

0005

**Go With The Flo: A report on a collaborative toilet design project that utilized a transdisciplinary approach**

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*Tamara Christensen is currently a PhD student at Arizona State University in the US studying creative processes and instructional methods in design education. Her master's thesis assessed the influence of an ethnographic observation exercise on the creativity of student design solutions. She is also a founding partner of Re:Strategic Solutions specializing in design research and creative strategy.*

The Flo toilet is a product of a transdisciplinary design process initiated by graduate students and faculty of the Industrial Design department at Arizona State University. The final product illustrates the benefits of collaboration and research. The project offers insight about bridging the gap between research and practice in the academic arena.

The Flo team is composed of two graduate students and two faculty members whose experience in Industrial Design is complemented by another area of specialization. Disciplinary interests include mechanical engineering, brand architecture and design management, socio-cultural theory and empirical research, and concept generation and computing technology. In this case, Industrial Design offered a common language for the diverse disciplinary interests of the team members. During the design process, each individual brought their own expertise to empirical data collection, theoretical analysis, engineering specifications, and brand strategy.

The resulting form, mechanical functioning, and brand identity of the Flo toilet represent a transdisciplinary effort. The Flo toilet is a paradigm-shifting design solution that satisfies criteria of transgenerational usability, low energy consumption, reduced water use, and innovative mechanical functioning. The interaction between graduate students and faculty also reveals new opportunities for design research in academia.

**KEYWORDS:** design & innovation processes, design education, human-centered design, innovative technology and accessibility for the elderly & disabled, research and education

0006

**Visualizing Sound:  
A Study in Experimental Design  
to establish a Research Framework**

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*I am currently a PhD candidate at Monash University. I am scheduled to graduate in March 2008, with a PhD of Design in Interior Architecture. While at Monash, I have been pursuing research exploring the intersecting streams of aural and visual perception in multi-principle artworks. My current work is focused on visualizing sound experiments from various fields and the physical sound phenomena will be visually demonstrated through abstract architectural form that is a visual translation of sound. In future research this will be applied to develop a use for the now abandoned space of the Kimpo airport terminal, Korea, that will mitigate negative community response to airport noise.*

*Prior to attending Monash, I worked as an interior designer in South Korea and Australia. I received a Master of Design degree in Interior Design from Swinburne University, Australia in 2004, and a Bachelor of Interior Design from Swinburne University in 2002.*

This paper is based on research that explores the intersecting streams of aural and visual perception in multi-principle artworks. Using computer generated systems of sound visualization this research will result in a new architectural design environment. In future research this will be applied to develop a use for the now abandoned space of the Kimpo airport terminal, Korea, that will mitigate negative community response to airport noise. Part One will review how one of the most significant streams in contemporary art explores the nature of found sound in everyday contexts. The scientists, digital artists, sound artists and architects who I have chosen for the case studies propose that we need to examine how sound and noise can be transformed into other positive meanings as aesthetic design elements. In extending the visualizing sound experiments from various fields, the physical sound phenomena will be visually demonstrated. In Part Two, innovative design experiments of seeing sound will be developed by using digital design processes that will translate them into a dynamic and abstract architectural form that is a visual translation of sound. This demonstration provides the framework on which subsequent research for visualizing sound will be based.

Keywords: Sound Visualization, Methodology and methods of design,

0015

**Representations of Finnish Design Policy  
Discourses of Design Policy in Economical Press**

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Toni Ryyänen, M. Sc, is a researcher at the School of Design in the University of Art and Design Helsinki. He also is a postgraduate student at the University of Helsinki in the Department of Economics and Management. His main research interests are consumer culture, advertising and design representations in the context of mass communications and media.

*The goal of this paper is to present the empirical findings of design policy discourses in Finnish economical press. The study is based on over 120 articles concerning Finnish design policy. The data was collected from the three biggest Finnish economical papers while the time span of the data reaches from 1990 to 2005. The main question this article tackles is "how is Finnish design policy represented in the context of Finnish economical press?" An interesting question is also how the discourses have changed during the considered time span. Classical discourse analysis is applied as an interpretation method. As a result of the analysis a comprehensive classification of four Finnish design policy related discourses are introduced. These discourses vary in detail along with time and upon the different positions design policies are reflected. The discourses appear and operate in the context of different themes. Based on the empirical findings this study emphasises that economical press, as all other means of communicating the Finnish design policy to the citizens, is shaping the commonly accepted view of design on a societal level.*

**Key words:** Design Policy, Discourse Analysis, Design Discourse, Finland, Media.

0016

## Thinking Outside the Grid: Repositioning Graphic Design History

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*Leslie Atzmon is an Associate Professor of Graphic Design and Design History at Eastern Michigan University in Ypsilanti, Michigan. Atzmon received her MFA in graphic design at Eastern Michigan University and will complete her PhD work in design history at Middlesex University in London, England in January 2007. Her creative and scholarly work includes visual projects as well as research, writing, and publishing in design history.*

*Atzmon has published articles in the journals *Design Issues* and *Visual Communication* and is currently editing a collection of essays entitled *Visible Culture: Visual Rhetoric and Design Artifacts* expected from Parlor Press in late 2007. Another essay that examines the role of diagrams and the Hebrew alphabet in the kabbalah is forthcoming in the edited collection, *Visible Magic: Diagrams in Kabbalah and Jewish Magic*, edited by Marla Segol, due out from Palgrave Press in early 2007. She has presented her work at the Design History Society conference, at the AIGA Design Education Conference, at *The Verbal and the Visual in Nineteenth-Century Culture* conference, at the Modern Language Association conference, and at the International Conference of Design Studies and Design History. Her principle areas of research interest are visual fantasy and the history of typography.*

Despite the recent flurry of interest in the visual, the written word continues to dominate as both the focus and medium of deep analysis. I suggest that we ought to challenge this paradigm by questioning the privileging of the verbal in western culture in general and the academy in particular. I propose that one way to do so is to elevate *visual rhetoric* to equal status with verbal rhetoric. Unfortunately, when visual entities are "elevated," the "elevator" commonly turns to framing strategies that isolate artifacts from the broader cultural contexts in which they are created and used. Not only does this strategy encourage narrowly defined analysis based on visual form, it perpetuates a *separate, but not quite equal* status for visual rhetoric. Instead, I suggest design historians should explore the narrative encoded into design artifacts by analyzing the ways in which cultural content is distilled and then instilled in the design process, and then ultimately expressed in the use and visual form of design artifacts. This approach reveals complex narratives that are not readily apparent to most people. By investigating this visual meaning, I suggest design historical work is likely to yield insights that both pure visual analysis and verbally biased analysis of visual phenomena may miss.

Key words: Design History; communication in design processes; critical thinking; cultural analysis of design; visual rhetoric

0017

## Scaffolding interfaces for online collaborative design work

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*The author's current research interests lie in using communication technology for collaboration in design work in international educational contexts. In 2003 -2004 he was involved as an International Scholar in the US teaching graduate and undergraduate classes in advanced instructional systems design and researching into collaborative online learning environments. He is engaged in an ongoing teaching project called DesignLink involving distributed teams of design students drawn from Universities in the US, the UK, South America and Canada. The research examines the behaviour of the groups to using communication technologies in computer-supported co-operative projects, their social interaction and collective performance.*

*The paper examines the issue of student-centred group enquiry-driven learning in a distributed environment. The paper describes two case studies of design students and instructors interacting in online learning environments in the conduct of online collaborative work in international educational settings. These studies provide the basis for the identification of factors that contribute to successful online collaborative work in design education. This practitioner research suggests that, in the hands of committed design teachers, technology can support innovations that will improve student performance, help students to develop cognitive design skills and introduce a real-world design context for student learning. The findings indicate that a balance between dynamic synchronous and reflective asynchronous engagement is critical in establishing successful online collaborative design environments. The importance of privacy issues in the space used by design students is another interesting finding that can inform restructuring of collaborative interfaces for future design education.*

0018

## Revisiting Philosophy and Education in Landscape Architecture

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*Marcella Eaton has a first degree in Environmental Studies from the University of Manitoba. She then worked as a research associate at the University of Manitoba before spending six years as a practising designer with Thomas McBroom Associates, landscape architects specializing in golf course design, based in Toronto and working on Canada-wide projects. She was then invited to study for a PhD in Landscape Architecture and teach at Edinburgh College of Art. Her thesis was on philosophy, ethics and aesthetics in Landscape Architecture with particular reference to education. She obtained her PhD in 1997 and commenced teaching at the University of Manitoba in 1998 where she is now an Associate Professor teaching in both Landscape Architecture and Environmental Design.*

There is a crisis in landscape architecture. Where, as a design discipline, the profession is meant to act as a mediator between culture and nature, an absence of continuous critical enquiry, both at a professional level and at an academic level, weakens it. Almost a decade has passed since I examined the role of philosophy and design in landscape architecture education, and from what I have witnessed as an educator, there is still a deficiency of rigour of inquiry. As such, one must ask: where is the leadership in landscape architecture, and are we remaining true to ourselves as designers, if we have become complacent with that which exists? The aim of the paper is to reflect upon conclusions drawn in initial research on the topic, and to provide a forum from which that state of landscape architecture, and its relation to philosophy and design may grow.

Key Words: Education, philosophy, aesthetics, ethics

0019

## Multiple Kansei Images in Product Form Design

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*CJ Chou holds a Bachelor's and a Master's degree in Industrial Design from National Cheng Kung University, Taiwan. The title of his master's thesis is "Creating a Multi-Kansei Image Based on Formal Features", which applied the scientific approaches and quantitative research to analyze product form. This research demonstrated the relationship between elements of product form and emotional meanings represented as a set of adjectives.*

This paper introduces the overall aspects in multiple Kansei images. Multiple Kansei images are assumed to be what people actually feel and tell in the real world. Several issues that designers need to concern themselves with when dealing with multiple Kansei in product form design are clarified. For better analyzing and understanding multiple Kansei images, Factor Analysis is applied to map an image space. This space explains the mutual relationships such as similarity, exclusiveness and independence among Kansei adjectives. Thus, appropriate Kansei adjectives that can fully portray a product form are figured out. In addition, this paper finds that existing products generally possess multiple Kansei images. It implies that multiple Kansei images not only can be felt and told by users but also are very practicable in designing product form. Lastly, by creating virtual product form with multiple Kansei images, the authors proved that product form cannot represent equally strong Kansei images. That is, the representation of strong Kansei images will inevitably affect each other in product form.

**Keywords:** multiple Kansei images, Kansei engineering, product form design

0022

### 3D geometry manipulation using compound biomimetic systems

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*Abel Maciel started his career in architecture during 1997 at Greenwich University.*

*During his bachelor, in parallel with his architectural education, he developed an interest on architectural programming and how to model them in CAD systems.*

*Towards the conclusion of his bachelor's degree in 2000, he applied for jobs in London, accepting a placement at Fosters and Partners to work in a large scale project.*

*By 2001 he continued his architectural studies at the Bartlett School of Architecture, where he develops his technical knowledge of Parametric Modeling and its possible applications in sustainable design.*

*During his time at the Bartlett, he started developing his theories by constructing active biomimetics devices that react to weather oscillations. These devices functioned as analogue computers and actuators, powered by the environment and changing their shape to modulate temperature, humidity and light.*

*On the process of making the devices, he researched and used manual and CNC manufacturing techniques. He also experimented with CAD models to transform designs by creating hybrid options from many different originals, intuitively suggested novel architectural strategies and typologies.*

*In 2003, by the end of his Diploma in Architecture, he returned to Norman Foster's practice and worked for other two years in a variety of projects varying in scale and complexity and completing his practical training.*

*Since 2005 he has returned to the Bartlett to research, carrying on with his interest in virtual environments, biomimetics and sustainable design.*

Despite the high degree of complexity of the built environment and the evolution of buildings from concept to construction, the design process can be parameterized and artefacts can be mass-produced. This process could be assisted by an intuitive parametric modelling tool, capable of taking into account the aspirations of the designer by mimicking nature purposive behaviour emerging from interactions between multiple elements distributed in space and time. A useful characteristic of such systems is that complex behaviour can emerge as adaptations to the outcomes of interactions with the local environment of each element, in pursuance of minimally specified objectives, such as. These offer new approaches to many classes of information processing problems which are currently not feasible, by opening novel paradigms and changing notions of computational complexity - but at the expense of attainment of unique solutions. The comparison of highly reconfigurable neighbourhood rules and richly interconnected chemical affinity in biological systems, when contrasted with the restricted workflow of the existing design tools can for instance, be expected to suggest a radically new architectural design approach. This project aims to explore the possibilities of using emergent and evolutionary systems on 3d environments as a mechanism for the parametric design of sustainable architecture.

Keywords: rchitecture, Methods & tools for concept development, Analysis of design processes, Emerging technologies, Software design.

0023

## A Means-End Chain Model Approach For Fashion Product Development

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*Maria Alice Rocha has worked for several years in the Brazilian textile and clothing industry as a fashion designer and fashion consultant. Since 1995 she has been a lecturer at Universidade Federal Rural de Pernambuco (UFRPE), Brazil where she manages Fashion and Clothing courses, as well as leading a fashion research group. She was awarded 1st place in the Nelson Chaves Prize for a Thesis promoted by the Joaquim Nabuco Foundation for Social Sciences and 2nd place in a Competition for Papers at the XIX Brazilian Textile Technician Conference. Both awards were related to her MSc dissertation on an analysis of the Brazilian clothing industry and consumption from a strategic management viewpoint. In 2003-04 she initiated a PhD program at University College for the Creative Arts at Rochester (UK), analysing the role of the stakeholders within global fashion consumption. This research is sponsored by the Brazilian Government Agency CAPES.*

The main aim of this study is to find a methodological tool able to support help product development decision-making teams. The approach considers the three main stakeholders of the consumption cycle: consumers, designers and companies. Qualitative and quantitative analyses were carried out based on primary data gathered in the UK, Brazil and China. The Gutman Means-End Chain Model (1982), comprised of: attributes, consequences and values, was used for the analysis. Content analysis was used to design the hierarchical value map for fashion and clothing consumption. A Likert type scale measured the degree of importance that consumers, designers and companies give to the Indicators for Fashion Clothing consumption. Quantitative analysis supported the stakeholders' comparison. The results demonstrate that designers and companies are far from achieving synergy with consumers. In some analyses, the designers have given special attention to certain indicators that are not a priority for consumers. In addition, companies have overvalued some indicators and shown little awareness of others. The Means-End Model blending stakeholder interests seems to be an effective tool to support the decision-making process in fashion design.

Keywords: Fashion Design, Design and Marketing, Design Management, Research Methods and Tools for Design, Strategic Design Planning

0024

## Information Ecology: A Pedagogical-Didactic Paradigm for Teaching Student-Designers to Deal with Context-Issues

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*Ellen Christiansen is associate professor, teaching human-computer interaction at Aalborg University, Denmark. She is a member of the Center for User-Driven Innovation, E-learning and Design at Aalborg University. Her research and teaching focuses on interaction design based on activity theory and on information architecture from an ecological perspective. A current research project looks at user-driven innovation in the case of FEEDBACK motivated electricity saving in the home.*

The paper describes a pedagogical didactical paradigm for teaching student-designers how to deal with context issues. Form/context-relationships are conceptualized as information ecologies and described as behavioral settings using a key concept developed by social psychologist R.A. Baker in the 1960ties, and chosen here because it integrates cultural and psychological trajectories in a theory of living settings. The pedagogical-didactical paradigm comprises three distinct information ecologies, named after their intended outcome: the problem-setting, the exploration-setting, and the fit-setting. It is specified how context issues can be treated within each of these information ecologies. The paper concludes by discussing the outcome of applying this paradigm with respect to the student-designers' competence as reflective practitioners.

Keywords: Analysis of design, design education, design pedagogy, ecology

0025

Senac Symposium on Materials: an experience to give guidelines for a “Cartography of Materials”

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*Denise Dantas is graduated in Architecture and Urbanism from FAU/USP (São Paulo). Especialization in Industrial Design from Scuola Politecnica di Design di Milano. PhD thesis in Urban Environmental Structures from FAU/USP entitled “Future-orientated Design, centered on the individual and on trend annalysis” (2005). Professor for 14 years, presently lecturing at the Centro Universitário Senac and at the Anhembi-Morumbi University. Engaged in researches on industrial design – project and technology teaching, by “Núcleo Matéria-Prima”.*

This article presents the experience of realizing a discussion forum on Design and its relation with materials as a methodological strategy to structure a “Cartography of Materials”. The event had a different configuration from the way it is normally set up in Brazil, for it promoted an articulation among academic researchers, companies that produce materials and products as well as designers working in the market. The aim was to increase the potentialities of working in the three areas involved: teaching/learning, autonomous professional working and serial industrial production.

The proposal’s thematic core consisted of a reflection on the possibilities of the material as a conditioning requisite of the contemporary projectual practice, a theme seldom approached as the main subject at Brazilian events in the field of Design.

Thus the “Senac Symposium on Materials”, a forum with a national scope, produced an interdisciplinary reflection on the multiple possibilities of materials use in Design projects, most of all on the structuring/configuring conditions for projectual thought and for the techno-productive relations present in objects in our contemporary society.

Keywords: case study, collaborative design research, design and material, design and sustainability, identity and design

0026

## DESIGN FOR EXPERIENCING AND USER INVOLVEMENT IN THE PRODUCT-SERVICE DEVELOPMENT PROCESS

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JongHo Lee, studying what makes users and designer to collaborate from the early stage of the design process.

**Alethea Blackler**, BA(Hons), Cert. Ed, MA, PhD is a lecturer at the Queensland University of Technology (QUT) in Brisbane, Australia. She is currently also the acting course coordinator for industrial design courses. Her principle areas of research interest are the intuitive usability of products and design education. She is currently working on intuitive interaction for older people and also design methodologies for intuitive interaction. She is a member of the DRS and presented papers at both Common Ground and Futureground conferences.

**Vesna Popovic**, B Arch, MFA (Ind Des), PhD is Professor in Industrial Design at the Queensland University of Technology where she is responsible for the leadership and development of the Industrial Design discipline. She has worked as an industrial design and ergonomics consultant and was involved in different international projects. She has a number of realised designs and some of them received significant awards. Principal areas of research interest are applied product design research, research in design thinking, design cognition, design theory and human factors and applied ergonomics as related to design. She is a Fellow of the Design Institute of Australia, Member of Human Factors Society (USA), Ergonomic Society of Australia and Design Research Society (UK). She was the Executive Board Member of the International Council of Societies of Industrial Design (ICSID) – Education Chair from 1997 - 2001. She has been an ICSID adviser since 2002.

This study explores the integration of users into the design process. The research is related to participatory design and 'designing for experiencing'. It challenges traditional designers to work closer with users.

There are several projects done by adapting current participatory design tools and approaches into the new product-service development process. However, conflicts and misunderstanding about their contribution still exist. Thus, the aims of this research are (i) to investigate the functions of the participatory design tools by observing the interactive mechanisms between users and designers during the participatory or co-design process; and (ii) to study how and to what extent the user's stories can be utilized to enhance the quality of innovative outcome in the participatory or co-design process.

The research questions were explored with cultural probes imposed on industry-led participatory design workshop. Three pilot workshops were conducting in South Korea with the participation of two domestic users, one local designer and one facilitator. One case study was analysed. The initial findings showed the designer's passive participation within the collaborative activities, but the users were very active. It seems that the designer's inclination to the tangible aspects of the design might lead to the passive interaction during the workshop. These initial findings are directing future investigations toward the development of new participatory design tools which will be able to support active participation of both – users and designers.

Keywords: interaction, user-designer collaboration, story

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Ms. XUE Lishan, Agnes, BA (HON) in Industrial Design, is currently working on a Research Scholarship for the Masters program in Industrial Design, in the Department of Architecture, with the National University of Singapore (NUS). She won the Red Dot design concepts award 2005, the NUS President's Graduate Fellowship, and was selected by product designer Toshiyuki Kita for a one week internship programme in Japan, sponsored by DesignSingapore Council, MICA. Her professional experience includes working in projects at Siemens Medical Instruments; Co-Supervisor for final year project at School of InfoComm Technology (Multi-Media), Ngee Ann Polytechnic; Graphic designer at the National University Hospital (NUH), Antenatal Diagnostic Centre (ADC), NUS Leadership in Academic Medicine (NLAM) Program, and Clinician Scientist Unit (CSU). Principal areas of research interest are: research into medical and health care devices for women, designs for life and research into design perspectives for women.

Dr. YEN Ching Chiuan is an Assistant Professor in the Department of Architecture at the National University of Singapore. His professional experiences include the Director of Design Center at Chang Gung University, Board Member of the China Industrial Designers Association, and the Secretary of Chinese Institute of Design. He was included in "Who's Who in Design 2003", selected by Asian Society for the Science of Design. Being the author and co-author for more than 30 international and national refereed articles, he possesses excellent ability to combine theoretical thinking and design practice into design education. His research interests lie in research methodologies for design and he champions 'pluralistic dimension' of design study for the design research. His ability in supervision is highly regarded, and so seemingly, has had more than twenty international or national design awards received in the past three years, to name a few: Red-dot and iF concept award.

