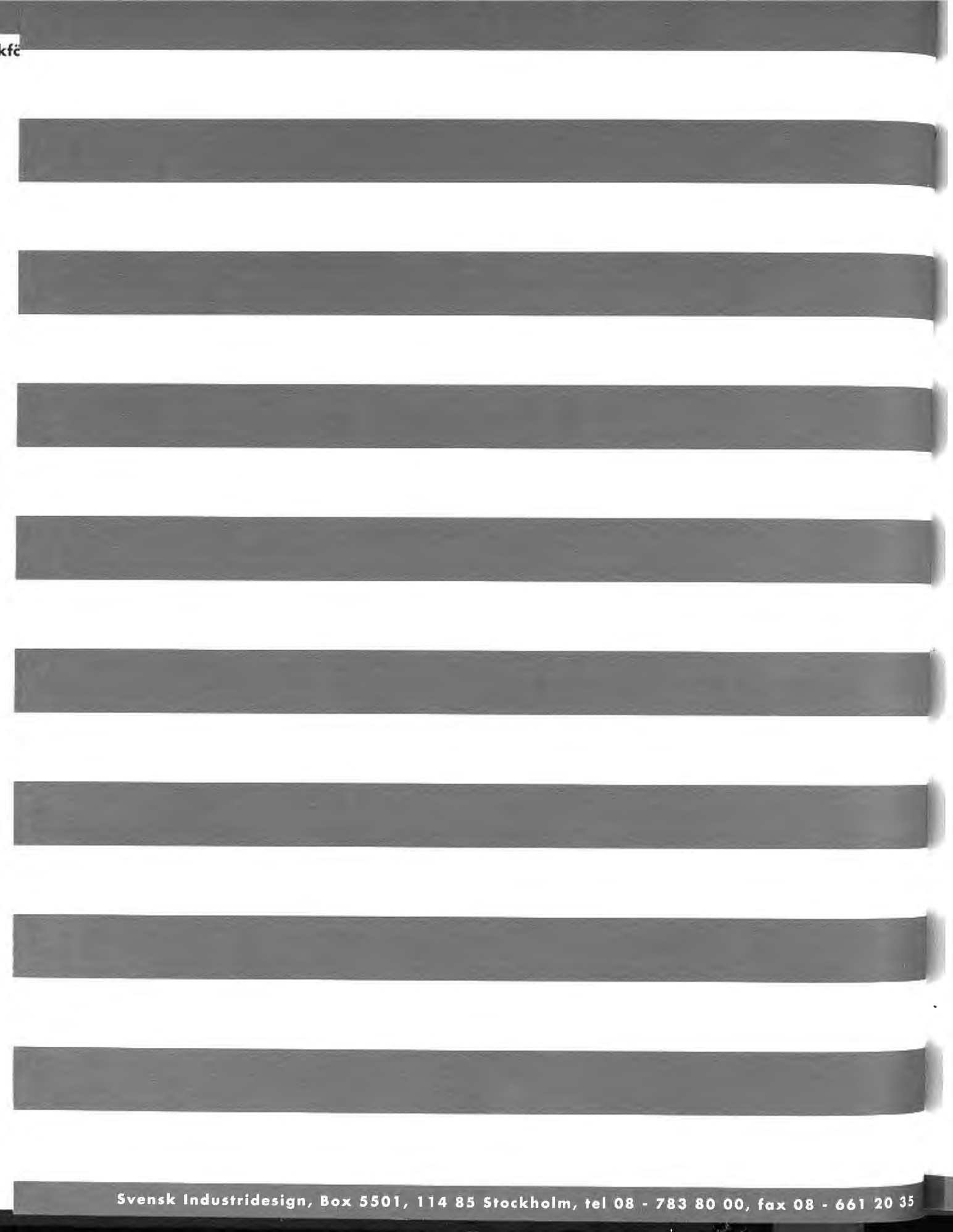
Pris: 250 kr exkl. moms + frakt

The Human Dimension

Utgiven 1994, Svensk Industridesign, Stockholm

I oktober 1994 arrangerade Svensk Industridesign, Arbetsmiljöfonden och Sveriges Tekniska Attachéer utställningen "Den Humanistiska Dimensionen" i Milano. Utställning visade 70 svenska företags produkter, utvecklade med omsorg om dem som skall använda dem. Ett antal namnkunniga personer, t ex Gustaf Rosell, Kerstin Wickman, Anty Pansera och Maria Benktzon, ger sin syn på denna humanistiska dimension, ett förhållningssätt som gör Sverige unikt inom användarinriktad produktutveckling. Boken är på engelska.

Pris 50 kr exkl. moms + frakt



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