Dr Mahesh CHOOLANI, Consultant Obstetrician and Gynaecologist at the National University Hospital, and Assistant Professor at the National University of Singapore completed his PhD doctoral thesis at Imperial College, London, UK on Fetal Medicine. Professional experience includes appointments as Director of Postgraduate Education in Obstetrics and Gynaecology, NUH; Chair of the National Healthcare Group Annual Scientific Congress; Deputy Chair of the National Healthcare Group Domain Specific Review Board; and Co-chairman of the NUS Leadership in Academic Medicine Programme. Being author and co-author for more than twenty international and national peer-reviewed publications, he possesses excellent credibility in the field of fetal medicine. Having achieved a list of awards and academic recognitions, he was a reviewer at international journals such as Lancet and the British Medical Journal, BMJ. Principal areas of research interest include: non-invasive prenatal diagnosis, early detection of epithelial ovarian cancer, and fetal mesenchymal stem cells for intrauterine fetal therapy

This paper proposes a design framework, which examines the communication process between a female user and the Graphical User Interface (GUI) of a medical device to enhance her health matters; in particular, understanding their underlying needs and responses toward to the use of the device. The emphasis of the paper is to investigate the role of designer and health message within the communication process, in addition to identify appropriate GUI attributes relevant for the design of medical devices; aspects of response from the female user and other probable users are gathered. To broaden the framework, the role of existing visual references is examined, and the effects of moderating influences are discussed. Remaining cognizant of these different elements of response, and conceptualizing them as part of the framework presented, will assist further attempts to understand female user response to the Human-Computer Interaction (HCI) domain; transferring key ideas to further product design and development for female-centered medical devices. In conclusion, implications for future design practice, usability engineers of medical devices, and design research are presented.

Key Words: visual communications; medical technology and innovation, e-health; usability of information

0028

Strategies for Surviving in a Changing Environment  
The History of Industrial Design Education in Finland

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*Education, and industrial design education in particular, is affected by changes in the economy, industry and society. This paper will show how the strategic choices made in education and the affinity of the curriculum to the dominant markets contributes to its ability to adjust to these changes and to benefit from them. The Finnish case will be used to illustrate this, and the empiric findings thereof will be studied through existing literature on professionalisation. Industrial design education in Finland had to gain status and differentiate from a strong tradition of arts, which led to the emphasis of a scientific cognitive basis. Then, striving for a cognitive basis resulted in new areas of design theories, such as ergonomics and design management, which changed the role of the designer and the education. This in turn made them better aligned with the industry and economy. As Finland experienced a structural change from forest industry to new high technology industries, which needed increasing amounts of industrial design professionals, the number of institutions offering design education exploded. This paper will show how industrial design education was able to adjust to these changes successfully.*

**Keywords:** industrial design, design education and research, technological and social change, professionalism, educational strategies

0030

**Analysing affective aspects of cyber education,  
a case study for using new tools for activity centered Design.**

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*Alireza Ajdari is right now doing his Ph.D. in politecnico di Milano on Interaction design , the direction of his thesis is toward affective aspects of socio-cultural interaction and cultural affordances. He has studied industrial design in university of Tehran, Iran, where he has got his master from and has worked one year in Delft University of Technology, Netherlands as a guest researcher.*

In this paper, potentials of cyber education for Islamic schools of Milan in Italy will be used as a case study for investigating affective (inter-textual) aspects of cyber education. With the aid of ethnographic techniques and regarding the identity of the researcher, educational space will be observed and then based on Activity theory and Pattern recognition methodology which is used by designers, observations will be interpreted and analyzed. The aim is to reach specific research tools for the ergonomics researchers in order to reach a better knowledge of his/her own subject of research with the recommended terminology and methods.

Keywords : emotional ergonomics, sub-cultural inspired design, activity theory.

0031

**Audiovisual Rhetoric  
A Metatheoretical Approach to Design**

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*Gesche Joost was born in 1974 in Kiel, Germany, and studied design and rhetoric at the University of Applied Sciences, Cologne (Germany) and University of Tübingen (Germany). She graduated in 2001 with a diploma in design and now finishes her Ph.D. in rhetoric. She works on design theory, particularly on audio-visual rhetoric in film and design, on new forms of visualization for audio-visual patterns, and on usability issues. Since 2005, she is a senior research scientist at the Deutsche Telekom Laboratories in Berlin. In 2006 she was honoured as one of the "100 masterminds of tomorrow" by the jury of the German campaign "the land of ideas".*

"Wherever there is design, there is rhetoric"—in this way Kenneth Burke's quotation from 1950 can be modified in order to describe the fundamental relation between the two disciplines. Rhetorical scholarship provides a set of rules and techniques for effective communication as well as a system, how to apply them with the most impact on the audience. In the approach introduced in this paper, rhetorical scholarship is transferred to design. Therefore, we present a model, which describes the design process from a theoretical point of view. We show that design can adapt basic rhetorical categories and tools for the practical work, its analysis and evaluation. To apply rhetoric's knowledge and system to design processes leads to a fundamental understanding of the main forces occurring between designer, medium, and user. An introduction to the historical relations between design and rhetoric illustrates the possibilities of applying rhetorical theories to visual as well as to audiovisual forms of communication. Furthermore it is shown, how the rhetorical framework in detail can be adapted to describe the design process, especially focusing on techniques for addressing an audience, on specific methods for analysis and evaluation, and on rhetorical figures that are used in design processes. The competence of this approach will be illustrated with a case study on Audiovisual Rhetoric.

**Keywords:** design theory, information visualization, interdisciplinarity, research methods, Audiovisual Rhetoric

0034

**Designing with TLC - An educational research project**

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This paper discusses TLC, a collaborative design project undertaken by a design collective consisting of a group of lecturers from a leading university, and the resultant impact on their research and teaching philosophy. The practical research project proposed an educational model for creating successful dialogue and interaction between consultancy, creative practice and academic research. This paper presents a case for exhibiting design process, proposes techniques for encouraging student and professional critique of staff research, and describes the ongoing process undertaken by the staff team to produce a design collection for display at a series of leading design exhibitions and galleries. This paper aims to continue this dissemination and reveal the educational benefits of such a project, demonstrating how teaching through case study is made more vibrant and effective through personal experience, and how the project will develop.

0035

**Title: Questioning Drawing for Designers: Project work as a strategy and examples from the practice**

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Facing the changes of the named "global society and technological revolution", this paper begins by equating through literature review main competences asked to designers and the way drawing as a discipline can make a contribution in the academic curricula of design courses. Such contribution is also shown by depicting some exercises of drawing and results obtained in practice. The paper considers drawing fundamental for designerly thinking and argues on the importance of project work as a methodology to give drawing a purpose, enriching and enlarging its capacity as a tool for creativity, thinking, and research, problem-solving and self expression. Drawing is considered mainly as a process with results, working as an "expanded field" interacting with related areas in cross fertilization.

***Key words: drawing, design education, reflective practice, design thinking, creativity, expanded field***

0035

## Questioning Drawing for Designers: Project work as a strategy and examples from the practice

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Facing the changes of the named "global society and technological revolution", this paper begins by equating through literature review main competences asked to designers and the way drawing as a discipline can make a contribution in the academic curricula of design courses. Such contribution is also shown by depicting some exercises of drawing and results obtained in practice. The paper considers drawing fundamental for designerly thinking and argues on the importance of project work as a methodology to give drawing a purpose, enriching and enlarging its capacity as a tool for creativity, thinking, and research, problem-solving and self expression. Drawing is considered mainly as a process with results, working as an "expanded field" interacting with related areas in cross fertilization.

***Key words: drawing, design education, reflective practice, design thinking, creativity, expanded field***

0039

## The Discrete and the Continuous in Architecture and Design

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*In late 20th century there has been an increasing influence of continuous models of complexity in architecture and design. In architecture this has been characterised by the displacement of deconstructivist techniques of collage and contradiction with a folded logic of continuity and curvature. A correlative development can be discerned in design within the transition from the external moral code of green design to the immanent ethics of sustainable design. This parallel development suggests a rich site for dialogue and exchange between folding in architecture and the ecology of sustainable design, one that I argue presents an immanent field of design without transcendent unification of the disciplines. This paper seeks to examine this conceptual site through the interactive reflection of the philosophy of Gilles Deleuze (1925-1995) with design research, which I will argue has the potential to develop and extend current thinking in design ethics and aesthetics.*

Key Words: *Design Ethics, Design Aesthetics, Fold, Architecture, Eco Design*

0042

## Spatial Enclosedness & Lighting Quality: Light Distribution Studies in Scale Model Room

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With an aim to supplement the existing illumination research with spatial experience and light quality understanding, the designer power of creating characters is used for visual observations in room. Purpose of the pilot study was to test methods as well as develop hypothesis about spatial experience in relation to light distribution. This paper reports observations from a pilot study with twelve different luminary placements in comparing scale model rooms. Preliminary findings gives a hand that not only lit walls enhance spatial enclosedness but also lit corners and dark areas. In the study a room with lit walls seems as less spatially enclosed in contrast to a room without lit walls. Furthermore observations indicate that a room that seems to have spatial enclosedness at the same time can be regarded as open. In addition lit walls seem to make a room higher and larger and a continuous lit field from front to back seems to make a room deeper. Discussing the observations lead to a reflection of the spatial concept, and what we regard as a room. The findings show that even small changes in sideway luminary placement have large effect on the spatial experience.

Keywords: visual analysis, light, architecture, spatial enclosedness.

0052

From Kinds of Change to Changing:  
Thoughts on Drifters, Accommodators and Transformers

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Sabine Junginger is an interaction designer who studies the role of human-centered product development within the organization. Sabine earned a Master in Communication Planning and Information Design in 2001 and recently completed a PhD in Design, both from the School of Design at Carnegie Mellon University. She is among the first graduates to receive the doctoral degree in design from Carnegie Mellon University. Her dissertation "Change in the Making: Organizational Change through Human-Centered Product Development" is based on three case studies of large and complex organizations.

With this paper, the author explores organizational change in form of drift, accommodation and transformation in relationship to design and designing. Organizational theory distinguishes between three kinds of organizational change: drift, accommodation and transformation. Because design concerns itself with change, the concepts of drifting, accommodating and transforming allow useful distinctions for designers and design activities. Especially in the context of strategic design, studying change can aid designers in their role as change leaders within the organization. Knowing about drift, accommodation and transformation will allow designers to reflect on their own design efforts but also to reflect on the overall direction of the organization they are working with and for. The ability to assess their own work in the context of organizational change allows designers to take on ever more important roles within the organization. Although the author does not set out to provide an answer to the question why designers should care about organizational change, the conclusions point to the value of understanding the relationship between kinds of organizational changes and changing by design.

Keywords: Design discourse, innovation management, design theory, organizational change,  
technological and social change

0053

## Conventions Of Typography Related To Traditional Poetry

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This paper is part of a PhD research project which is in its final year. The aim of this research is to investigate and analyse how traditional poetry has been handled in books, in England, in terms of typographic development. The research examines the binary structure of the poem on the page, that is to say the opposing features of printed text and the space around it. In particular, it focuses on segmentation, which is the visible division of the text into units that, to a greater or lesser extent, reflects its underlying structure. This paper discusses conventions which have been established by typographers and manuals and attempts to further understanding about why such conventions were developed within poetry. It provides an overview of how the earliest printer's manuals viewed poetry and how they offered suggestions as to printing rules. It then moves on to discuss how subsequent books on typography and manuals of style have treated the same issues. This paper shows that, although traditional poetry is a distinctive type of text characterised by regular meters and fixed poetic forms, books about typography and manuals of style have always treated this subject superficially.

Keywords:

history

0054

## Analysis of Interrelations Between Bottle Shape and Food Taste

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*Regina Weiyao Wang received her Doctoral, Master degrees, Post-graduated diploma and College diploma in visual communication design correlated. Her cross-disciplinary incorporated design science, e.g., graphic design, transgenerational design, product packaging design, pictogram/ icon design, colour planning with knowledge bases of legibility, illusion, visual attention, consuming behavioural psychology, gerontology, aesthetics, and ergonomics. Ms Wang used to be a research fellow at Centre of Applied Gerontology, Birmingham University (UK) for 1 year and for 2 years she conducted administrative affairs as chief member for Chinese Institute of Design (Taiwan).*

In the perceiving process of food choices, consumers are easily attracted to the variable package design. In general, the package design should make consumers associate the product's taste from visual stimulation. This study aims to investigate the correlations between the shape of food bottles and taste association in 3 stages: (1) classification of the taste of food products on the market; (2) analysis of the features and dimensions of food bottle shapes; and (3) survey of the association between food bottles and tastes. Findings indicated that there are 13 types of packages relating to taste, including single tastes: sour, sweet, bitter, savory and spicy tastes; and mixed tastes: sweet and sour, savory and sour, sweet and savory, sweet and spicy, savory and spicy, savory and sour and spicy, savory and sweet and sour, and sweet and bitter tastes. According to observations, the common features of bottles include the mouth, neck, body and bottom, and each of them has different dimensions. Similarities of these features according to 191 samples are: the cover is located at 1.6-2.5cm of the bottle; the intersection angle of the neck is 151°-180°; the body height is 6-10.9cm; and the bottom width is 6-10.9cm. Results of the survey on the correlations between the bottle shape and taste association indicated that respondents can associate the sour, spicy, sweet and savory, sweet and spicy, savory and sour and spicy, and sweet and bitter tastes from the shape of bottles with similar features. What is noteworthy is that respondents found it difficult to associate a bottle shape with 2 or more tastes.

Keywords: taste association, bottle shape, food content, package design

0055

## What exactly is design theory?

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*Alain Findeli is Full Professor at the School of Industrial Design of the University of Montreal where he has been teaching for about 30 years. Trained as an engineer in physics (INSA, Lyon) and researcher in materials science (IIT, Chicago and Polytechnics, Montreal), he reoriented his career and interests toward the human and social aspects of engineering, technology, and design (M.A. in Architecture, Univ. Of Montreal; Doct. in Aesthetics, Univ. Of Paris). He concluded his extensive study of the history of design education in his book 'Le Bauhaus de Chicago: l'oeuvre pédagogique de Lászlò Moholy-Nagy' (1995). His current research topics and recent publications cover more general philosophical issues of the theory and practice of design (logic, aesthetics, ethics) as well as some key pedagogical aspects of postgraduate design research education. He is the founder and current scientific and pedagogical director of the Master's program in "Design & Complexity". As a Guest Professor at the University of Nîmes (France) in 2006, he is planning to introduce a research agenda on the most recent developments of design theory and methodology (service and social design, sustainable public projects, quality of place in urban living environments).*

If answering the question «What exactly is design theory?» can be considered as the general aim of the paper, it also and more specifically addresses the issue of why this question is important in design education. Following an empirical Goethean phenomenological methodology, this inquiry into theory-in-action in pedagogical situations yields a fourfold typology of design theories. In the paper, I name these: the "minimal theory", the "interpretive theory", the "hard or rigid theory", and the "situated theory". When used as a normative framework in the design studio, each of these types of theoretical perspectives will tend to develop a different kind of design practice. I name them, respectively, the "competent", "cultivated", "efficient", and "enlightened" practice. The typological model is then discussed and interpreted in the light of Rudolf Steiner's neo-Aristotelian anthropology, followed by some recommendations for teaching situations in the design studio and, eventually, for reflexive design practice.

**KEYWORDS** : Design theories – Design theory and education – Epistemology relative to design – Phenomenology (Goethean).

0056

## Transforming office space into an art space

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*Katarzyna Kosmala (Ph.D) is a lecturer at School of Management and Languages, Heriot-Watt University, Edinburgh. Her research interests encompass critical and interpretative approaches in analyzing professionalization processes, construction of professional identity and competence (socialization, ways of learning and working in professional firms); critical organizational theory; issues of identity and contemporary culture, including visual culture; art, ethics and aesthetics and organizational interface; professions under transition in the socio-economic and cultural context of emerging democracies.*

This paper contributes to theorization of aesthetics of physical environment by portraying workspaces as alternative spaces that acknowledge the realm of the symbolic. Such alternative organisational spaces can be represented by creativity networks or temporal communities (ecologies), capable of transcending modernist dualisms, and mean that to those embedded in them. We provide two examples for the curating the symbolic in the workspace, that is, [1] the uncanny, a means stimulating awareness of what corporate life and postmodern condition can do to us, and [2] an ecospace; a means of bringing awareness back into meaningful life through nature. We explore a principle of symbiosis in the space, that is "architecture of regionalism, open to dialogue with the rest of the world" (Kurukawa 2001, p. 6) and discuss how it can be envisaged as an ecological corridor, that is, space for potentially meaningful life, creativity and unexpected dialogues.

**Key words:** Workspace, contemporary arts, creativity, ecology

0057

## On bringing evolutionary theories into design practice

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Many researchers have studied evolutionary theories and their relevance and application to design theory and practice. However, specific approaches or techniques deriving from such an understanding and explicitly associated with evolutionary theories have not been widely available for use by design practitioners. This paper reports work in progress on bringing evolutionary theories into design practice, with special focus on improving front-end design activities (e.g. the derivation of design requirements from stakeholders' needs). Examples of current design practice will be drawn from the product development and systems requirements engineering domains.

Keywords: evolutionary approaches for design, product design, stakeholder needs, systems engineering, requirements engineering and management

0058

## Methodical design extended to Morfological design

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Methodology to support the design team during the development of the building design is of great importance as the design problems are open and ill structured. To support the design of large-scale, complex design processes, such as one has in the building industry, a domain-independent theory is presented based on the Methodical design methodology; a matrix orientated approach is presented.

Keywords:

Design

methods

0059

*Inverse Function Studio*

*A method to bring constructive academic culture back into a professional environment through teaching.*

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Purpose

The Virginia Commonwealth University *Inverse Function* program is an experimental professional integration design topics studio designed to synthesize a new learning experience for the design student, the professional design firm and the professional design teacher.

Framework

Professional student design internships is not a new concept or activity. In fact the traditional development of an architect, interior designer, and carpenter has always been dependant on the apprentice relationship between the professional and the student. However this thesis is designed to take this relationship one step further. This thesis will attempt to demonstrate that this new *Inverse Function* relationship between design education and professional practice will not only provide the design student with a reality based design experience influenced by nationally recognized designers, but more importantly, it is also designed to re-establish creative based design vision and abstract communications skills which may have inadvertently been lost by some professional designers over many years away from the academically oriented conceptual design venue.

This opportunity to teach and communicate design theory will inversely help reestablish creative problem solving and communication skills of the veteran professional designer, it will help provide a creative outlet for academically oriented design exercises, it will give the firm an opportunity to evaluate future design leaders, and finally it will also provide the firm essential staff support and the ability to closely evaluate possible design employees.

Keywords:

Practice

Based

Methodology

0060

## Beyond the product lifecycle: from product life to material life

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The concept of Sustainable Consumption and Production (SCP) is of increasing interest to government, industry and researchers. Strategies and actions to improve product lifespans is just one of many contributions that design is investigating as a part of the SCP agenda. Drawing examples for the consumer electronics sector, this paper considers the likely effectiveness of product lifespan strategies to mitigate environmental and social impacts. It argues that behavioural and structural obstacles, which lay behind product obsolescence, can undermine design for product lifespan strategies. By shifting emphasis from design for product life to design for material life, many of these behavioural and structural obstacles could be avoided. The imperative shifts from prolonging product life to prolonging material life (the stuff from which products are made of), in the consumption production economy. This can be achieved, in part, by building new alliances with the growing de-manufacturing sector opening up new possibilities for design innovation. Material lifespan strategies are surveyed with specific reference to the consumer electronics sector. Design for material life could effectively tackle escalating consumption, especially in fast growing sectors such as consumer electronics goods.

Keywords: design and sustainability, sustainable consumption, sustainable production-consumption, sustainable system innovations, product lifespans

0061

## Designing a Physical Environment for Co-experience and Assessing Participant Use

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### *Marlene Ivey*

*Influenced by the developing theories surrounding collective creativity, Ms Ivey's practice led research endeavours to create objects or environments to support design experiences that are created through social interaction. In 2004 she was awarded a UK Arts & Humanities Research Council Grant for Experimenting with the Co-experience Environment. A senior lecturer and Course Director for Master of Design at Duncan of Jordanstone College of Art & Design, University of Dundee, she is the founder of creativekit.co.uk and lead researcher for the co-experience environment project.*

### *Dr Elizabeth B. - N. Sanders*

*Dr Elizabeth B. -N. Sanders is a pioneer in co-creativity and her research in this field is extensive. She is founder of MakeTools, LLC, a senior lecturer at Ohio State University and was appointed an honorary professor at the University of Dundee in 2005. Dr Sanders acted as advisor and observer for Experimenting with the Co-experience Environment and is collaborating in disseminating the findings from the co-experience project.*

Since participatory design methodology began to take shape in the 1980s, the prevalent view of experience as something individual has expanded to include the experience of collective creativity – defined as co-design by Sanders (2002) and co-experience by Battarbee (2003). To date, research based on co-experience scenarios has focused on experiences that users create for themselves using products or services that already exist (Battarbee 2003) in spaces that do not appear to be specifically designed for co-experience. Kristensen (2004:7) refers to the limited address of the physical context of creativity. However, there is limited scope for developing knowledge in this field if we fail to attend to or question the design of the environments within which we exercise creativity. The aim of the research was to prototype a co-experience environment and to question how the design of a co-experience environment might contribute to new knowledge in design. The purpose of this paper is to communicate the methods used to create the co-experience environment, prompt co-experience and assess participant use of the co-experience environment. An exploratory exercise, the outcomes offer tentative proposals that might influence our approach to designing for and engaging participants in future co-experience scenarios.

**Key Words:** experience, co-design, participatory action research, design experiments. design as scaffolding

0062

## Preliminary studies for the creation of a functional archive of constructional solutions

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*Recent researches are devoted both to the application of methods and to the choice of tools able to support the designer during the initial phases of the definition of the product solutions and during the design phases, supported from virtual simulation tools, of the product analyses.*

*Some studies are devoted to propose the use of the Computer Aided and Knowledge Based paradigms on phases of the product development not canonical. For example, the use of Knowledge Aided Design systems during the initial estimating phase of the design of industrial plants or by means of not conventional tools for the engineering analysis*

This paper describes the preliminary studies on the creation of a functional archive of principles and constructional solutions. The primary objective of this archive, which has been created by means of a database, is to provide the different solutions enabling to achieve a function requested on entry. These studies aim at defining the database fields and the relations between them. In order to define entities such as functions, flows, principles and function-carriers, theoretical research has focused on the different systematic design methods, notably concerning technical systems' analysis and functional modelling. Once found valid definitions for the concepts which are to be taken into account, we have established the fields the database will be organized into. In the future, before data entry and database implementation, an experimental phase will be accomplished, in which the database will be used as a tool supporting examples of methodical design. The objective will be to evaluate the validity of the choices made in these preliminary studies by checking their suitability for the practical use of the database.

*Keywords: design methods, methods & tools for concept development, engineering design*

0065

## A Provocative Educational Application of a New Approach to Design Methodology.

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*After completing an undergraduate degree in 3-Dimensional design (specialising in design for Mecatronics and Surrealist fibreglass furniture) and an MA in Visual Culture, specialising in the relationship of post-structuralism to design practices. He completed a PhD exploring the development of strategies that established symbiotinc relationships between designers and users. Recent research projects include the design of user led interactive TV services and mobile TV with partners such as Philips, France Telecom, Rye, he is also passionate about educational research and developments in design methodology. After a period teaching Graphic Design at The University of the West of England (Bristol) he now runs the BSc in Multimedia Technology and Design at Brunel University, and is Creative Director of the Universities 3D visualisation, Virtual reality and Grid Computing facility BITlab.*

Design methodology is not often formally addressed in either the education of designers or by practicing designers. There is a danger that design methodology separates from and becomes irrelevant to design practice, a danger amplified by a move towards either design science or a full acceptance of the implications of a hermetical / rhiosomic interpretation of design methods. This paper argues that rather than promoting a true, accurate or even desirable design methodology, the debate can be redrawn and that design method and methodology can be separated and considered in different frames of reference. I argue that design methodology is essentially an unknowable, individual component and that design methods are thinking tools that can be explainable, modifiable and are portable between designers. These assertions have been applied to a series of workshops across a broad range of subjects and abilities with over 400 students in total. This provocative process results very quickly in animated discussions with students about method and methodology. It offers an approach that accelerates the normal implicit communication of design methods now under threat with the pressure being placed on traditional studio education.

Keywords: design philosophy, design methods, provocation, design education, post-structuralism

0066

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*Kirsty Mate is a Senior Lecturer in Interior Architecture, Faculty of the Built Environment at the University of New South Wales, Australia. She is a recently employed full time academic, however her interest and work in sustainability extends over 15 years. She has worked as a consultant and researcher for private organisations and companies, design firms as well as educational institutions such as the Centre for Design at RMIT. Kirsty's interest and focus of research centres on sustainability and design in commercial interior architecture and how materials selection can influence a sustainable design outcome*

Whilst the uptake of sustainable interior design has increased recently, material selection has improved only slightly since the mid-1990s. This is probably because human values and attitudes have not changed significantly, despite the prominence of sustainability in government policy. This paper describes the results of a research project that investigated the sustainability values of interior designers and examined how those values shape designers' behaviour, particularly the selection of materials for design briefs involving sustainability. The project categorised designers into three groups according to their sustainability values: champions, conformists or challengers. A set questionnaire was used in interviews with 20 interior designers in Sydney, Australia to determine how they perceived their own sustainability values. They were categorised into the three value groups, and the relationship between their perceived values and behaviour was analysed. Analysis showed that the designers' perceived values were not necessarily transformed into behaviour; that the value groups took up ecomaterials at different rates; and that the groups had different levels of knowledge about sustainability. These results help to explain the disappointing uptake of sustainability in interior design and might suggest possibilities for effecting change in this area.

Keywords: Interior Design; materials; sustainability; Designers behaviours; perception values

0067

## Bringing Life Back to the Once Vibrant Ladadika Neighborhood

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The city of Thessaloniki, with a history of over 2300 years, is the second largest city in Greece. It is considered a significant port of the Aegean Sea, serving Greece and the Balkans, and reflects influences and characteristics of the Hellenistic, Roman, Byzantine and Ottoman culture. Today Thessaloniki is a unique city that reflects layers of numerous cultural and historical influences. The "Ladadika" area built in the late 19<sup>th</sup> century is one section within the city where the intersection of place and culture is particularly noticeable. Close to the sea port, this area was built as a wholesale market. It was operational up until the early 1980s at which point it was abandoned and left to deteriorate. During the last fifteen years life has been brought back to the area by renovating the spaces and giving them new uses. This paper analyzes this location as a site of intersection of the historical design characteristics of the area and the numerous cultural influences that passed through it and speculates on how this particular area has supported design elements of multicultural and Greek heritage throughout its history. A large collection of photographs of the old and new "Ladadika" area will be included in the presentation.

Keywords:

design development based on local cultures/heritage

design evolution & design processes

design in built heritage

human centered design

urban regeneration

0068

## Regarding Software as a Material of Design

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*Youn-kyung Lim is currently an assistant professor at Indiana University School of Informatics. She has degrees in Design for her bachelor's from Korea Advanced Institute of Science and Technology (KAIST) in Korea, and master's and Ph.D. from Illinois Institute of Technology at Chicago. Her research interests include human-centered HCI design, understanding the nature of design practice, bringing experience-centered approaches into design of novel technologies and online applications, and connecting theory and practice. She has conducted several design research projects for the Tangible Knowledge Consortium, which was a research consortium at the Institute of Design, sponsored by several large corporations including Motorola, Steelcase, and Zebra Technologies.*

*Erik Stolterman is Professor and Director of the Human Computer Interaction Design (HCI/d) Program at the School of Informatics, Indiana University. Dr. Stolterman received his PhD at Umeå University, Sweden. Stolterman's research is within interaction design, information technology and society, information systems design, philosophy of design, and philosophy of technology. Stolterman has published articles and five books, for instance "Thoughtful Interaction Design" (2004, MIT Press) and "The Design Way" (2003, ETP).*

We discuss the idea that software can be considered to be a material of design—an idea introduced in Löwgren & Stolterman's recent book, "Thoughtful Interaction Design." We discuss the implications of this idea for regarding software design to be a design discipline within design traditions. In order to characterize this way of thinking and give it some utility, we propose a paradigm for regarding software as a material of design that we call the SoftMat paradigm. We describe a framework for characterizing philosophical viewpoints about design that informs the SoftMat paradigm and that we call VMR—for values, methods, and reasoning. We describe a framework for characterizing practical viewpoints about design that equally informs the SoftMat paradigm and that we call MKST—for mind sets, knowledge sets, skill sets, and tool sets. The goal of this paper is to describe the SoftMat paradigm and its constituent frameworks. As well, we look to the future and propose ways in which the SoftMat paradigm may be used to improve understandings in multidisciplinary design collaborations.

### **DRS Keywords**

software design, interdisciplinarity, reflective practice, science of design, design rationale

### **Author Keywords**

software as material, SoftMat paradigm

0069

## Designing a Design Consulting Methodology

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*Laurene Vaughan is currently employed as Postgraduate Coordinator (Communication Design) at RMIT University. She is also researcher and Project Manager with ACID. Her research interests focus on the relationship between design, practice, space, interaction, embodiment and the interconnections between these.*

This working paper represents research that is currently being undertaken by a team of researchers within a research centre. In this paper we wish to outline the proposition of the research project and its potential contribution to the field and practice of design. The proposition is the discovery and creation of a design driven consulting methodology that focuses on, and holds central to its methods and values, the human context of design and the lived experiences of those who engage with it. Within the project this is being articulated as the Human Dimension. Located within the field of Interaction Design the research team are seeking to develop a methodology that enables interaction and communication between design teams, design clients and other stakeholders within projects and their processes.

Keywords: Design Methodology, Interaction Design, Human Dimension

0070

**Designing Engineering Education  
Development of Design Education Model for Engineers**

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*Jihoon Kim - Ph.D. student in Industrial Design Department at Korea Advanced Institute of Science and Technology. My principal research interests lie in the role of visualization in the product design and development process. I am currently investigating the hypothesis that visualization and visual thinking play essential role in enhancement of creativity and efficiency of design and development cycle along with each development process step such as ideation, communication and presentation phase independently and iteratively through internal and external co operation.*

This research focuses on development of model used in teaching 'Design Thinking' to students majoring in engineering with emphasis on creative ideation and expression, and its application examples. Following the Second World War, educational circles in the area of engineering, due to excessive influence of Engineering Science, have come to concentrate relatively more on analysis of phenomenon and theoretical research rather than traditional format of engineering education, which places importance on visual thinking and actual experience, in development of curriculum. This research presents the process of development of new educational model in order to introduce core educational program of design that employs 4 types of activities, namely, 'Problem Finding', 'Problem Solving', 'Visualization' and 'Evaluation', as the main framework of educational curriculum for those who majoring the field to the existing engineering education circle; and introduces cases in which such has been actually applied to pedagogical area of the mechanical engineering in Korea. Furthermore, this research attempts to illustrate how Design Thinking can make contribution to other academic areas by transcending the academic boundaries of the existing studies in design.

*Keywords: design education, design pedagogy, product design, case study, multi disciplinary design*

0071

## Semionauts: Recreating Meaning Through Semantic Drama

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*In an age where visibility is equal to existence, product semantics is a field of constant campaign over trends in a raging battle among style schools, mythical systems and copyrighted territories of visual expression. The power of projecting and surveilling the flow of information and symbolic exchange of signs embodies a superior position in consumer culture. The Semionauts workshop is a playful group activity aiming to subvert the creation of meaning in mass produced products, so that it can be achieved new possible pirate meanings. It acts as a drama boot camp for students to become semantic agents of resistance, acting as specialists in subversive strategies of reversed visual consumption – becoming co-producers by semantic hacking or recreation. The paper argues that the dominant visual regime in consumer culture is functioned physically by interpassive-as Zizek puts it- hardware systems, limiting the interface with which we co-design the world. This interface we have to take back to reveal how projection works within consumer culture and to see other alternatives of signification. That's why this workshop model has also educational potential in design related departments by the way of pushing the limits of prejudgements about the objects, meanings and contexts.*

Keywords: creative methods; design/product semantics; design and metaphor; art and design education; consumerism

0074

**Industrial Design as contributor to relieving child anxiety in the course of MRI scanning procedures.**

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*Selby Coxon has been a practising Industrial Designer for over ten years, working largely in Europe for both multi-national consumer product manufacturers and design consultancies. For the past seven years the author has been teaching and researching at Monash University's Faculty of Art & Design where he is a senior lecturer and course coordinator for Industrial Design.*

Magnetic resonance imaging (MRI) is now a widely used diagnostic imaging procedure that has been employed throughout hospitals all over the world for over twenty years. MRI technology allows doctors and specialists to examine internal parts of the human body such as the brain and spinal chord, without invasive procedures. Studies show that children frequently find MRI scanning daunting and occasionally frightening despite the examinations non-invasive qualities. The principle contributors to this negative experience have been identified as the sterile ambiance of the hospital environment, the claustrophobic tunnel or bore that the patient lies within, the overly warm temperatures, high noise level and especially the requirement of the patient to remain absolutely still for prolonged periods of time.

Approximately twenty undergraduate students undertaking the Bachelor of Industrial Design programme at Monash University where engaged in a collaborative research project to take an industrial design methodology in creating a more child friendly approach to this issue of child anxiety during an MRI procedure. Their solutions were inventive and wide ranging in outcome stimulating discussion within the medical discipline concerning this very real issue. The aspiration of this project is that these design concepts will stimulate further research leading to evaluative building and testing in the future.

Keywords; Methods, Industrial Design, Magnetic Resonance Imaging, Children.

0075

HUB, a case study in remodelling the integration between office space and workstation.

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This paper describes by way of a case study the investigation and development of a new concept for the office environment and in particular its integration with information media technology. The office is an environment in which we see the imposition of social transformations, where the effort to pursue and carry out greater efficiency is tied to the flexibility of work relations and work instruments. The research team collected data from contemporary writing in the area and using an Industrial Design methodology developed a visual prototype design (HUB). The proposed design sought to integrate information technology, social spatial qualitative experience and physical task orientated furniture in the context of the knowledge workers needs. Whilst the study concluded at a visual prototypical stage it was possible to draw some results from evaluation that suggest a case for further development in this arena.

**Keywords;** Industrial Design, Case study, Information.

0076

## The Design of the First Cell of the Sao Paulo Museum of Art: A Constructive Option

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Zuleica Schincariol holds a Bachelor and Master Degree from Faculdade de Arquitetura e Urbanismo-Universidade de São Paulo, a Master Degree on Art Museums Studies from Museu de Arte Contemporânea da Universidade de São Paulo. Graphic Design and Environmental Graphic Design teacher and researcher at the Design course of Faculdade de Arquitetura e Urbanismo, Universidade Presbiteriana Mackenzie, São Paulo, Brasil.

This article presents a reflection on the first spatial configuration of the Sao Paulo Museum of Art, when it was located on Sete de Abril street, downtown Sao Paulo. This research gathers documentation of the time, both texts and images, aiming to relate the concept of design of its space, particularly that involving the presentation of the collection, the concept of museum in the origin of that institution and the propositions contained in its development. One can verify an incisive proposal of spatialization, carried out and defended by Lina Bo Bardi, who actively participated in the discussions about modern museums that took place at the time, and who finally brought a collection marked by works of art that are representative of art history, still in progress, to a present gaze.

Keywords: museography, design history, exhibitions, visual communication.

0077

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*Vesna Popovic, B Arch, MFA (Ind Des), PhD is Professor in Industrial Design at the Queensland University of Technology where she is responsible for the leadership and development of the Industrial Design discipline. She has worked as an industrial design and ergonomics consultant and was involved in different international projects. She has a number of realised designs and some of them received significant awards. Principal areas of research interest are applied product design research, research in design thinking, design cognition, design theory and human factors and applied ergonomics as related to design. She is a Fellow of the Design Institute of Australia, Member of Human Factors Society (USA), Ergonomic Society of Australia and Design Research Society (UK). She was the Executive Board Member of the International Council of Societies of Industrial Design (ICSID) – Education Chair from 1997 - 2001. She has been an ICSID adviser since 2002.*

*Doug Mahar, PhD, BA(Hons) is a senior lecturer in Psychology at the Queensland University of Technology. His previous academic appointment was in the Division of Psychology at the Australian National University, where he also served as Co-Director of the TRUST project in the Institute of Advanced Studies. He is currently Deputy-Chair of the QUT University Human Research Ethics Committee and is a past president of the Australasian Society for Experimental Psychology. His principal areas of research include the processing of sensory information, memory processes, and human computer interaction*

**ABSTRACT FILE COULD NOT BE PROCESSED**

0079

Designing Product Character: *Strategy To Evaluate Product Preference And Map Design Direction*

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LOW Chee Siong Edwin is a research scholar in the Department of Architecture at the National University of Singapore. His professional achievements as a designer include a nomination for the Trondesign Creativ Award in Interzum Air Cologne, Germany (2003); finalist Young Inventors Award organized by Asian Wall Street Journal (2004); exhibition Saint-Etienne International Design Biennial, France (2004). He was selected for the Toshiyuki Kita Internship in Japan under the DesignSingapore Internship Programme in 2005. His academic achievements include Lee Kuan Yew Gold Medal for academic excellence (2004), President's Graduate Fellowship (2005) and National University of Singapore Research Scholarship (2005-present). His research interest lies in design conceptualizing and the generation of design strategies based on product character and identity studies.

According to Janlert and Stolterman (1997), *"people, as well as things, have character- high level attributes that help us understand and relate to them."* de Bont et al. (1992) argues that users will prefer a product with characteristics that best match their needs or personality. As such, to influence user's preference on a product, it is essential for the character of the product to be coherent with the user's character. This is attempted by investigating products as "living objects", eliciting specific characteristics or character attributes similar to the user.

Though the concept of regarding products as animate objects is not new, the applications to design practices are rare. The aim of this paper is two-fold: firstly to propose an empirical model that attempts to evaluate user's consumption preference; secondly by adopting the same model into current design practice, to map clear design directions.

Expounded from areas of new human factors which provide a holistic view on the user's characteristics (Jordan 2002), the empirical model is developed by exploring the subjective factors involved in the interaction process between the user and the product at the point of purchase. The etymology of Kansei and Chisei is employed as the basis of this interaction.

Keywords: design character, empirical studies, material culture, user-designer experience, strategic design planning

0080

**Human augmentation: transference of design approaches from designing for sports to designing for disability**

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*Dr Jonathon Allen is a senior lecturer at Monash University, Australia. His research interests include: new and emerging materials and technologies; design's role in addressing social and environmental concerns; augmenting people's capabilities through perceptive design; and designing for people with disabilities. He was part of the Management Committee of the 2004 DRS Futureground conference.*

This paper begins by considering the dichotomy between the design of sporting goods and the design of disability products, with an intent to identify some ways in which disability products can become more socially acceptable and even desirable. The role of material artefacts in the creation and propagation of individual- and social-identity is discussed in an attempt to highlight the importance that design can have in ameliorating self-image and public-image of people with disabilities. The paper goes on to discuss a design project carried out in two parts in an Undergraduate Industrial Design studio class to explore the notion of augmenting human ability. The first part of the project focused upon sporting goods and the opportunities therein to enhance human performance and safety within a chosen sport. The second, mirroring and applying the learning from the first part, explored the opportunities to enhance human ability of those considered to be elderly or those who have a disability. The paper focuses upon three case studies of disability products and concludes that there can be positive transference of design approaches from designing for sports to designing for disability.

Keywords: design and disability, design for all, design/product semantics, industrial design education, innovative technology and accessibility for the elderly and disabled

0081

**Architectural Thought Experiments,  
Verisimilitude and argumentation in predicting architectural quality**

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Architects and their clients must somehow test how users will interact with a building before it is built -- they must predict the future. In this paper, I make a modest proposal for assisting in such 'predictions' -- a method for testing the degree to which the designed building will actually meet the goals of the client and designer.

Combining thought experiments, as used in physics, and Ensembles of Use as proposed by Richard Hill, the tool I propose here -- the architectural thought experiment -- will, I hope, have the advantage of speed, and can (at least partly) fulfill the role played by physical testing. Through examining the strengths and weaknesses of these and other existing methodologies, I propose a series of basic concepts which help to make it possible to make a bridge between architectural form and the client's goals.

The proposed thought experiment is suggested as a means not only for testing design conceptions but also for generating arguments that will help architects convey to clients the reasoning behind their designs.

Keywords: architectural design & practice, design evaluation, design experiments, method, user needs

0082

## Bthere or be Square: A Method for Extreme Contextualization of Design

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*Martin Ludvigsen PhD-candidate from the Interactive Spaces research centre and Aarhus School of Architecture. In the PhD-project "Designing for Social Interaction" Martin is looking into how technologies in physical space can be designed to support and enable social interaction. Too often digital and pervasive technologies are empowering the individual, leaving out the aspect of human beings as participants and creators of social contexts. Designing for social interaction is an alternative perspective on the use and users of these technologies.*

*Andreas Lykke-Olesen is originally educated as an architect but has through his Ph.D.-study "Space as Interface" migrated towards interaction design with a special awareness on the concept of space within technology enhanced environments. In collaboration with computer scientists, electrical engineers as well as real users working prototypes are designed, tested, and evaluated to understand how spatial interfaces can support meaningful practice.*

*Andreas Lykke-Olesen,*

*(...)*

*Educated as an architect the main tread in my work has been experimenting with the potentials of bringing digital properties and behaviours together with architectural tasks and spatial relations. My current research is dealing with interactive technologies in spatial design and focuses on urbanity - The City in the Computer & The Computer in the City. My works both looks into how to mediate our urban surroundings in fully virtual environments as well as citizen involvement and discussions by the use of mixed reality technologies.*

*(...)*

In this paper we describe the Bthere method aiming to increase the context awareness among designers. The method and a workshop scenario will be presented, as well as the results and evaluation from that. Based on the methodology from contextual and participatory design, the paper describes a method for dividing the context in different layers, observed from different perspectives. This reveals hidden structures in the inhabitant's everyday life and the environment among them, using a full scale context and user study as background material for brainstorming and design choices. The aim of the workshop was to accomplish an expanded notion and awareness of some of the aspects of the city environment that are invisible or unnoticeable.

We claim that the Bthere method increases awareness of a richer full scale context, and points to an alternative approach to user involvement in the design process.

**Keywords:** critical design; design and public; design methods; user-centered design research methods; teaching

0083

## Evaluating Creativity in Design Problem Solving

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This study focused on the assessment of creativity in design problem solving. The purpose was to examine the possibility of grounding the definition of creativity in design in parameters that may be assessed objectively. An empirical research was carried out with students of architecture from first to fifth years. Their design outputs were evaluated by expert judges. The assessment of creativity in design was based on a number of factors dealing with: fluency, flexibility, elaboration, and innovation, as well as aesthetic skills in design representation, fulfillment of design requirements, reference to context, and usefulness. Findings showed that the evaluation of creativity in design corresponds mainly to innovation. Although evaluations do not correspond to other components of creativity, such as fulfillment of design requirements, flexibility, fluency, usefulness, these were found to be important. Elaboration and reference to context were found to be relatively weaker contributors to creativity.

Keywords: design evaluation, design process, architecture, creativity factors

0085

## Research Design in Design Research: a practical framework to develop theory from case studies

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Case studies have for a long time been used in design research to provide 'rich' insight into successful or unsuccessful new product innovation. As a methodology it has often been cited as useful to derive site specific contexts where phenomena can be observed and reported by respondents in their working environment.

Yet, in practice, the primary advantage of the design case study, its ability to reveal insight into 'real-life' contemporary phenomena (the here and now), set against a backdrop of critical incidents, happenings or events over time (temporality), often become it's weakness in achieving valid and credible findings.

Essentially it can be attacked on ontological grounds because it can accommodate multiple methods and techniques both positivist and phenomenological. A further complication is the common journalistic style of using a single case to make wider generalisations to a group as a whole.

This paper seeks to address these problems and provides a practical framework to help design researchers derive empirically valid and reliable theory through case studies. The framework enables causal explanations to be described within the context from which they emerged with evidence to support each event as an incidence of that explanation.

**Keywords:** methodologies and methods of design research, case studies, causal connections, innovation and design groups.

0087

## Industrialisation and Social Innovation: Design in a New Context

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*Nicola Morelli is Associate Professor at the School of Architecture and Design at Aalborg University. His research interests and contributions focus on systemic aspects of Design, more specifically on methodological tools to design Product Service Systems and on the theoretical foundations for a revision of the design profession in a new industrial context*

Many years ago, Viktor Papanek urgently called for a radical revision of the design profession, based on an exploration of new territories outside the market oriented logic. For many years Papanek's call was ignored, but the problems he emphasised became more and more evident. Globalisation requires industrial production to adopt complex strategies that mix action at the global and the local level. While industrial production is globalising, local needs are becoming more and more complex, generating demand patterns and opportunities, often ignored by the mainstream market-oriented perspective. Papanek's proposal was revived some years ago, with the *Common Ground* conference. Starting from this event, other contributions were proposed that revised the relationship between designers and their main clients and found new methodological approaches. This debate represents the theoretical and logical framework for this paper. An investigation is proposed, beyond the traditional links between design and industry, emphasising new insights on the changes in the social role of industrial production. Furthermore the paper proposes a methodological exploration to help designers focusing on new actors and new perspectives in search for possible convergences between the logic of socially responsible design and the contribution of the industrial culture.

*Keywords: Social Context, industry, social system design, design and sustainability*

0088

**The Fairy Stories project: Towards a history of Architecture as a time based medium**

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*Edward Hollis trained as an architect at Cambridge and Edinburgh Universities. He has practised as an architect, working mainly with alterations to historic buildings.*

*From 1999 to 2004 he taught Interior Architecture at Napier University in Edinburgh. Now he is the programme leader for interior design at Edinburgh College of Art.*

*As an academic his research work has focussed on articulating the role of time in the built environment.*

The History and Theory of Architecture have traditionally discussed buildings as if they were the fixed, timeless emanations of the mind of an omnipotent Architect. However, the real life of buildings as we experience them is anything but fixed, pure, or timeless. In order to survive, buildings have to be as chimerical and cunning as the people who made them.

This paper proposes an alternative history of Architecture that aims to resolve this contradiction between Theory and Practice. This proposed History records the survival stories of a number of buildings, told in the manner of stories that have themselves survived through repeated shape shifting –myths and fairy stories. By telling these stories, this proposed history of Architecture aims to feed the practice of Architecture with examples that illustrate how flexible, ephemeral, and engaging the life of buildings can be.

Keywords: narrative and design, history and theory of architecture, rites and rituals in everyday life, concept of research, timeless-ness

0089

## National Identity and the Problem of Style: Lessons from the Post-War British Ceramic Industry

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*Dr McLaren is Head of Historical and Critical Studies at Bath Spa University. An historian of design specialising in the history of ceramics, his Ph.D thesis (Royal College of Art, 1991) considered the relationships between British government policy and art-school practice in ceramic design education after the Second World War. While working at Staffordshire University he was Course Leader for the B.A. (Hons) History of Design and the Visual Arts and (from 1995) M.A. History of Ceramics courses. He has published numerous books, articles and papers relating to the history of design and is currently completing a major title, The Culture of Ceramics for Manchester University Press.*

This paper argues that the search for an identifiably British style in British ceramics formed a key aspect of the debate towards the post-war reconstruction of the pottery industry. It seeks to demonstrate that this was as much about sweeping away internal structures and the boundaries that acted as barriers to change as it was about a reaction to the economic necessities of the 1950s. The paper will show that in order to understand these changes we must also understand the mechanisms by which the pottery industry evaluated the role of design within manufacturing and marketing. It argues that changing systems of communication, both within the industry and between industry and a London-based 'design establishment' were key facilitators of this. It charts a process by which a powerful trade press that had defined a return to 'the traditional' as an appropriate way ahead for the post-war industry gave way to largely external debates that centred on 'Britishness' in design as a key competitive tool. The paper suggests that understanding the experience of the British pottery industry after the war can help us to place the experience of today's design-led industries into a stronger, clearer context, particularly in terms of understanding communication systems as an aid to processes of change.

**Key Words:** design criticism, design history, design policy,  
product design, styling

0090

Reading Science Fiction Novels As An Architectural Research Method: The Case Study Of J. G. Ballard's *High Rise*

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The aim of this paper is to suggest a new approach in producing architectural knowledge through the realm of discourse by systematizing the social and spatial clues within science fiction literature. In this sense, the departure point is the notion of interdisciplinarity, which expresses the relationship of modern research methods with several other disciplines. Considering the potential of interdisciplinary aspect of architecture, the scope of this paper is several parallel aspects between architectural discourse and the spatiality of literature proposed through the case study of J. G. Ballard's novel *High Rise*. In this sense, an architectural research on the phenomenon of modernity reading the "literary space" throughout *High Rise* is realised. The above-mentioned parallelism in terms of the discourse of modernity within architectural theory is developed from the idea of considering the overlapping of social processes of science fiction texts and architectural discourse: cognition and representation of the world, and social interaction. Finally, the conclusion to be explored is the possibility of inserting a further knowledge to the realm of architectural discourse helping to structure the identity of it through interdisciplinary media of literary texts, in particular through the extrapolative aspect of science fiction literature.

*Keywords: interdisciplinarity, architectural discourse, science-fiction literature, J. G. Ballard.*

0091

Fostering innovation in early design stage:  
A study of inspirational processes in car-design companies

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ENSAM, Paris, France

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*Currently preparing a PhD in design science, Céline Mougenot is firstly a mechanical design engineer. She previously spent 4 years in a software company, as a CAD specialist. Her main research interest is in design cognition and creativity, with the objective of building new connections between product design and computational tools.*

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Design practitioners and cognition experts recently started to work together; so far, they mainly focused on the way designers use sketches and on the downstream steps of the design process. As a practical consequence, product designers currently use digital tools all along the design process, except in the very early stages. This research is aimed at understanding the ways designers make the transition from design brief to information-search strategy, in the "informational stage": We carried out an ethnographical study with 33 professionals in the car-design industry, mainly from design departments, but from marketing and innovation departments as well. This study enables us to get a deeper understanding about the cognitive activity in the very early stage of design projects and gives a view over the way designers connect new concepts and existing visual materials. This study update a list of inspirational "fields of influence" in the context of car-design, with a strong focus on new media tools such as the Internet. The main outputs of this paper are (1) a view over the information-gathering process in the early phase of car design projects and (2) a set of recommendations to develop a computational tool leveraging designers' creativity in the informational stage.

*Keywords* Cognition, creativity and computers in design. Methods and tools for idea generation. Design / product semantics. Cars. Knowledge management systems.

0093

## Design for Dynamic Use Situations, First Steps in the Development of a Design Method that Supports Designing for Dynamic Use Situations

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*Products that are used in a dynamic situation are difficult to design with regard to usability. A dynamic use situation is a situation in which a product is used by various people, with different goals and/ or in different contexts of use. Since the use situation influences a product's usability, a dynamic use situation can complicate the design process. We therefore propose to develop a new method to support the designer in dealing with dynamic use situations. The first step in this process is the definition of criteria for this design method. We distinguish criteria that concern analysis and evaluation of the design problem and criteria that concern the creation of solutions. Criteria for analysis and evaluation can be derived from a comparison with planning strategies through scenario planning. Applying these criteria to a first review of current user centred design methods leads to the conclusion that a promising basis for a design method for dynamic use situations can be found in scenario based design. This method should be integrated with creativity techniques and a technique which reveals the most important varying driving factors to build a frame of reference.*

*Keywords: usability, user centred design research, design methods, dynamic use situations*

0094

## Collaborative Product Development Processes in the UK Fashion Market

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This paper examines the increasing need for collaboration between three essential participants in the development and selection of fashion products, namely textile designers, fashion designers and fashion buyers. Contemporary factors including technology and globalisation have impacted on these roles and the complexity of their relationships. In effect, fabric and garment design concepts flow through a filtration process, governed mainly by protagonists in these three roles, usually located in separate companies in different countries. UK-based case studies depict the pragmatic application of collaborative design processes in the fashion industry, derived from interviews conducted with practising designers and buyers. Respondents provided insights into the ready-to-wear and mass market levels of the fashion business, which forms a significant part of the UK economy, yet is a relatively neglected area of design research. The fashion product development process takes place within aesthetic, technological, financial and temporal parameters. The case studies illustrate the commonality and sequencing of the processes through which design concepts are transformed into finished products. Design within industry has traditionally been viewed as a discrete and individual artistic function. The case studies challenge this view and demonstrate the growing importance of collaborative design within fashion product development. **Keywords:** *case study, collaborative influences on the design process, consumption, fashion, textile design*

0095

## Investigation of the Features and Form Design Identification of Negative Characters in PIXAR Animation Movies

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The form design of characters in 3D animation movies plays a crucial part in the audience's perception of the character's personality. While the personality of negative characters has the characteristics of internal conflict and brings a contrast to the positive character, it helps to increase theatrical tension. This study thus investigated the design of facial features of negative characters through studying the personality of characters in animation movies produced by PIXAR and by analyzing the presentation of facial features of negative characters. The objectives of research included (1) to analyze the presentation of the facial features of negative personality of characters in 6 animation movies produced by PIXAR (*Toy Story* (1995), *Toy Story 2* (1999), *A Bug's Life* (1998), *Monsters, Inc* (2001), *Finding Nemo* (2003), and *The Incredibles* (2004)); and (2) to investigate the level of negativity of facial features of negative characters. Findings indicated that (1) fine, long and triangular shapes are typical facial prototypes of negative personality of characters; and (2) small eyes with raising eyebrows at a certain angle can better portray the negative personality of characters among all facial features of negative characters; and out-coming, uneven spikes make the character look more negative because the mouth and teeth have important influence on expressing the negative personality of characters. Lastly, the sharpness of teeth has greater negative image than the mouth.

Keywords: PIXAR, negative characters, prototype matching, form design

0096

## Ticket Vending Machines - the start (or the end) of the 'Wonderland' of inclusion

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*Desde 1993 desempenha actividade docente no ensino superior, nos cursos de Design e Arquitectura, designadamente na Universidade Lusíada do Porto (até 2003) e na EUAC – Escola Universitária das Artes de Coimbra, onde actualmente partilha a coordenação do Curso de Design de Equipamento.*

*Iniciou a sua formação em Arquitectura na Faculdade de Arquitectura do Porto e em 1988 conclui a licenciatura na FA-UTL. Frequentou a primeira edição do 'Curso de Pós-Graduação e Mestrado em Design de Equipamentos e Produtos' promovido pelo então 'pró-IDUP' em 1990.*

*No âmbito dos trabalhos de Mestrado (na FAUP/FEUP) viria a debruçar-se sobre as questões da mobilidade nas cidades, em particular dos problemas de pessoas com incapacidades, tendo apresentado em 2000 uma dissertação intitulada 'A Cidade à vista do cego - informação, mobilidade e cidadania'.*

*Esta marca o início de um percurso de investigação e trabalho profissional dedicados ao Design inclusivo, pontuado por alguns trabalhos relacionados com acessibilidade nos transportes - para o Metro do Porto e STCP – o decurso do qual também desenvolveu com o IEETA da Univ. de Aveiro uma proposta para registo de patente sobre acessibilidade à informação em terminais móveis de comunicação (INmap).*

*Publicou alguns artigos e trabalhos académicos sobre esta temática e prepara-se para defender tese de Doutoramento sobre 'Acessibilidade em Interfaces de uso público', orientada pelos Professores Doutor Bulas Cruz, da UTAD e Prof. Doutor Carlos Duarte do IADE.*

The use of Transport Ticket Vending Machines (TTVM) in public transport systems may present new barriers to the autonomy of people with special needs, like the elderly or the disabled, as those are frequently the only way to obtain a valid ticket. For various reasons, such as a lack of accessibility requirements in their design process and the inherent complexity of information, the use of these machines may be very difficult or even impossible for a large number of people. These people often also experience other forms of social exclusion (Gill, 2001).

This paper relates to the early stages of research into accessibility of Vending Machines (VM) in which different VM were studied, considering the identification of relevant stages and their sequence in the interaction process.

This work intends to help the understanding and conception of new and inclusive TTVM and exposes an implicit paradox between what Information and Communication Technologies (ICT) can provide - regarding interaction alternatives - and what these machines really offer, illustrating how they can 'represent' or elude a *Wonderland* in the promotion of autonomy and inclusion.

Keywords: accessibility; interface accessibility design; inclusive design; design for accessibility; design for all;

0098

## Design Studies in Adapting Interactive Computer Interfaces for Elderly Users

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*Research areas include:*

- *Medical Technology & Innovation, Smart technologies and E-health.*
- *Gerotechnology, Innovative Technology for the elderly & disabled, E-Health*
- *Human Environment Relationship- Performance underwater and high pressures, Diving equipment and leisure activity.*
- *Development of physiological methods for design research.*

Computer technology and the Internet have become inseparable parts of our daily lives. However, as people grow older and their physiological and cognitive functions deteriorate, many stages in the interaction with computers can be compromised.

Taking into account the importance of interactive (web based) computer systems in our rapidly evolving "knowledge society", and their inherent benefits for senior citizens and for the entire community, we initiated an ongoing research activity to study the compatibility of interactive computer displays, including health-care interfaces, for the elderly.

The studies were performed on elderly (65+) and young participants. The participants completed various tasks on a variety of specially constructed, experimental prototypes of general and web-based health care systems, with hidden, computer implanted tracking programs. Experimental parameters included time for task completion, acuity, preference, satisfaction and physiological parameters of heart rate, skin temperature and sweat, measured with miniature sensors.

Our results, based on three different studies (link configurations, nutrition intake and coagulation functions), suggest that older adults can perform Internet-related tasks as well as younger people, although more slowly. However proper links selection, user models and appropriate visualization methods can potentially improve the use of interactive computer systems by elderly users.

Keywords: Design and the internet; Design for all; Design for healthcare; Design methods - design research methods; Old.

0099

## Beyond Affordances in the Person-Object Conversation: Grounded Theory Comparison of Three Design Projects Based on Theory

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*His design and academic work has been published and exhibited in France, Italy, Spain, The Netherlands, Mexico, Colombia, New Zealand and South Korea.*

*He is currently Lecturer in industrial design and doing a PhD at Victoria University of Wellington, in New Zealand, where he is part of the Design Led Futures initiative. His research involves user behaviour and sustainability issues.*

Every time a person approaches an object, a conversation between the two develops. This paper discusses three theories relating to the conversation between people and objects (affordances, experience design, and ontological design), and analyses them through their use in approaching practical design projects. There is debate as to whether design theory should inform practice and how this might happen. However, little has been reported by practicing designers, and with practical examples, on how their design practice and research have been affected by design theory. This paper has two main goals: to discuss the way the conversation person-object takes place from a designer's perspective; and to report how theory affected the designer's practical experience. The design projects were analysed making use of Grounded Theory. It is suggested that through the conversation person-object, objects can support, indicate, suggest, or constrain behaviour. It is also put forward that the conversation begins before the person becomes a 'user'. Designers' rational and intuitive abilities to interpret conversations are of utmost importance for developing more meaningful conversations. This paper concludes that design theory can have a strong positive effect on design practice if it is interpreted in a creative way, and that design practice can in turn feed back into theory.

Keywords: affordances, conversation, behaviour, industrial design, design theory, and design practice

0100

## Toward a Creative Implementation of Semiology in Design

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*Mr. Konar is completing an M.S. in Industrial Product Design at Istanbul Technical University and is a lecturer in Computer Engineering at Dogus University in Istanbul, Turkey. He holds degrees in Electrical Engineering and Speech-Communication and is also active as a technical design consultant in the area of music reproduction equipment. His design interests include design theory, design methodology, and interdisciplinary approaches to design.*

*It is proposed that an approach based on concepts taken from the field of semiology can be employed in a creative process that exploits the understanding of the cultural context of artefacts. The socially generating meanings coded into artefacts are often understood on an intuitive level and require special attention to bring them to the level of the explicit. Once these relationships are understood explicitly, they can be manipulated using a variety of methods for varying outcomes. Such a view forms a basis for a creative methodology. The concepts central to the methodology are exemplified briefly using the folk guitar.*

Keywords: creative methods, design methodology, design theory, methodological approaches in design, semiotics.

Keywords: creative methods, design methodology, design theory, methodological approaches in design, semiotics

0101

Seeking Common Ground: craft, tradition and creativity - a collaborative approach-

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The aim of this essay is to provide an explanation for a proposed research project which will essentially explore some of the tensions between tradition and creativity. It takes an early 19<sup>th</sup> century chikan embroidered Christening gown as its starting point. Created in India for an Englishman working in Gujarat, it offers an exciting starting point for myself, a craft theorist and Deirdre Nelson, a textile artist to begin to collaboratively examine the possibilities of cross-disciplinary encounters within our particular practices of making and theorising objects. We hope to exploit the duality of traditional craft practice through a critique of the work itself and of the material and theoretical interpretations we distil from it. The main discussion for this paper is how the robe can offer us an opportunity to work through some of the tensions between overlapping discourses of cultural identity and tradition in relation to craft practice.

Craft, critical thinking, creativity, cultural identity, tension - tradition/creativity

0102

## A Proposal of Design Method Based on Hierarchical Design Model and an Application for Automotive Seat Designs

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Mr. Yuji Nomura received the bachelor's degree in mechanical engineering from Keio University in 2006. His research interests are Design Methods, Design Theory and Methodology, design support, and Structural and Mathematical Design Model. He has mainly carried out research on design method based on design theory and methodology. He has published in scientific journals and presented at academic conferences in Japan.

In the early process of design where a conceptual design and a basic design are done, a structural model is often used by designers. On the other hand, in the late process of design where a detailed design is done, a mathematical model is often used by engineers. In the conventional studies, a design method that has an ability to support the building of both models has not been proposed. In this study, the Hierarchical Design Model proposed by Matsuoka was paid attention to. Firstly, the Hierarchical QFD that reflects the features of Hierarchical Design Model has been expanded into the method that has an ability to grasp clearly sidebar impacts by introducing ISM method into it. Secondly, a selection method of design factors necessary for building a mathematical model from the Hierarchical QFD has been proposed. Consequently, a design method that has an ability to support the building of both models has been proposed. Then the proposed design method has been applied to each of the driver and the passenger seat design. As a result, two different design solutions that properly considered each usage environment have been obtained, and the effectiveness of the proposed design method has been confirmed.

***Key words: Design Methods, Design Theory and Methodology, design support, Structural and Mathematical Model***

0103

## Interactivity between Environmental Factors and Notions of Cognitive Similarity

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"Similarity" in shape cognition is an important psychological characteristic that is a basic lead on verification between objects. Besides, the way of human recognition flexibly changes with its context. This study was designed to analyze the "similarity" cognitive structure considering individual and environmental factors that influence the cognitive structure. First, the analysis technique was selected and it was confirmed that multidimensional scaling of an INDSCAL model is suitable. Second, the experiment that presentation time and size of samples were controlled was conducted. With an INDSCAL model "complexity" in momentary sight and "volume" in continuous sight were extracted for principal shape feature. Moreover, it was confirmed that "complexity" tends to be influenced by presentation time and cannot be easily influenced by presentation size and that "volume" cannot be easily influenced by either factors. Therefore, since the local feature of "complexity" has not been recognized in momentary sight, it is thought that the average of the degree of similar became relatively high compared to continuous sight. In conclusion the positive knowledge was acquired for clarification of "similarity" cognitive structure considering "environmental factors".

**Key words:** *Similarity, Cognition and Design, Cognition/perception, Cognitive Psychology / Cognitive Science, Design Theory*

0104

**A Guide to Methods for Small and Medium Sized Enterprises (SMEs) Designing for New Markets, Based on Cultural Research Experiences**

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Maria E. Johansson

Since 2005 Maria E. Johansson has been a PhD student at Luleå University of Technology, Division of Industrial Design, Department of Human Work Science, in

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Jan Lundberg

Jan Lundberg is a professor in Machine Elements and research leader of LTU Designlab with about 35 PhD students. Since 2000, Jan has worked with industrial design related projects and has today 5 PhD students in the field of

industrial design. He is also responsible for an interdisciplinary research school with about 15 PhD students. Current research areas are design of driver's cabins in cars, design due to cultural differences and also maintenance of industrial products.

*One factor determining an industrially produced product's success is how well it complies with customer needs. When small and medium size enterprises (SME) launch products onto new foreign markets, it is important to conduct cultural research to take customer design preferences in to consideration. This study, based on experiences from field studies in three countries, the USA, South Korea and Germany, can offer the SME's designer with guidance of how to collect information about cultural design preferences in practice. The aim is to show the SME how to conduct design studies by themselves and what the benefits are of doing so. Conventional methods, such as questionnaires to attain quantitative data along with observations and interviews to attain qualitative data, were used. The goal was to explore different approaches to acquire sufficient amount of interviews and answered questionnaires from varying target groups. The SMEs can benefit from these experiences, therefore perform their own design research more efficiently and profitably. The outcome of a successful design study in a foreign culture is greatly affected by the preparations done before the actual field research, such as acquiring contact persons in the target country and ensuring that the chosen methods and approaches apply.*

**Keywords:** design research methods for designers, design and culture, product design, small and medium sized enterprises

0105

## **A Model Of Emotions And Behaviour In Product Design**

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The study of behaviour in the design industry is important from more than one perspective. Firstly, it can lead designers to improve the experience users enjoy when interacting with products. Secondly, behaviour is of utmost importance in understanding the purchasing process. A better understanding of the forces that drive behaviour can help designers produce objects and services that exist in a better relationship with users and have more chances of commercial success. Psychologists agree that emotions are one of the main factors that determine behaviour. The design community is currently developing important knowledge on emotions. However, links between emotion and behaviour are yet to be studied. The current studies of emotions and design leave aside the analysis of the resulting behaviour, or are focused on the emotions elicited by the aesthetics of the object, without studying the influence of the use of the object on behaviour. A model that connects emotions AND behaviour in design is proposed, parting from Desmet's emotions model. Finally, the researcher mentions examples of the initial empirical research that attempts to test the proposed model. The first outcomes of workshops show promising results for the understanding of the factors that affect behaviour.

Keywords: design and emotion, behaviour, industrial design, theory of design, design research models

0106

**Behavioral Characteristics while Searching Information thanks to Tangible Media  
- Kansei Evaluation and Behavioral Analysis on E-Paper, Paper and Touch-panel -**

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*He had worked as furniture designer in Koera, And had worked as a illustration and interior designer in Japan.*

While searching information, subconscious mental activity affects our behavior. To understand this subconscious function, we propose to analyze the behavior comparing with subjective evaluation. For this research, we used three different tangible media: E-Paper, paper (printer) and touch-panel. We quantified the subjects' behavior from the record of searching information. Then subject's characteristics were summarized from observation of their behavior, and the results of their evaluation were structured by the repertory grid method and laddering. The results were as follow: 1) From the difference in behavior to use the media, the personal ability to handle the information relates to the tendency to accept futuristic media. 2) The subjective evaluation was ordered as E-Paper > paper > touch-panel. However, the E-Paper was not efficiently used by all subjects. Especially, the E-Paper was more effective for subjects who were able to find information quickly, to take and to keep the information, and to reconfirm important one. 3) The instantaneity of the E-Paper scan makes it easy to confirm saved information. 4) From the repertory grid method and laddering, it was clear that 'pleasant' and 'easy to compare' appeared commonly among all conditions, but the reason for evaluation was different for each medium depending on whether it could save information or not.

**Keywords:** *Kansei-evaluation, Behavior, Quantification, Tangible media, Searching Information*

0108

## Designing Culture – In Between of Authenticity and Imagination

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*Bianca Beuttel has studied 'Japanese Studies' and 'Product Design' in Frankfurt und Offenbach am Main, Germany. In 2004 she graduated at the Academy of Art and Design, Offenbach am Main, Germany.*

*Her diploma thesis "Tafelfreuden" about the design of chocolate has received a special recognition of the Braun-Feldweg-Award for design-theory in 2005.*

*Since August 2005 she is an exchange research student at the Graduate school of Comprehensive Human Science, Major of Kansei Information Science at the University of Tsukuba, Japan, supported by a scholarship of the DAAD (German Academic Exchange Service).*

*During studies as well as in design jobs often concerned with questions of "culture and design" she now pursues a research on "Designing Culture – in between of Authenticity and Imagination".*

Based on the patterns "exotic", "salvation" and "horror", coined by the German media-theoretician W. Faulstich to describe the perception of foreign cultures in media, this research aims to discuss how the own culture and the foreign cultures are regarded. This includes the mechanism of exotification and self-exotification, the role of authenticity and imagination, and the perspectives provided by concept of "transculturality" which has been introduced by the German philosopher W. Welsch. Illustrated by Japanese examples of every-day-life consumer goods, their packaging and advertisement, it will be shown that these questions also seriously concern the field of product design - in its creation as well as in its perception.

Keywords: Culture and design, Cultural hybridization, Emotions in subject-object relations

0109

## STATIC! The Aesthetics of Energy in Everyday Things

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*He is also a former lecturer in Interaction Design at Chalmers University, Göteborg, Sweden. His educational background is in philosophy, cognitive science and music, and he got a PhD in Informatics from Göteborg University. His research aims at combining philosophical and artistic approaches with focus on experimental interaction design.*

Static! is a project investigating interaction and product design as a way of increasing our awareness of how energy is used in everyday life. Revisiting the design of everyday things with focus on issues related to energy use, we have developed a palette of design examples in the form of prototypes, conceptual design proposals and use scenarios, to be used as a basis for communication and discussion with users and designers. With respect to design research and practice, the aim has been to develop a more profound understanding of energy as material in design, including its expressive and aesthetic potential, thus locating issues related to energy use at the centre of the design process.

Keywords: interaction design, design for sustainability, critical design, practice-based research

0110

## SIMULTANEOUS CROSSOVERS

Exploring the hidden links between humans

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In big cities, you share many moments with strangers from different cultures, from different ethnic groups, of different ages and sex whom you interact with in many ways. City life in America is very individualistic. People choose to ignore the others around them. Their lives overlap, but not many are aware of these crossovers. I have examined how simultaneity and randomness affect our lives and I have used these notions to design experiences, games that will link humans to other humans with whom they may have one or more things in common.

**Keywords:** social interaction, behaviour, experience, user participation, randomness.

0111

## Value Compensating Strategies

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*This paper aims to provide insights into how users respond when products fail to deliver value. It is based on a cross-cultural ethnographic study on users' value assignment to kitchen appliances. Findings suggest that users tend to develop some way of making up for the low value delivered by the product. The ways of dealing with the problem of increasing the practical and social outcomes of interaction with products are called value-compensating strategies. The paper describes the applications of these value strategies with (1) unique local products, (2) products that are owned but not used, (3) products used in a unique way, (4) two or more products that serve the same function, and (5) products users might have owned but did not. The failure to deliver value is related to the lack of suitability of product properties to local behaviors, systems, or meanings. Practical applications for design practice are also discussed.*

**Keywords:** user-centered design, user value, social and cultural human factors

0112

## **Design collaboration in the Greek industry: A study in progress**

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Product design has historically been an underdeveloped practice in Greece and may hinder the international competitiveness of Greek products.

This study aims to recognize the characteristics of collaboration between Greek product manufacturers and design consultancies and relate these characteristics to successful practices in other European countries. More specifically, the study tries to record the level of awareness among Greek product manufacturers of design as a strategic tool for gaining competitive advantage, the motives, benefits and drawbacks of different kinds of design collaboration, as well as the ability of design consultancies to act as agents of innovation. The results will then lead to the creation of a theoretical model of design collaboration in the Greek industry that can be compared with respective models in other European countries and discover areas where design collaboration and design practice can be improved.

Successful practices of collaboration in other European countries will be explored by literature review and questionnaires administered to national design associations. The identification of the types and characteristics of design collaboration in the Greek industry will be based on separate questionnaires administered to Greek product manufactures and design consultancies. The questionnaires will inquire about the use of design in product development, the criteria for selecting a design consultancy, the objectives and expected benefits of the collaboration, and self-evaluations of past collaborations.

Keywords: collaborative influences on the design process, design consultancy business, design strategy

0114

## Design Support and the Transfer of Knowledge to SMEs

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Prior to taking the Masters course she worked for the Centro de Design do Paraná (Brazil) for five years. In the UK, Gisele worked for the Design Council in London before being invited by Design Wales to organise the first IWDS - International Workshop on Design Support, which took place in Cardiff, Wales in May 2004. Gisele has continued working as a senior researcher for Design Wales since. She is currently coordinating the SEEdesign programme, a EU funded partnership of European design organisations for the sharing of information on design support.

Gisele's studies for the Masters Degree and subsequent research work have been dedicated to understanding models for national design policies and design organisations, focusing on developing a better understanding of the nature and effectiveness of models for design advisory services serving the business sector, in particular SMEs.

Publications include the editorial of the SEEdesign Bulletin, contribution for the Brazilian portal of design [www.designbrasil.org.br](http://www.designbrasil.org.br) and papers published on the Design Management Review (DMI) and Design Research Society Conference. She is currently undertaking research for a PhD thesis at the University of Wales Institute Cardiff analysing strategies adopted for the promotion of design in different national contexts and their contribution to the knowledge economy.

Design support programmes have become more and more popular, with countries recognising the importance of helping their small companies to develop products and services with design input. This paper argues that the potential of such design programmes could be maximised if design organisations understood the importance of knowledge transfer in this context. It explains why the nature of design support schemes (usually public funded and focused on first-time users of design) make knowledge transfer an important asset for this activity. Analysis of information provided by clients of Design Wales, the design advisory service for Welsh industry (UK), is used as evidence for this argument. Knowledge transfer mechanisms are recommended for the best transfer of tacit knowledge and the role of the design advisor is emphasised as the agent of this transfer.

Keywords: Design support or promotion, knowledge management, tacit knowledge, collaborative influences on the design process

0115

## Exploring the Need For Different Dialogues In Design

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*Emma Dewberry trained as an industrial designer and worked for a while designing furniture. She completed a PhD in EcoDesign with the Design Innovation Group at the Open University and for the last 14 years she has focused on researching and lecturing on design for sustainability in the UK Higher Education sector. Her research interests focus on how to galvanise creativity in meeting the challenges of sustainability. Emma suggests that we need to reframe our 'location' points and consider ways of exciting people about new business and social opportunities that embrace the potential of human ingenuity, but that also reflect, limits to growth.*

This paper describes ongoing research which explores a need to foster different dialogues in design. It sets out the challenge for design in responding to increasing evidence of limits to growth: that is the boundaries of access to, and use of, Natural Capital (the Earth's resources). Current design activities respond to resource limits through the concept of efficiency: waste / product minimisation, light-weighting, ease of assembly and disassembly; material labelling, resource cycling, reuse and reduction. However, designing more efficient products doesn't prevent a *net increase* in environmental impact when products are bought, used and disposed of globally, at increasing rates. Recent projections suggest resource limits (oil for example) could be upon us in as little as ten years. Uniquely situated between the discourses of production and consumption, design may offer a creative response to limits to growth. This paper begins to explore how practically, design may inform different perspectives (broader than ecodesign) on resource use. It utilises a methodology focused on a flexible, questioning approach, engaging with experts in ecodesign and sustainable development through dialogue, to elicit their views on the key attributes of a sustainability narrative that can inform different design inputs and outputs.

[195]

**Keywords:** Design for Sustainability; EcoDesign; Limits to Growth; Resource Productivity; Dialogues

0117

**Problem-Solving Model of Design  
With a Controllable Determinization<sup>1</sup> Level**

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*Sonya S. Kwak is a Ph.D. student at Korea Advanced Institute of Science and Technology(KAIST). She graduated B.S. and M.S. from KAIST in 2001 and 2003, respectively.*

*Her research interests are problem-solving process and human robot interaction in the social and behavioral aspects.*

The objective of this study is to develop a problem-solving model of design with a controllable determinization level which satisfies both analytic and synthetic aspects of design activities. Rooted on the problem-solution duality model, a goal-oriented problem-solving model, which is based on the triad relationship among a problem, a solution, and a goal, is constructed. In the problem-solving model of design, the goal area is distinguished from the solution area, and the concept of "determinization" which is the process of transforming the indeterminate solution area into the quasi-determinate<sup>2</sup> goal area is established. The determinization level controls the portion between discovery and invention. As an illustrative example, 'God's creation in the Bible' is described to explain functioning of the proposed model at any level of creativity. Three illustrations – a theory of the design process, the 'axiomatic design', a way of design process, the 'precise and imprecise problem formulations', and an illustrative example, 'God's creation in the Bible'- are explained based on the proposed model to show that the model fits different types of the design process with different determinization levels. In the three examples of different determinization levels, different types of problems in different conditions are matched with different determinization levels. The problem-solving model of design with a controllable determinization level is applicable to all types of design activities with diverse conditions.

**Keywords:** problem solving, design process, design evaluation, determinization level

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<sup>1</sup> The words 'determinize' and 'determinization' are defined in this paper as follows:

**"determinize"**: to transform the indeterminate state into the quasi-determinate state

**"determinization"**: the act or process of "determinizing" or reaching a quasi-determinate state

<sup>2</sup> The word "quasi-determinate" is defined in this paper as follows:

**"quasi-determinate"**: determinate as a determinized boundary but indeterminate within the boundary

0118

## Design as alignment of heterogeneous actors in mediation of cultural historical research

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*Dagny Stuedahl is a postdoc at Department for Media and Communication at the University of Oslo. She wrote a PhD on Design as multidisciplinary negotiation, and is now working on research narratives and mediation. She is coordinating a strategic research initiative at the University of Oslo: Competence and Media Convergence, and coordinator for the Nodem 2006 conference.*

The landscape of digital cultural heritage documentation and mediation is changing. New digital tools used in research, calls for open access to digitized cultural heritage material, access to research results and processes, as well as changes of the role of cultural institutions challenges design. In this paper the concept of alignment from Actor Network Theory is discussed as an analytical tools for understanding the complexities and negotiations needed for designing for digital cultural heritage mediation. We report from a design case related to the mediation of a cultural historical reconstruction project of a Norwegian Viking boat, building connection between institutional levels and individual research levels using the CIDOC standard.

Keywords: design and digital media; design and culture; design theories;

0120

## The Research Exhibition: context, interpretation, and knowledge creation

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*Kristina Niedderer MA(RCA) PhD is a design researcher and craft practitioner. She was originally apprenticed as a goldsmith and silversmith and worked as a journey(wo)man with Ulla and Martin Kaufmann in Germany. She then trained as a designer and design researcher in the UK and has a PhD in Design. In 2005, she held a position of Artist in Residence at Middlesex University, where she conducted research into the creative possibilities of Argentium™ Sterling Silver. Since September 2005, Kristina is a Postdoctoral Researcher at the University of Hertfordshire and works on the Experiential Knowledge Project. She also continues her collaboration with the Argentium Project as a Visiting Researcher.*

*Michael Biggs MA PhD FRSA FDRS RPHEA is Professor of Aesthetics, Reader in Visual Communication, and Associate Dean Research for the Creative and Cultural Industries at the University of Hertfordshire [UH], UK. He has degrees in both Fine Art and Philosophy, and was Senior Research Fellow in Philosophy at the University of Bergen in 1994. He was elected as Fellow of the Royal Society of Arts in 1989 and Fellow of the Design Research Society in 2006. In 2006/7 he will be <<http://www.akad.se>>Guest Professor in Practice-based Research in Architecture and Design at the Universities of Lund, Göteborg and Stockholm, at the invitation of the Swedish Research Council.*

*Malcolm Ferris MA RCA is Research Fellow and co-ordinator of CREAC in the School of Art and Design at the University of Hertfordshire UK. He is also an examiner to the theory elements of the fine art course at Kingston University. Originally trained as a designer, he also holds an honours degree in history from York, and has held senior positions both in Higher Education and in professional life outside the academy. His practice traverses both the fine art and design fields across which he has worked as practitioner, producer-director, curator and theorist. This comprehensive background enables him to engage across a range of related arts disciplines and the critical issues touching upon these and cognate areas. It also underpins his current activities which are divided between his 0.5 research position within the School of Art and Design and his work as an independent researcher-curator.*

In this paper, we investigate the problem of the nature, role and purpose of the research exhibition. The problem arises from the desire of practitioner-researchers to use the exhibition as a research tool. However, at present it is not clear whether, and in which way, the research exhibition is different from an ordinary exhibition, nor what its particular contribution to research might be.

We investigate the problem of the research exhibition in relation to the conventional art/design exhibition as a familiar medium of communication in art & design. We compare the aims of research and practice, and we analyse how the aims of practice are served and communicated by the exhibition. We then conjecture how the research exhibition might serve to advance and communicate research, and on its potential form and purpose, by differentiating it from the art/design exhibition and its purpose.

The outcome of the research is a set of criteria with which to identify and differentiate the research exhibition from a conventional exhibition. We conclude that the research exhibition can be used both as a research tool and as a means of communication of research.

### **Keywords**

Research exhibition, research methods, knowledge, communication, artefacts.

0121

**SOUND DESIGN EDUCATION FOR INTERACTIVE MEDIA:  
DISCUSSING THE LEARNING CRITERIA FOR THE USE OF FUNCTIONAL SOUND IN INTERACTIVE  
MEDIA DESIGN**

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*Born in 1980, Asim Evren Yantaç has been graduated from the Interactive Media Design Program of Yildiz Technical University. After working as an art director in the Pars McCann Erickson Add Agency for 1 and a half years, he started to work as a research assistant for the Interactive Media Design Program while attending the MA program of the same faculty. Graduating from the MA program in 2006, he started his PhD degree in the Interactive Media Design Program. During the MA, he wrote an article titled "THE EFFECTS OF SOUND-IMAGE RELATIONSHIP WITHIN SOUND EDUCATION FOR INTERACTIVE MEDIA DESIGN" which has been published in the journal called Digital Creativity.*

When considering interface design for interactive systems, too often visual solutions are insufficient as the sole means of conveying a message to the user. This situation states puts forth the importance of sound design in interactive media design education and the fact that the students getting this education should be directed towards interactivity aimed sound design. For this study, we examined projects and related sound designs of the students who take the Sound Design course in the Interactive Media Design Program of Yildiz Technical University and the effects of the way sound-image relationship has been studied. In respect to the findings that have been brought up through research, this article reveals the criteria for students to produce projects with more creative and functional solutions regarding sound. The article puts forth a comprehensive sound course criteria into consideration, which was evaluated through out a three step performance study.

**Keywords:** interactive media, design education, sound and image, creativity with sound

0122

## Contemporary Design in China: The Road to Modernity and Commercialization

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*Wendy Siuyi Wong teaches in the Department of Design, Faculty of Fine Arts at York University. Dr. Wong is the author of Hong Kong Comics: A History of Manhua (2002) published by Princeton Architectural Press. She has published 4 books for Chinese readers funded by the Hong Kong Arts Development Council. Her articles appeared in Design Issues, Journal of Design History, Journal of Popular Culture, International Journal of Comic Art, Journal of Gender Studies, Mass Communication and Society, and Graphis Magazine. She served as a visiting scholar at Harvard University from 1999 to 2000, and was the 2000 Lubalin Curatorial Fellow at the Cooper Union School of Art, where she curated an exhibit entitled "Chinese Graphic Design towards the International Sphere." She has taught both traditional creative print and digital interactive media full-time since 1997, in the United States and Hong Kong before she moved to Canada.*

"China's rising! The sleeping dragon is waking up!" It is common to see these kinds of headlines in the Western media about the recent development of People's Republic of China. In the foreseeable future, China is expected to become one of the world's biggest economic players. There is growing interest in the West about China's economic boom. The government, private sector and individuals have been revisiting "design" (or Sheji in Chinese), and beginning to recognize its importance from product positioning to marketing promotion, rather than an evil ideology for Communism. This paper addresses the development of modern design and design education in China from a historical perspective with a focus on the interactions between tradition, modernity and commercialization. It reviews the formative years of modern design education development during the Republican period (1911-1945) and the most recent rapid expansion following three decades of isolation from the outside world beginning in 1979. The author exams the statement of modern design, a new modern medium, combined with a touch of arts and crafts, technology and marketing, is considered a Western import in contemporary China. This study investigates the cultural issues of design in a non-Western context with the aims at providing a contribution to the understanding of cross-cultural design and world design history.

Keywords: China, Cross-cultural design, Culture and design, Design history, Design and development

0126

## Worldviews for Design Theory

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*Dr. Galle was trained as an architect, but earned his PhD in Computer Science. He is now teaching design theory at Danmarks Designskole under the Centre for Design Research in Copenhagen. His research interests were originally in computer-support for architectural design, then moved towards human design reasoning and design knowledge, and are now focussed on the philosophy of design and foundational issues of design theory.*

I suspect that the growing 'body' of design theory may be infected by more inconsistency than is justifiable by genuine disagreement among design researchers. Taking my clue from Peirce, who argued that theory inevitably rests on basic metaphysical assumptions that theorists ought to be critically aware of, I demonstrate how 'insidious inconsistency' may infect design theory if we ignore this admonition. As a possible remedy, I propose a method by which the philosophy of design may develop sound metaphysical foundations ('worldviews') for design theory – and obtain philosophical insights into design as a valuable side effect.

**Keywords:** Design theory and research, philosophy of design, metatheory.

0127

**A Study of Design Creativity in Concept Synthesis -Role of action concepts in design creative process**

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Although it has been reported that concept synthesis is relevant to creativity, studies of concept synthesis in design creativity are infrequent. In this study, we focused on the number of associative concepts and the role of action concept associations in order to analyze the effects of thematic relationships between concepts during the

creative design process. To elucidate the mechanism of the thinking process in creative design, a series of experiments were carried out. Design tasks were selected as two different kinds of concept synthesis with a high or a low number of associations. Ten design concepts by five subjects were evaluated by nine evaluators from two angles: sense and originality. Protocol analysis was adopted to analyze how designers think and connect to other concepts during the design process. Nouns, adjectives, and verbs were extracted from the protocols of each subject and divided into seven categories of associative concepts. All subjects except one subject showed higher creativity in task B, which had a high number of associations, than in task A, with a low number of associations.

Given this, associating many action concepts that act to connect concepts in thematic relationships leads to design creativity.

Keywords: creative processes and design, creativity, design theory, design thinking

0128

## Victor Palla's early works - the act of drawing as a multivalence realm

joao palla e carmo

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*Victor Palla is best known for his photographs especially the book with Costa Martins "Lisboa, cidade triste e alegre"<sup>3</sup> published in 1959, however his production ranges a wide number of activities, being simultaneous an architect, painter, book designer and producer, writer, ceramist and a draughtsman. He attended the School of Architecture in Lisbon (1939-1943) where academic teaching was based on the Paris "Beaux Arts". In 1944 with several other students he moves to the School of Porto, where the personality of Carlos Ramos professor and architect would change the course of teaching Modern Architecture in Portugal. In Porto due to his acquaintance with other students, architects and writers participates in the "Independents" exhibition, which consisted more as a Manifesto proclaiming new values of reality, of representation arguing that "We are against Canons". This postulate acquired new strength in the year after, in 1945 with the end of World War II, which created in Portugal the hope of dictatorship's fall. Huge celebrations were held, freedom and liberation was momentary felt, but the regime lasted for more 34 years.*

*After 1944 Victor Palla designs a considerable number of book covers for different Book Publishers, whose writers were most of them inserted into the "neo-realism" movement.*

*The influence of the social realism theory found doctrine in a new proletarian literature of social criticism with Maximo Gorki and Jdanov in Russia, and also in the Italian and Brazilian influences. The social realism novel stimulated the organisms of narrative representation being inspired in the Marxist Consciousness and being formulated in social conflicts, putting into scene peasants, workers and landlords. Portuguese Consciousness of reality problems was first tackled in the 30's through disperse magazines, and it was only between 1941 and 1944 with the ten volume of Novo Cancioneiro (poetry collection) that social realism, also named as neo-realism has found its own expression in Portugal. The will of renovation escorts the artists to a new expression influenced by artists such as Orozco, Portinari, Picasso or Braque. Victor Palla has found a new possibility of expressing this new epoch, and contributing to its new visual formation by illustrating several books belonging to this literary movement, allied to ideas from varied authors and with numerous influences. Victor Palla has produced an enormous volume of work on book-covers from 1944 to 1960, determining definitively an important aspect for the visual culture of that time.*

*Back in Lisbon by 1947, Victor Palla had settled an Architecture Studio with Arch. Bento de Almeida that lasted 25 years, being his main professional activity. Simultaneously he kept on painting, drawing or photographing, participating in exhibitions, book editions and many artistic activities where, overall, experimenting through different methods of expression, would characterize Victor Palla's personality.*

This paper observes the artwork derived from drawings of Victor Palla (1922-2006), a multivalent personality; architect, painter, designer, writer and photographer, not yet fully studied, explaining that his works are concurrent to the thrive on the spirit of rebellion that emerged in Portugal at the end of II World War. This paper being a case study on Victor Palla's early works (1945-1954) aims at promoting analysis on relationship between the act of drawing and different disciplines that Victor Palla has exercised.

This paper looks at hand-drawn sketches and to the final works respectively trying to understand its interest being the basis of a multipurpose work to the extent that this is possible, given the scarcity of literature on the subject.

The contribution of this working paper is of two kinds; one is to develop the work and interest about this important author, second is to analyse the importance of drawing on a global view of author's different artistic activities. Our exploratory analyses will help hopefully to reveal additional information of author's work, and demonstrate Victor Palla's contribution to the construction of the Portuguese Visual Culture. These elements making part of our cultural heritage will presuppose the construction (study / interpretation) and preservation of an identity.

Keywords: hand-drawn sketches; design/artistic process; multivalency; visual culture

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<sup>3</sup> See Martin Parr, *The Photobook: A History* (2004)

0130

Pride and Prejudice.

Adaptive Educational Designs: Computers as Individual Learning Prostheses

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*Anne Lise Wullum is a Ph.D Candidate at the Department of Media and Communication, University of Oslo, Norway. Her research project explores a cross disciplinary approach to computer supported and blended learning designs, comprising case developments of local design practices, and ethnographical and analytical work on existing learning designs in online learning systems. The project investigates the issue of media literacy and emerging net culture and online media experiences as constituent parts of apt learning designs involving new digital media. The relationship between tacit and formal learning is also discussed.*

*Wullum is a former Fulbright Fellow and holds a Master's degree in Educational Technology Leadership. She has worked several years as e-learning consultant and has also done research work on net.art and worked as net.art curator for the Museum of Contemporary Art in Norway. Her current Ph.D thesis is due in spring 2009.*

The masonry of current learning content management systems and their role as future drivers of both design and experiences of learning practices in higher education should be thoroughly scrutinized. The manufacturing of learning designs for managerial effectiveness and functionality, followed by the ongoing standardization process of current educational uses and practices, represents a rather paradoxical parallel to current learning theories and educational programs with a strong and often competitive focus on individualized, flexible and learner centered educational designs. In order to bridge the difficult gap between learner expectations and experiences from computer assisted learning designs these trends need to intersect. Even with the best of intentions, in many cases, they do not. The potential constraints on learning design and learning posed by the fact that these trends remain parallel have so far not been thoroughly examined. While a teacher is trained at meeting an array of individual learning abilities, technology designed as facilitators in educational processes, may introduce new and often less visible barriers. Students' experiences constantly will – and should – challenge design optimization for computer assisted learning. There seems to be unwillingness, or, possibly, an inability, to consider students' prior and often superior media experiences as constituent parts of such learning designs. If individual skills and expectations are ignored, pride and prejudice may trigger, with detrimental effects on the learning process. The difficulty in embracing and transferring this rather elusive knowledge into apt and sustainable design practices for learning is obvious. Rather than focusing on learning design primarily as a tool kit or a set of guidelines put into a (computer) learning system, we may need to relocate design to the heart of learning contexts and practices – i.e. in interactive and reciprocal processes between the learners and the learned – with computers as individual learning prostheses. This calls for a more experience-enabling learning design allowing a seamless integration with multiple contexts and learning needs. The present research project discusses the pitfalls and gains from local design experiments and implementations of learning applications within the framework of media pedagogy, participatory design and experience centric design as possible approaches to balance the need for sustainability, reflexivity and flexibility in computer assisted learning.

Keywords: case study; complexity of design activity; design and digital media; design of learning with ICT; participatory design; social computing; technology and instruction: potential and problems

0131

## Product Attraction & Sustainability

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*Josiena Gotzsch is associate professor in the Department of Technology Management at Grenoble Ecole de Management (GEM) and Program Director at the Grenoble Graduate School of Business (GGSB) for the International Undergraduate Program in France. She obtained a Doctorate of Business Administration (DBA) at Henley Management College, UK and a Master of Science (MSc) in Industrial Design Engineering from Delft University of Technology, the Netherlands. She teaches industrial design, product development process, innovation and technology management. Research interests include product innovation, product attachment, product communication (aesthetics and symbolic value), design management and environmental aspects in product development.*

**Aims:** This study investigates the relation between key factors of product attraction and environmental-friendly aspects in a product's design. Environmental issues are an opportunity for innovation that can increase product appeal.

**Scope:** This article explores in the first place, both sustainability and product attraction and then the interaction between product attraction and sustainability. It examines 1) how sustainability contributes to product attraction and 2) how product attraction contributes to product sustainability. As a result the key factors for product attraction, including the environmental aspects are represented in a model. This model allows comparing key attraction points in a product's design with those of competing products.

**Conclusions:** The conclusions are twofold. Environmental aspects are an integrative part of a product's design that can contribute to product attraction. There is also evidence that an environment approach in the product development process can result in a radical different product concept and that a creative and simple use of a Life Cycle Analysis can be effective to search for new product concepts.

**Keywords:** product attraction, industrial design; management of innovation, design and NPD; design and sustainability

0133

## A preliminary study of learnable pictogram languages

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*I am doing pictogram language research now. My article suggests that non-phonetic pictogram languages are learnable with examples, like: Blissymbolics, Picture Communication Symbols, the Elephant's Memory, and ASCII. The article also discusses how they could be analyzed and compared. On the other hand, in order to realize the limitations and potential of the individual pictograms and structure, the another approach is to obtain feedback from users*

Pictogram languages that are based on a non-phonetic idea were the earliest symbols such as Cuneiform and Chinese in oracle-bone (Rogers, 20005). In the other words, pictogram languages have existed ever since the Egyptian hieroglyphs around 3000BC and Chinese Oracle-bone scripts from about 1400 to 1200 BC (Robinson, 1995). The two writing systems are composed of pictograms, and most parts of them are also based on non-phonetics. Users of hieroglyphs and Chinese Oracle-bone scripts had to learn the symbols which resembled the meanings and natural object they represented.

This article suggests that non-phonetic pictogram languages are learnable with examples, like: Blissymbolics, Picture Communication Symbols, the Elephant's Memory, and ASCII. The article also discusses how they could be analyzed and compared.

My research has shown that Blissymbolics and Picture Communication Symbols are more popular with disabled patients, partially because they use a linear structure. I would like to compare these two with the Elephant's Memory, which employs a non-linear structure that can result in several meanings. ASCII pictograms are far more flexible and can offer the more user feedback ideas.

**Key words:** pictogram languages, Blissymbolics, Picture Communication Symbols (PCS), the Elephant's Memory, ASCII

0135

If knowledge is contextual...

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*Mr Östman is a Finnish architect with a PhD from the School of Architecture in Stockholm. The title of his dissertation was 'A Pragmatist Theory of Design'. He is currently teaching building design at the Swedish Polytechnic in Finland. His research interest is in design epistemology, design processes and pragmatist philosophy.*

There is a distinction between knowledge and information, where the former is seen as something carried only by humans. Today the outcome of research is increasingly seen as tied to a contextual setting. The focus is shifting from a search for valid truths to productive knowledge. This shift towards a contextual understanding offers a possibility but also asks for an improved understanding of values against which we can evaluate research finding. This shift is especially appropriate in design research with its inherent dependence on tacit knowing and intuitive reasoning. The conclusion here is that we need to focus on our traditions of evaluating scientific research results and sort out useful distinctions.

Keywords: epistemology relative to design, theory of design, design knowledge & context of use

0138

Towards a definition of *Kansei*

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*P. Levy was born in 1977. He graduated from Compiegne University of Technology, France with a Master Degree in Mechanical Engineering in 2001. He obtained a PhD in Kansei Science at the University of Tsukuba, Japan in 2006*

This paper introduces a new research aiming at defining the term *Kansei* using western philosophical concepts. In the literature, all definitions of the term *Kansei* are imprecise, even incorrect in most of the case. This is mainly due to the fact that *Kansei* is a Japanese term, which does not have direct translation in any western language. However, a deeper research has to be pursued to bring the research in *Kansei*, in *Kansei* Information, in *Kansei* Science, and so forth to an international level. This objective requires many research fields to meet in an interdisciplinary research environment following the example of previous works done in other fields, but also trying to link Japanese and Westerns concepts. This paper is an invitation for interested people to contact the research team.

**Keywords:** Analysis of the Human behaviour interaction; *Kansei*; Design research; Philosophy and theory of design; Culture;

0139

## Beyond Aesthetics, Developing The Designer's Influence For New Product Development

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*In his present role as an Innovation Consultant, Nicky has been involved in product development of some of the latest innovations emanating from Royal Philips Electronics. Previously an industrial designer and later a design strategist at one of Singapore's largest design consultancy, he has delved extensively into visioning and scenario planning for new product creation. Nicky currently also serves as a teaching assistant in the National University of Singapore.*

The aim of this paper is to explore and define how a designer, who is already trained and equipped with the abilities to 'user-centred design' for the user'; can structure his/her empathic observations and findings to support the strategic planning of the business. Armed with the framework and considerations of the business model, the designer will be able to contribute to the entire product development cycle from (product planning or strategic planning) idea generation till market launch (point of sale) of the product. This reinforces and builds the influence of the designer on a business in terms of carrying a product through from idea to marketing.

The framework is based on 3 areas: (1) Outside-In, covering consumer insights and empathy research, (2) Inside-Out, translating the insights into distinctive propositions, (3) Brand positioning, delivery to consumers. Guidelines for the framework will be provided and the respective functional departments involved within the framework will be identified. The roles of the designer in each area will also be explained.

Based on the framework, workshops will be conducted with the designer as a key facilitator to generate new product ideas that will hopefully bear more relevance to the business. The workshops outcome will be used as guidance to the parameters of the framework, that the designer is able to add value to a business.

**Keywords:** Design and branding; New product development; Strategic design planning; Management of innovation; Empathy

0141

## Laser Forming for Designed Metalwork Practice

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Sarah Silve completed a degree in Metalwork and Jewellery at Buckinghamshire Chilterns University College (BCUC) in 1995. She went on to work as a jeweller for an independent retailer. In 1997, Sarah was invited to join The Laser Group at The University of Liverpool, where she embarked on a collaborative project (with BCUC) to find the potential of laser forming for creative metalwork. After completing her PhD in 2001, Sarah joined Brunel University where she set up a laser facility for continuing her research into laser forming. If you would like to see examples of laser forming visit <http://www.laserforming.ukhe.com>

Laser forming is a rapid-prototyping technique that directly shapes metal sheet, tubes and spinings. The process involves the work piece being moved beneath a laser beam; this is typically automated via CNC or a CAD/CAM system. Laser forming is a thermo-mechanical process whereby the localised laser heat input induces compressive stresses within the material causing it to bend. There are three bending mechanisms; the process is capable of bending material in either direction and can also shorten metal through its thickness to create shapes through a loss of surface area. Laser bending has undergone research worldwide for 25 years, with prospective applications in the aerospace and electronics industries. Two-dimensional bending is well understood, however the essence of three-dimensional laser forming is the intrinsic link between the laser path and resulting form. This paper presents the findings of experimental research into the potential of laser forming for creating designed metalwork objects. It explores the effects of path geometries on the resulting form and puts forward methods for working with the process. On concluding that the technique is suitable for one-offs, a reflective discussion takes place with regard to the suitability for batch production, use of materials, and the integration with current craft practice.

Keywords:

Design and innovation processes; form generation; interdisciplinary; technologies and processes of construction; crafts.

0142

## Privacy By Design

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*Christena Nippert-Eng is Associate Professor of Sociology at the Illinois Institute of Technology. She works closely with design and architecture students throughout the world, but especially in the U.S. and Italy. As a research consultant, Professor Nippert-Eng's clients include Motorola, Hewlett-Packard, Hilton, Gillette, and Steelcase among others. Her current research focuses on the ways people in the U.S. conceive of privacy and how they go about getting it.*

In the United States, "privacy" largely centers on the degree to which an individual feels in control of the accessibility of whatever she or he feels is "private." In this paper I explore this conceptualization of privacy, drawing on the work of U.S. scholars as well as 74 mostly middle and upper-middle class individuals who were interviewed during a formal study of privacy from June 2001-December 2002. I examine the ways in which participants try to achieve privacy as they pursue the principle of "selective disclosure and concealment." I suggest that the affordance of such selectivity may be a key element for objects, environments, services, and technological systems designed for the U.S., and that all designers might generally benefit from reflection on the privacy implications of their work products, regardless of location or user population.

Keywords: culture and design, social contexts, qualitative user research, sociology

0143

**Lacescapes – incorporating repetition and delicacy in architectural fabrications**

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The paper proposes lacemaking as a strategy to be incorporated in architectural thinking and design. It looks at the three different modes of repetition that it encapsulates (patterning, recurrence, overlaying), relating them to other visual art practices – film, fashion and fine art specially. By integrating repetition and delicacy in its own mode of writing, Lacescapes aims not only to claim for but also to enact a poetics of spatial lacemaking – one that would potentially originate soft and delicate architectural constructs.

Keywords:

architectural design & practice

artefact/textiles

feminism and design

interdisciplinarity

visual design research methods

0144

## Drawing in the project: image and object

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*Graça Magalhães is Assistant Professor in the Department of Communication and Art of the University of Aveiro and Ph.D. student in Design with a thesis named *A frágil totalidade: o que significa para o design o desenho?* (The fragile totality: what does mean drawing to design?). She participated in national and international congresses and academic publications about drawing and image. She works as artist in Portugal and other countries.*

*She got degree in Art – Painting from ESBAP, University of Oporto. From 1987 to 1990 she got a scholarship of the Portugal Ministry of Foreign Affairs and Fundação Calouste Gulbenkian to study History and Conservation of Art in Rome and Florence (Italy). From 1990 to 1993 she got a scholarship to the Monbusho (Ministry of Education of Japan) to get her M.A. in Drawing (Lithography) at the Tama Art University, Tokyo (Japan). From 1993 to 2000 she worked for the Catholic University of Oporto in the installation's project of the School of Arts.*

This text occurs from the interpretation in progress about the relationships between design and drawing. We intend to contribute to the study of the configuration of the object of design through the symbolic image implicit in the drawing and of the drawing allowing for the appearance of the *object-thing* that reveals itself. After having analysed the relationship between design and drawing in text *Design through Drawing* (Pombo and Magalhães, 2005, 61-72) through the classification of design as a result of the triangulation *author-programme-technology* and drawing as the interpreter of the concept *representation-classification-imagination*, we shall analyse the implication of drawing in the project as representation of the idea in the configuration of the object of design. We shall consider the representation through image and the object as reference of the lacanian «thing» (the non represented), searching for the formal differentiation between the *image-representation* and the *object-thing* and its relationship in within the subject of design. The structure of argumentation derives from the previous text and is now amplified through two issues:

\_the first: the implied representation of the concept in the project in design;

\_the second, in the way the concept manifests itself in the configuration of the *object-thing*.

The study of the relationships between design and drawing is important to the research in design, considering that drawing is a qualification intermediate of the projectual development. The argumentation will be supported by the authors present in the bibliography.

Keywords

design, drawing, representation, image, *object-thing*, configuration, symbolic.

0145

The conscience of sustainability in the Brazilian contemporary design. The sustainable design is realized in the São Paulo city at Florescer and Aldeia do Futuro NGO's.

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The research reports the partnership between the designer who is not apart from his responsibility as a cultural agent and the NGOs Florescer and Aldeia do Futuro of São Paulo city, Brazil; they challenge the problem of sustainable environment and develop designs from jeans and wood residues; the designer contributes with the methodology of the project and the community with its aircrafts techniques. Together they draw up a plan by using concepts of sustainable design creating employment and income, stimulating the economy and regional culture, preserving the environment and collaborating to change the present scenery.

Key words: crafts and design for development, design and sustainability, design and the environment; design development based on local cultures/heritage, eco design;\_education; glocal

0146

wander\_woman\_wonder: sexual difference in urban design

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*Sophie Nichol Sauvé is currently pursuing a PhD in Architecture at the Edinburgh College of Art, Scotland. Her research area focuses on women and urban spatial design. This interest continues from concepts explored during her (Master's) practicum entitled '[de]constructing gender[ed] outdoor public space', which focused on the experience of the urban landscape by women.*

This working paper seeks to expose two meditations on sexual difference in design, based on preliminary philosophical inquiries. The first meditation, on binary opposition, relates the use of dichotomies within language, and also within the language of design that uphold a construct perpetuating a hierarchy and a status quo, where women are not fully included in neither the process nor the outcome. The second meditation is a suggestion of ways in which issues such as binary opposition can begin to be mediated on common ground, here termed 'third space', where a sharing between different subjects can occur. "The language system, or system of languages, doubled or accompanied by epistemological formalism and formal logic, takes from women and excludes them from the threshold of living in the world. Bars women from the to-and-fro of words, from the traversal of words that would allow them both to get out of and to return to their own homes To (sic) "take off" from their bodies, give themselves a territory, an environment, and invite the other to some possible share or passage." (Irigaray, 2004/1984) This exploration is part of the foundation of research aimed at making urban spaces inclusive to all.

Keywords: feminism and design, philosophy, practice, language, inclusive design

0147

## Capturing The Change: Discussing The Role Of The Cultural Point Of The Turkish User In Interface Design Solutions

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**Abstract.** Turkey, under the influence of liberalization and globalization in the world, has been undergoing a very rapid social change since the 1980s. In recent years, the traditional Turkish socio-cultural context, characterized as a traditional-collectivist, has been transformed to universalistic-individualist values. Considering this change, the article firstly discuss the intercultural communication theories and try to synthesize theoretical approach for Turkish society in interface design perspective. It also brings forward the details of ongoing research studies of the authors in the field of Human Computer Interaction (HCI) and try to define the future plan.

**Keywords.** cultural analysis of design, local design, Turkish society, values

0149

## Phd Research in Design Driven Processes for the Valorisation of Cultural Heritage

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*Eleonora Lupo works as designer in Milano. Born in Siracusa in 1976, she graduated in Industrial Design at Politecnico, Milano, in 2001. After the degree she collaborated in the Studio di Architettura d'interni G. Grattini in Milano and with a two years grant as researcher in industrial design and didactics of design, was coordinator of the Teachers and Professors tutoring Office of the Design Faculty, Politecnico Milano, organising courses and lectures programs. She took a specialisation in Multimedia Design in 2003 and a Master in Sculpture and jewellery in 2004. She is now attending her phd in Industrial design with a research focused on Design for cultural heritage and innovation processes in cultural goods fruition. She is also tutor in some courses of Design Faculty and is involved in many public researches, like the two year project "Design for the valorisation of Cultural Heritage", promoted by Politecnico of Milano and financed by the Italian High Education Ministry.*

In this working paper is presented part of the work developed during two years of doctoral research at the Politecnico of Milano. The focus of the research is the definition of the role and the competences of design in the valorisation of Cultural Heritage, in order to produce a model of processes of valorisation design driven. Design owns traditional and explicit competences related to the exploitation of the cultural patrimony as exhibition design and light design, but in the contemporary cultural system, corresponding to a more complex concept of Cultural Heritage, design developed a more strategic approach, focusing on the management of the experience of cultural goods, providing the necessary tools, infrastructures and services to improve culture fruition by people and preserving the cultural diversity as a competitive value for a sustainable local development in the global market (Trimarchi, 2005, Semprini, 2005).

In this research, Cultural Heritage, as *relational good* (Scitovsky, 1976), is considered a contemporary "*locus*" for the design of processes of innovation. The actions of creation and enhancing of cultural value are represented in a conceptual and flexible model of processes of relations among the context and the other cultural resources which generate it and the people who experiences it. Design can play a strategic role and specific tasks in each phase of these relations.

### **Keywords**

Doctoral education

Design and cultural heritage

Design processes

Design methods

Visual model

0150

## Computer Aided Concept Design by Image Morphing

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We develop a computer-aided concept design system, called *ConceptMorph*, which allows designers to rapidly explore a large number of product shapes, based on a novel image morphing technique. Using the system, new product shapes can be generated from either free-hand sketches, or synthesized from existing products that are successful in conveying the desired messages. The designer first identifies a set of characteristic lines that capture the essence of the product shapes. To create totally new shapes, the designer draws free-hand rough sketches and then uses *ConceptMorph* to quickly obtain photorealistic renderings. To synthesize shapes from existing products, a designer locates corresponding characteristic lines for each of the product images, and then uses *ConceptMorph* to compute the weighted average of the product images. At the feature level, the designer can easily add, remove, or replace features on product images, to obtain design variations. In addition to simply using features from existing products, the designer can hand-adjust features of a product while the system maintains the relationship between the feature and the rest of the product shape.

It is hoped that the proposed system with shape morphing, feature composition, and free-hand sketching abilities can serve as the first step toward the development of tools for the early conceptual stages in product design.

Keywords: Computer Aided Design, Methods and Tools for Concept Development, Image Morphing

0152

## Exemplary Design Research

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Many design programmes are currently under-going radical transformations as they move towards university status. Research and research-based education becomes part of the everyday of the design school. Also in design studios and design consultancies, design research is frequently heard of as a new venue of activity. But what is design research and how does it relate to design and to the more proven knowledge production of the sciences and humanities? In this paper we will suggest some answers to these questions. In particular, we will look at what role a research program and an interventionist research strategy based on design experiments may play for the advancement of knowledge relevant to design and designers. With the notion of "exemplary design research driven by programs, experiments and interventions", we refer to research based on the explicit formulation of design programs that act as a frame and foundation for carrying out series of design experiments and interventions. It is 'exemplary' in the sense that it enables critical dissemination primarily by creating examples of *what* could be done and *how*, i.e. examples that both express the possibilities of the design program as well as more general suggestions about a (change to) design practice.

Keywords: design research methods, design research models, experimental design & art, interdisciplinarity, participatory design research

0154

## Interaction design and design management: Challenges for industrial interaction design in software and system development

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*Stefan Holmlid is assistant professor in interaction and service design at Linköpings universitet, where he manages a research and teacher group focusing on several aspects of interaction and service design. He has pioneered a research approach within user-centred design, where the business development and acquisition processes has been the main target of study.*

Design management systems have been developed and researched for traditional product and service industries. For interaction design little research has been performed on design management. The objective of this paper is to describe aspects of and provisions for industrial interaction design that influence approaches to design management within system and software development. We discuss whether there are specific conditions for design management of interaction design within the software and system development industries. The research is based on three short case studies from industrial software development. We identify some of these specific conditions; the difference between a usage and a product perspective, the design tools and practices, and the modularized and distributed processes. These issues point towards challenges facing design management within the software and system development context, as well as the need for interaction design to clarify its position as a strategic resource in software companies. The conclusions point towards the need for continued research on strategic possibilities and alternatives to organize and manage design work in software and system development.

Keywords: interaction design, design management, strategic design, industrial software development, user-centred design.

0156

## An Introduction to the Libidinal Economy of Design: Desire, Objects and the Subject

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*After graduating from Istanbul Technical University (ITU) department of Industrial Design in 2003, he has worked as an industrial designer in Arcelik AS, which is a white and consumer goods manufacturer in Turkey. After 2.5 years of industrial design experienced, he returned to ITU and become a research assistant where he is still working and doing his master's degree. He is currently working on professional ideology, discourse and the relations between design and desire.*

In Lacanian psychoanalysis theory, the self is constructed around a fundamental psychological emptiness. The life of an individual is a search for the ultimate object that will fill this void. In the process of becoming a subject, a person encounters many objects that promise to fill the primal void that is the locus of our beings. However, none of these objects has the power to satisfy the ultimate desire to fill this void. In a sense, the self is formed around this act of negative desire.

Capitalism's primary offer for filling this void is commodities. In capitalist societies, artefacts play a crucial role in the process of the construction of the self. In this context, the system has utilized design disciplines for manipulating human desires. By creating objects of desire which are full of false promises, design helps the power relations and repression penetrate our daily living in every level.

Design discourse claims that one of the ultimate purposes of design is to make our planet a better place for all living things. If this claim is really true, the relations that have been established between design and capitalism, within the context of the above mentioned libidinal economy, has to be analysed and problematized. This paper aims to make an open-ended introduction for such an analysis.

Keywords: consumption; critical thinking; design criticism; philosophy; desire

0158

Mediating hybrid design: a study of the projection of automotive innovation on the Web

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**Abstract file could not be processed**

0160

How can stories get translated into future artefacts?

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This paper discusses a workshop method suitable for use in projects with a participatory design approach. Participatory design is sometimes criticised for focussing too much on what users say. The method described here takes that into account by having users not only talk, but also do acting and make lo-fi prototypes. The method has been used in several different projects. The structure of the workshops is designed to enable the participants to express themselves by *saying, doing* and *making*. People express different aspects through different channels and by enabling people to express themselves not only by *talking* but also by *acting* and *constructing artefacts* we create a richer understanding of their needs and desires as well as their context and situation. The method often gives 'good' results that are foundations for further design work.

Keywords: design process, human centered design, methods & tools for idea generation, participatory design, workshops (for generating understanding of the design space),

0161

## DESIGN WITH MATERIALIZATION METHODOLOGIES

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Today, adherence to the truth of a material is no longer an absolute for design. New technologies and design methodologies are being used to customize, extend, and modify the physical properties of materials, and to invent new ones endowed with the power of change. The new, mutable character of materials, as expressive as it is functional, has generated new forms as well as more experimental approach toward design.

This paper discusses how an innovative design methodology that encourages designers' involvement with properties and fabrication processes of common materials creates new understandings of surface and of materiality in general. This discussion is based on an examination of student works at an experimental design course, with the second years of students in 2004-2005, namely the Materials in Design.

The aim of the course was to enable students involve in materials' properties through the materialization technologies, and thus, to improve students' skills of understanding and representing materials, methods and technologies as semantics of design. This aim stands out as a reaction against the contemporary representations that are depended on the abundance of virtual design technologies. In this course, we encouraged students working with commonly used materials such as thin plexiglass, polymer films, rubber, sponge, glass, electric cable and metals.

KEYWORDS: Art and design education, artefacts, design and material; design methodology; material thinking.

0162

## An Epistemological Interpretation of Design Methods and Learning Practices in Japanese Product Development

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The paper provides an epistemological interpretation of design methods and learning practices of product designers, engineers, and managers in Japanese product development organizations. Recent practices in product development as developed, or adapted, by Japanese companies are outlined, together with a description of the concomitant business strategies. An epistemological interpretation of the reviewed practices is provided by the use of a theoretical framework of the Japanese epistemological tradition towards questions regarding the origin and nature of knowledge. The major epistemological tenets of design practices in Japanese product development are found to include: (i) experiential learning, (ii) the primacy of tacit knowledge, (iii) organizational knowledge creation, and (iv) context-inducing mechanisms.

Keywords: philosophy of design, design methodology, learning, new product development, Japan

0163

## Circularity, Power and the Technologies of Seeing: Panopticism and its Antithesis as Spatial Archetypes of Visual Contraception in Space

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The evolution of post-structuralism as the intellectual paradigm of the second half of the Twentieth Century was accompanied by a simultaneous critical discourse concerned with the relationship between space and power. Central to this discourse is the work of the French intellectual Michel Foucault, whose analyses of the disciplinary societies of the Nineteenth Century established the multivalent tactics of power and its affiliations with architectural space. Through his examinations of hospitals, mental asylums, prisons and educational institutions Foucault demonstrated the way that space co-operated with authoritarian principles to turn communities into individuals and subsequently those individuals into subjects. Foucault termed these "dividing practices" and considered them a central premise of western society since the Industrial Revolution. Jeremy Bentham's Eighteenth Century "Panopticon", as the model of continual and uninterrupted surveillance, was the architectural model for this tactic of spatial control.

This paper will examine the visual practices embodied in Jeremy Bentham's Panopticon, and their relationship to broader architectural principles of control. Drawing on the emerging field of "visual culture" the paper will examine the relationship between power and circularity in the spatial analyses of Foucault and demonstrate common themes that predominate the discourse of power and space. The analysis will demonstrate how "division", rather than "vision" is the underlying theme of the Panopticon and demonstrate a common spatial ancestry with other modes of spatial organization, particularly the Greek Theatre and Roman amphitheatre.

Keywords: Panopticon, Vision, Foucault, Bentham

0164

**'Kinds Of Understanding' In Design Curriculum – Application and implications of Kieran Egan's theory of education in the development of tertiary Design curriculum**

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This paper discusses the philosophy guiding curriculum design in a Multimedia Design program at tertiary level. The philosophy has developed from an alternative theory of education proposed by Kieran Egan (1997) in 'The Educated Mind' and is presented as a working concept rather than empirical data. The purpose of the paper is to share the philosophical approach with other curriculum designers, demonstrating its usefulness for the field of design. I will be presenting an overview of the relevant parts of Egan's work and demonstrating the potential of the theory for the design learning process. The work I have developed and will be presenting is not new research, but the adoption, application, and implementation of Egan's theory into an area of study for which it was not originally developed.  
Keywords: design education; creative processes and design

0165

## Teaching Interaction Design: Matters, Materials and Means

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*Peter Ljungstrand is a researcher at the Interactive Institute in Göteborg, Sweden and teaches at the post-graduate Interaction Design program at the IT-university in Göteborg. His research aims to better understand the possibilities and limitations of new technology in a context of human use, by means of practical experiments with technology. Research interests include ubiquitous computing, sensor-actuator networks, design theory, computational textiles, IT in healthcare and computer games that are submerged into the real world.*

*Olof Torgersson received his PHD in Computer Science at Chalmers University of Technology. He has since then been focusing on the design and implementation of medical information system with special attention to user-control and adaptability. Torgersson is also the head of the education in Interaction Design at the IT-University of Göteborg and Chalmers University of Technology.*

The designer works with people, with materials, with products. Designers are seen as people concerned with form, function and surface. But how often is the designer associated with technology? Still programming can be just as a creative activity as drawing. Deriving from experiences from the discipline of Interaction Design, we advocate a wider view on what a designer is and does by describing how we treat computational technology as any other design material and how we train engineering students and others into becoming designers in a technology-oriented environment. Our method to create an education in applied Interaction Design lends ideas from traditional design education, for instance open problems and exhibitions of results, but also incorporates high-fidelity prototyping and multidisciplinary projects carried out by heterogeneous groups, since this lies in the nature of the subject and the students.

Keywords interaction design education; design and development; collaborative influences on the design process; design pedagogy;

0167

## Is the Design(er) Able of Enkratic Behaviour?

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We believe designers ought to be able to perform their activity in a “good way”, assuming that their actions transform the everyday life for better; however, endorsing a close analysis to some of the consequences of the design activity, we realize that the impact of the designed is, sometimes, a negative one. Can we explain why the design activity doesn't have a consistent ethical behaviour? To answer this question, we will discuss a meta-moral philosophy of design framework – in connection to philosophy of action and moral philosophy – discussing, in this paper, the: (1) the morality of Design, and, (2) moral actions of the designer. Determining if it is possible to account a pre-responsibility on the designer, on his actions, providing a reflection on the enkratic (mastery or continence on moral actions) and therefore akratic (incontinence in moral actions) behaviours. In this sense, we will not focus our study of *akrasia* in the objects, the consequents of action of the designer, but in the process, construction of intentions, and the subsequent actions performed by the responsibility of the designer.

Keywords: philosophy of design, design ethics, design theory.

0168

## How to Develop Basic Research in Communication Design

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As a matter of competence and legitimacy, Communication design needs the grounding and knowledge that come from basic research. One of the major impediments to basic research in communication design is the lack of theoretical frames by which to apprehend and isolate valid, significant research questions and define research methods. This paper explicates these problems and proposes solutions by outlining a process of defining theory and method and by proposing a specific ontological and epistemological frame within which to conduct research in communication design.

Keywords: communication, cognition/perception, semiotics, interpretation

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*Nicole has participated in 4 Interaction Design summer schools as a student, an atelier leader and lecturer. Through academic research as well as the summer school experiences, Nicole has gained a deep perspective on collaborative learning and user-centered design practice. Nicole published several papers and contributed a chapter in a forthcoming book discussing cross-cultural collaboration in various learning and design environments.*

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*Adler has participated in 2 Interaction Design summer schools as a student and atelier leader. He contributes to the IxD group for a European Student organisation, facilitating participatory design sessions and designing interactive web systems. Through these experiences, Adler acquired knowledge in ethnography, participatory design, and the use of personas and scenarios.*

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***Joi L. Roberts***

*Joi L. Roberts holds a Bachelors degree in Electrical Engineering as well as a Master's degree in Industrial Engineering with a concentration in Human-Machine Systems. She has worked in the Telecommunications industry for over a decade, serving in a variety of roles ranging from User Interface Testing, UI Requirements Management, UI Design and UI Process Management. Currently, Joi serves as the Design Operations Manager for the Consumer Experience Design team at Motorola. In this role, she is responsible for developing the processes and tools that the design staff utilize to complete their daily work. While Joi finds cellphone development exciting, she often finds herself asking "How can we use Design to address the real human social needs of the world?" To explore these interests, Joi has participated in Convivio Interaction Design workshops as a team member, atelier leader and lecturer. As a result, "Philanthropic Design" and "Social Responsibility" have become her new favourite areas of focus with the User Experience field.*

This paper outlines the intercultural, collaborative nature of Interaction Design summer schools for PhD and Masters students, while describing the design practices and educational methods utilized in such a context. The authors' experiences as participants and facilitators in combination with data collected from a questionnaire and design patterns workshops are captured in this paper and reflected upon. In conclusion, a framework for organizing and implementing future Interaction Design academies is proposed.

0170

## ***Significances of Matter in Design (SMD) – A Portuguese Design Research Project about Sustainability, Identity and Innovation.***

*Ana Mestre*<sup>1,2 e 3</sup>, *J.C. Diehl*<sup>2</sup>

<sup>1</sup>SUSDESIGN - Design for Sustainability Studio & Research, Lisbon, Portugal, <sup>2</sup>DUT/DFS - Delft University of Technology / Design for Sustainability programme, Delft, Netherlands, <sup>3</sup>IADE / UNIDCOM - Instituto de Artes Visuais e Marketing / Unidade de Investigação de Design e Comunicação, Lisbon, Portugal

At a global level, we can observe an increasing relation between Design and the new paradigm of Sustainable Development. This combination of Design and the three pillars of Sustainable Development (Social, Environment and Economics) have laid the new conceptual base for Design for Sustainability. On an international level, Research and Development in the field of material and production technologies has led to the development of promising new sustainable materials. These materials distinguish themselves from ordinary materials by for example consuming less raw materials and energy during production, by being lightweight or by being avoiding damage during the disposal stage of the products. At a regional level the availability of traditional sustainable materials and technologies (which are until now mainly connected to arts and crafts and applied by artisans), part of the Portuguese material cultural identity, could have an important role in the development of new sustainable design solutions and new contemporary expressions of Portuguese design, based upon the reinterpretation of Cultural Significances of Matter.

Both the global and local context of materials knowledge were essential elements of the project “SMD: *Significances of Matter in Design*”, developed by: SUSDESIGN<sup>1</sup> with the financial support of IA<sup>2</sup> from the Portuguese Cultural Ministry, as well other relevant institutional partners: FBAUL<sup>3</sup>, DUT<sup>4</sup> and IADE<sup>5</sup>. The main goal of the project was the development of research and application activities in the field of materials and design, including the relation between the new global trends in Design for Sustainability and Local Cultural Heritage (artifacts and materials).

This was done by a wide range of activities, amongst others, by interacting with design students at design schools, by exploring materials characteristics and applications from traditional and new innovative materials. In addition Portuguese designers from different generations have been challenged to develop design solutions in collaboration with local artisans.

The final outcome was an international exhibition demonstrating the results of the research, student works and the design solutions developed by teams of Portuguese designers & artisans.

In this paper, the authors will present, first, the context of the project “*Significances of Matter in Design*”, the research methodology applied and finally the main activities and outcomes of the projects – the Design Projects - as well the main conclusions.

**Key – Words:** Design for Sustainability, Design with Cultural aspects, New Crafts and Design.

<sup>1</sup> SUSDESIGN, starting as a Group of Designers under the name “Association for the Dissemination of Design Culture and Sustainability”, is actually a private entity for the “Promotion of Design for Sustainability” from Ana Mestre, the conceptual founder of SMD Project and SUSDESIGN (find more at [www.susdesign.org](http://www.susdesign.org)).

<sup>2</sup> IA “Instituto das Artes” from the Portuguese Cultural Ministry ([www.iartes.pt](http://www.iartes.pt)).

<sup>3</sup> FBAUL “Faculdade de Belas Artes de Lisboa”- The host institution of SMD Exhibition ([www.fba.ul.pt](http://www.fba.ul.pt)).

<sup>4</sup> DUT “Delft University of Technology”, join the Project with the it’s “Design for Sustainability Program” from the “Faculty of Industrial Design Engennering” ([www.io.tudelft.nl](http://www.io.tudelft.nl)).

<sup>5</sup> IADE “Instituto de Artes Visuais, Design e Marketing”, join the Project with it’s “ESD - Escola Superior de Design” and “UNIDCOM – Unidade de Investigação em Design e Comunicação” ([www.iade.pt](http://www.iade.pt)).

0172

## Architecture For Tourism In Portugal: Lines Of Development

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*Madalena Cunha Matos was born in Coimbra in 1955 and graduated in Architecture in 1979 in the ESBAL, Lisbon's Fine Arts School. She completed her Ph.D. thesis 'The Cities and the Campuses. A Contribution to the Study of the Universities' Territories in Portugal' in 2000. From 1987 to 2002, she taught at the Instituto Superior Técnico. From 2001 to 2003, she taught Architectural Theory in the Architectural course at the IST. Since October 2002 she is Associate Professor at the 'Faculdade de Arquitectura' at the Technical University of Lisbon, where she is in charge of the Design Studio II of the Architectural course and of the Interior Architectural Design' course. She is presently coordinating a new Ms. Course in Architecture in the FA-UTL.*

This paper reports on a research work in progress about the development of architecture for tourism in Portugal - not the one that originates the drive to travel and see sights, cities and people, but the infrastructure put in place to accommodate these visitors. This separates in the first place the monuments, urban fabrics, symbolic buildings and art forms originated for purposes other than the specific forms of guest treatment – be it temporary housing or leisure facilities. These constitute a plethora of built forms that have not, up to now, been considered in Portugal a subject in its own right in architectural genealogy of forms. However, these buildings are a major expression of identity in the country – ranging from an idealized form of internationalism to an assertively regional appropriation of the vernacular. They are so mingled with the political stances at each moment in History that they can be read as a blueprint for the global-local relationship, focusing on one or the other – and allow a different History to be written, that will override the accepted right-left wing divide, especially in the years of the Salazar's regime. The study deals with the 20<sup>th</sup> century as the hundred years of the rise of the tourist industry in Portugal, and includes hotels, 'pousadas' and the younger generation of 'residential tourism' in refurbished manors and 'solares' throughout the country.

Keywords: Architecture, urban planning, tourism

0174

## Design Participation Tactics: Redefining User Participation in Design

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*Yanki Lee works as a research fellow at the Helen Hamlyn Research Centre at the Royal College of Art (RCA) London, focusing on inclusive design education programme in the UK context. Graduate of architecture and interiors at the School of Design of the Hong Kong Polytechnic University (HKPU) and at the RCA, Lee has a lot of internationally practical architectural design experience by working for Edge (HK) Ltd, RMJM architects Ltd and Karakusevic Carson architects, London. As a user researcher, Lee worked as a Helen Hamlyn Research Associate studying the future of live-work buildings in collaboration with the Peabody Trust in 2000-1. Lee's doctoral research (funded by the research studentship scheme of HKPU) focuses on different design tactics to involve user in environmental design process, such as participatory design and inclusive design in different cultures and design communities*

This paper started as a critical assessment of different practices of Design Participation, as first defined in the 1971 Design Participation Conference in Manchester (UK) organised by the Design Research Society (DRS). A rethought definition and typology of Design Participation was developed based on relations between the two 'worlds' of experts/designers and users/people. The realm of collaboration between the abstract space of designers and the concrete space of users is introduced. Different Design Participation practices were assessed for their appropriateness and effectiveness within past and current contexts, and in different stages and tasks within the design process. Community, Public and Design are three modes of participation, which are defined in order to understand the role of designers in the general field of participation. A detailed definition of Design Participation is made about four different types: innovation, necessities, collaboration and emancipation. Specific examples support the developing of new understanding framework of Design Participation with its complexity and its relationship with different social context. In conclusion, this paper urges the change of designers' role as experts to design facilitators who develop design tactics with people.

**Keywords:** user participation, user-designer experience, design process, participation, and social responsibility

0175

On waiting: between places of passage, flow and migrating objects

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*Ana Luz is a designer, researcher and educator.*

*She studied in Italy and Portugal, and graduated from the Faculty of Architecture, Technical University of Lisbon, where she also taught for three years as a lecturer in Design. Presently, Ana is an associate lecturer at Central Saint Martins, London, UK, where she obtained her masters degree in industrial design with the thesis 'Spatial elements: setting a place in-between for pedestrians'; and is also completing a postgraduate programme at University College London, UK in Learning and Teaching in Higher Education. She currently conducts a full-time PhD by Design at The Bartlett School of Architecture, UCL, under the supervision of Dr Yeoryia Manolopoulou and Dr. Jonathan Hill. Her current doctoral research is concerned with the relationships between the experience of place and city, everyday walking and waiting practices, transit(ional) spaces of passage and travel, street furniture design and other urban interventions.*

*Waiting is an inescapable experience within the practice of everyday life.*

*We wait – seemingly inactive, static, immobile – everywhere, everyday.*

*Waiting is one of the most unpredictable experiences, where time is perceived to pass very slowly. In contemporary speed-up societies, waiting is considered to be one of the most usual cases of "empty times", which one is forced to deal with and have no control of. By challenging the preconception of slow(ness) and also the modern mentality obsessed with speed, mobility and efficiency, this essay reflects on the tempo of everyday life, mostly on the 'negative' wasting times of boredom and delay.*

*This working paper discusses a shift from the consumerist view on the so called "waiting experience" to that of a more poetic and ambiguous sense of: 1. duration, 2. flow, and 3. urban exploration. By considering these independent but juxtaposed conceptualisations, the essay comprises three parts. Firstly, it depicts the experiences of duration and waiting practices – design context: waiting as an empty time. The second part explores the psychology's proposition of autotelic experiences as a potential design strategy – design orientation: the concept of flow. Ultimately, the third section presents the possibility of new urban typologies for places of temporary pauses and passage – design exploration: conceptions of urban artefacts.*

*As a mode to mediate this last concept of urban artefacts or "migrating objects", the paper's presentation will further examine the waiting practices and elements (i.e. objects, things and non-things) that populate [or not] the liminal scenario of places of passage and travel. A journey through several architectural design projects, art pieces, and short animations (work-in-progress research project) will be presented in between the essay textual parts and thus complete the talk.*

Keywords: from architecture to [urban] product design, of "public space" [of mobility], [urban] artefacts, [waiting] rituals in everyday life, flow [psychology]

0176

## DIGITAL GENRE DESIGN

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*Gunnar Liestøl is Associate Professor at the Department of Media and Communication, University of Oslo, Norway. He has a Magister artrium degree in General and Comparative Literature and a Dr. Philos. degree in Media Studies, both from the University of Oslo. His research has been in the field of digital media, rhetorics, and narrativity. He has considerable experience in digital media design and production as director of the award-winning hypermedia system 'Kon-Tiki Interactive' among others. He has published extensively on theoretical and practical aspects of digital media and is the co-editor of *Digital Media Revisited: Theoretical and Conceptual Innovations in Digital Domains*. The MIT Press, 2003.*

The paper reports from a project in progress on the design of digital genres. The purpose is to understand the interactions and relationships between digital genre development, design and the convergence/divergence dichotomy. The key question is: can digital genres be designed, or do we have to wait for them to develop? This raises the question of how genres actually emerge. By analysing genre development in literature it is possible to identify some of the dynamics of genre invention and innovation. In relation to these findings it is also relevant to see how some current digital 'genres' actually develop, such as audio and video podcasts. By combining design and genre with the convergence/divergence dichotomy it is possible to elaborate on the potential of genre design. If it is possible to conduct genre convergence it should also be possible to design new genres. The paper closes with the discussion of the methodological requirements for a design method for digital genre innovation.

Keywords: design methodology, design research, digital art and design, practice-based research

0177

## Interacting with iTV Services: Conventional Remote Control vs. Smart Pocket PC

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*After completing an undergraduate degree in 3-Dimensional design (specialising in design for Mechatronics and Surrealist fibreglass furniture) and an MA in Visual Culture, specialising in the relationship of post-structuralism to design practices. He completed a PhD exploring the development of strategies that established symbiotic relationships between designers and users. Recent research projects include the design of user led interactive TV services and mobile TV with partners such as Philips, France Telecom, Rye, he is also passionate about educational research and developments in design methodology. After a period teaching Graphic Design at The University of the West of England (Bristol) he now runs the BSc in Multimedia Technology and Design at Brunel University, and is Creative Director of the Universities 3D visualisation, Virtual reality and Grid Computing facility BITlab.*

Interactive TV (iTV) offers tremendous opportunities for the user, broadcasters and a wide range of design disciplines such as interaction design, motion graphics, web design, interface design to operate at the vanguard of this still evolving area of activity. Unfortunately users have very mixed feelings about many iTV services with evidence of strong loyalty to particular services but a very negative overall reaction to this emerging area. This paper seeks to address this issue and in time the difficulties of actually creating usable iTV services through placing the user at the centre of the process. This involves a user-led design approach and empirical investigation of home users, placing these concerns at the centre of an iTV service development process resulting in the creation and testing of new iTV services.

Keywords: user-led design, interaction design research, new product-service systems, Interactive TV

0180

## Design thinking - Value Innovation - Deductive Reason and the Designers Choice

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*Trained as an Industrial Designer Stuart has worked the field of Design Innovation for 20 years. He Co-founded Glenelg Product Design in 1990 and Glenelg Developments in 1998 [www.glenelgdesign.com](http://www.glenelgdesign.com)  
Stuart's research challenges the designer's capacity to be both innovative in terms of product designs and design processes. His approach confronts theory with practice and vice-versa. His practice has facilitated new product development through an inclusive approach based on design led entrepreneurship. This addresses multi and cross-disciplinary contexts bounded by a clarity of market objectives and has led to numerous filed patents.  
His theoretical research has led to the development of design collaboration tools and software e.g. the creation of a professional network for designers reflective practice and portfolio development at [www.openfolio.com](http://www.openfolio.com)*

This paper is an introduction to a series of six papers concerning the modelling of design problem space. It explores the designer's development of value through the use of deductive reason and subjective choice in the construction of design problem space.

The author contrasts a hierarchic view of decision-making based on deductive reason with a parameter framing approach based on the cognitive modelling of problem space. Choice-inclusive and choice-exclusive decision making processes are considered with regard to their implication on responsible design practice. Potential for innovation is related directly to the problem framing process that provides the bounds in which the instability of the creative process can occur.

Note: In this paper design is considered in a domain-independent form and designers are those involved in design thinking.

Keywords: Problem space, design innovation, value, decision theory and techniques, design reasoning.

0182

## For The Birds: An Assessment Of The Effect Of An Ethnographic Observation Exercise On The Creativity Of Student Design Solutions

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*Tamara Christensen received her Master of Science in Design from Arizona State University and is currently pursuing her PhD there with a focus on curricular reform in design education. She is also a founding partner of Re:Strategic Solutions, a consulting firm offering creative strategy for product and identity development*

Critics argue that there is a crisis facing industrial design education today and call for the inclusion of more instruction in critical thinking and research skills. Little published research examines the effect of instructional technique on the creativity of student output in the field of industrial design education. This lack of knowledge amplifies the challenge of evolving industrial design programs to meet the needs of industry because there is little evidence upon which to base any change.

Subjects included 45 senior undergraduate industrial design students. Each student designed a birdfeeder concept before and after an 'ethnographic' observation exercise that involved viewing birds at a birdfeeder. Based upon the Consensual Assessment Technique used in creativity research, twenty-four domain experts assessed the pairs of design concepts with acceptable reliability.

In the field of industrial design it is readily acknowledged that utilizing research in the new product development process benefits the user because it results in products better suited to user needs and preferences. Practitioners and educators also contend that ethnography promotes the generation of more creative design solutions. Findings from this study support the assertion that solutions generated following an ethnographic observation exercise are more creative than those generated without one.

Keywords: industrial design, ethnographic methodology, creativity, design pedagogy, research and education

0184

## Referencing the sociocultural during designing

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The development of an artefact is inherently bound up with meanings, relationships, and value systems relative to the individuals creating them, and to the context of their immediate and external environments. This paper begins to explore the sociocultural affects on the design process through two field studies within two industrial design education studios. Two separate design groups and projects are followed for extended periods of time in order to collect naturally occurring 'references'. These are analyzed revealing central themes and categories that are presented here as indicators of the varying context of artefact design. In doing so, a model called the design process milieu has been developed and is presented as a framework to understanding the multiple levels of the design environment. The design process milieu includes the local and universal, emic (inside) and (etic) outside. Some surprising results are revealed about how the sociocultural context and an individual's sociocultural capital may be affecting the design process.

Keywords: analysis of design processes, design and culture, design education, ethnographically oriented methods, sociocultural aspects of design

0186

## Graphic Design and Motion Graphics

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This paper presents an interdisciplinary experiment in Communication Design teaching. It focuses on two moments in the project's development: print media design and its translation into audiovisual language. We begin experimenting with the expressive possibilities of typography, which add meanings to the transposition of verbal content. Interpretation and sharp perception of typography, in the technical and aesthetics aspects, interfere when generating visual composition. The expressive possibilities increase when motion and sound, which are distinctive aspects of audiovisual language, come into play. We are interested in the creative process that involves translating graphic language into audiovisual language.

*Key-words:* typography; graphic design; Motion Design; interdisciplinary; design teaching.

0187

**Changing perceptions: A case study into the value and importance of collage for design educators.**

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*Jeff Alcroft is a fully qualified graphic and multimedia designer with over 23 years professional experience as a practitioner and design educator. His special field of study is in the research, design and evaluation of curriculum for higher education.*

Design curriculum has always been an 'ad hoc'\* affair at best, yet for design educators, this open-ended approach to curriculum design provides the freedom for experiment and innovation by allowing for the introduction of a variety of methods and approaches from diverse professional fields and disciplines for example, art & architecture, film & television, adult education, psychology, anthropology, and sociology. After several years of observing and trialling various approaches and materials we've found that the big breakthrough in trying to educate design students in the vagaries of visual form and composition was the collage technique. We've found that by giving students an alternative to the drawn mark or the photographed image, that they can produce the kind of visual dynamics that one expect from more seasoned and creative designers.

The purpose of this paper is to report and share our findings from research we've been conducting in visual perception and composition design with the view of contributing to the creation and development of more relevant education materials while addressing the need for documented research in design higher-education theory and practice.

Keywords: Design education and research, aesthetics, evaluation

0189

## Human Centering Design Across Dimensions~

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*Bruce Hanington is an associate professor and program chair of industrial design in the School of Design at Carnegie Mellon University in Pittsburgh, Pennsylvania. He teaches industrial design studios, human factors, and research methods for human-centered design. He is interested in the cultural context of artifacts, exploring the connections between ritual and artifact, and discovering object qualities that enhance the experience of product use. Bruce holds a Bachelor of Arts degree in Psychology, and a Master of Environmental Design in Industrial Design, from The University of Calgary, Canada.*

*The uneven application of human centered research and design across disciplines is evident in both practice and education. In particular, graphic or communication design is much less familiar than industrial or interaction design with human research and testing. The underlying human criteria for design activity should know no dimensional boundaries. The creation of printed material to convey information, digital interfaces for devices or web-based interactions, and three-dimensional products and environments, all share a foundation of human use. There is no reason why any design discipline should be disadvantaged in the sensitivity to human factors, and therefore in the exposure to the necessary tools for responsible design activity. Coinciding with a significant curriculum review, an introductory human factors course previously required only of industrial design undergraduates is now also required of communication design students. The first test-run of the original course taught to all students demanded some significant changes, and the course was revised with new content and format, recognizing the needs of a much larger and more diverse audience. The instructor assesses the revised course in the context of wider curriculum reviews and the changing nature of design boundaries, through outcomes and reactions of the class, and reflections.*

Keywords: design education, human centered design, industrial design, graphic design, communication design

0191

**Movement behaviour and spatial cognition in spaces of consumption: the case of Camden Market**

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Movement behaviour and spatial cognition in spaces of consumption: the case of Camden Market  
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*Eirini Rafailaki studied Architecture in N.T.U.A. and obtained an MSc Degree in "Architecture-Space-Culture" in N.T.U.A. (2005). She worked in collaboration with architectural office in Greece on various projects and she was member of the Urban Design Laboratory of N.T.U.A during 2004-2005. She is currently an MSc student of Advance Architectural Studies in Bartlett (U.C.L.).*

Spaces of consumption can be considered as spaces of fundamental value in the formation of social and cognitive interfaces. The case of Camden Market in London is an assemblage of miscellaneous markets, which forms an amalgam of multiple markets. The movement behaviour of the users is being influenced by three main factors: the differences in spatial configurations of the markets, the kinds and the distributions of goods, and the cognitive dimension attributed by space that allow people to navigate through the stalls. The paper brings to discussion, through simplified sketches, data gathered through observations on the movement patterns and space syntax analysis (axial maps, visibility graphs), the relationship between movement behaviour and the spatial patterns of the Market. In seeking the mechanisms that affect the movement patterns in Camden Market, the study brings into focus – at a second level – the relationship between two of the markets: Camden Market and Electric Ballroom.

**Keywords:** analytical techniques;, cultural identity;, architecture;, method and process;, research methods;, social and cultural human factors;, visual analysis;

0193

**Reframing American Democracy: the Role of Research in the Interpretation of Redesigned Election Artefacts**

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*Elizabeth (Dori) Tunstall is associate professor of Design Anthropology at the University of Illinois at Chicago. Since 1991, she has been passionately involved with Design for Democracy, a not for profit that increases civic participation by making the experience clearer, more understandable, easier to accomplish, and more trustworthy.*

In November 2000, a poorly designed "butterfly" ballot in Palm Beach County, Florida, of the United States of America, changed election history. From 2001-2005, Design for Democracy, a strategic program of AIGA and UPA, conducted ethnographically based research to redesigned election artifacts, including the ballot. This paper explores the role of research, particularly ethnographic research, in the interpretation of the "meaning" of these redesigned election artifacts within the discourses of American democracy. In particular, it focuses on the discourses of American democracy as framed by the contexts of American professional design organizations, international museums such as the Pompidou Center, and American federal government officials. I argue that the research enables its audiences to reframe the negative view of American politics following the November 2000 election to one of a potential politics of inclusion, complexity, and transformation. This reframing has significant impact on individuals' and groups' perceptions of their active roles as potential positive civic change agents.

Keywords: activism in design/cultural, design ethnography, exhibitions, discourse analysis, politicians and business-organizations,

0195

**Border Strata**

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*Kim Steele is Associate Professor in the School of Architecture and Landscape Architecture at Arizona State University. Living in Arizona, she is confronted daily with the difficult realities of the United States-Mexico borderlands and has spent several years researching the region. Her intention is to develop strategies for design intervention that respond and mitigate the multiple pressures in the area.*

In recent weeks, vivid images of the consequences of a "porous" United States-Mexico Border have played out in the national media. Thousands of people, mostly Hispanic, have congregated in the streets of Los Angeles, Phoenix, and Denver as well as other cities to protest pending Congressional immigration bills. The sudden visibility of this typically unnoticed and marginalized population brought to the forefront discussions of responsibility, security, economic stability, and the capacity to accommodate a growing population. Foremost, it left people wondering just what is occurring along the southern border of the United States. Is a 700-mile fence at the border necessary? Do we need more border patrol agents? In this paper I merge two interests: a lifelong fascination and attachment to the desert southwest and a curiosity about the nature of boundaries and how they may be understood and interpreted. In particular, I am concerned with how a desert ecology can absorb a burgeoning population as well as the by-products of large-scale economic enterprises and how these two facets of the region might be reconciled within the contentious framework of a rapidly destabilizing international border. In bringing these two interests together - the desert southwest and the nature of boundaries - my intention is to develop a strategy for unearthing the complexities of such sites such that appropriate design interventions might be enacted. United States-Mexico Border, archaeology, performance, architecture, landscape architecture

Keywords: performativity, place, space, ecology, environment, regional culture, social contexts, methodologies, social & cultural human factors

0196

## Researching citizens' capability to design

A Dong

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This article seeks to rethink design policy based on the 'capabilities approach'. The capabilities approach view on economic development shifts the measurement of economic progress from output toward the measurement of the capabilities of people to achieve economic outcomes. In design, we must examine the links between the pre-conditions and operational conditions surrounding designed works that provide citizens the capability to design and then link them to what the citizens manage to achieve as a consequence of their capability. However, it is not obvious how to measure the capability to design in a way that is independent of a specific type of project or field of expertise. Second, the measure must be consistent with the theme of capability as the ability of a person to take part in actions that the person deems valuable rather than capability as a knowledge or skill per say. This article proposes a set of design research issues that should be addressed to quantify citizens' capability to design. By understanding what capabilities matter in design and their consequences, design research can play an instrumental role in formulating the capability development aspect of public policies.

Keywords: design for the people; design to address societal problems; capabilities approach

0197

## Integrated Approach to Develop an Extensible Kansei Engineering Information System

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*I am a Ph.D. Student of the Industrial Design Program, Graduate School of Design, National Taiwan University of Science and Technology. I am interested in design and research of human computer interactions. Making people feel good is my duty as a designer.*

User experience is one of the most important issues in design. Lots of methods have been proposed for experience design, among which, Kansei Engineering is frequently employed for helping designers understand users' preference and applying it to products. With the help of advanced computer technologies, several computerized Kansei Engineering systems have been developed. However, due to the arbitrary format of data representation schemes and the absence of integration mechanisms, it is not easy to merge or to compare the results between different studies. For this problem, the information technology of data management and extensible markup language (XML) holds potential to be a solution. In this paper, a comprehensive Computer-Aided Kansei Engineering System is described. Tools for survey, data analysis, and design query are developed. The survey tool facilitates researchers to design an interactive experiment, to be used for collecting users' preference data via the internet. By visualizing the results of frequently used statistics, the analysis tool assists researchers to analyze the data and accumulate the findings into an XML file. Finally, with the query tool, designers can discover trends by querying or browsing the rich information database. In addition, when designers come up with new design concepts, a follow-up mechanism can be used to efficiently evaluate these ideas from the perspective of target customers. With the appropriate mechanisms, related kansei studies could be cross-compared and integrated to form a much more comprehensive theory.

Keywords: Kansei Engineering, User Experience, Product Design, XML

0199

## Both Generic Design and Different Forms of Designing

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*Willemien Visser has been studying design for more than 20 years, focusing on its dynamic, cognitive aspects. She comes from cognitive psychology where traditionally research is being conducted in artificially restricted conditions. Against this background, she has claimed the necessity to examine design in real, professional projects. Willemien is finishing a book (The Cognitive Artifacts of Designing, Lawrence Erlbaum Associates) based on her research in various application domains, in which she sets out a new framework for cognitive design research: Designing as the construction of representations.*

*Her paper at Wonderground 2006 is a first step in an endeavor to examine a hypothesis that concludes her book: Design has specific characteristics that distinguish it from other cognitive activities, but takes also different forms depending on the nature of the artifact—which has consequences for, notably, the representations and activities used preferentially when designing, and the constraints and criteria selected for consideration. Willemien expects that her paper will initiate a discussion and further research on this question with consequences for design environments, support systems and design education.*

**Abstract.** We combine the hypothesis of "generic design" with that of different "forms" of designing. From a cognitive viewpoint, we adhere to the generic-design hypothesis: there are both significant similarities between the design activities implemented in different application domains and crucial differences between these and other cognitive activities. Yet, we suppose that the nature of the artifact under design introduces specificities in the corresponding design activities. This paper is concerned with the dimensions underlying such different forms of designing. We propose a series of candidates for dimensions. The material presented sketches a number of possible directions that need further elaboration.

**Keywords.** analysis of design processes, design cognition, design theory and research, generic design, psychological theory building in the design field

0200

## Development of Experimental Device to Study Embodiment of Powered Wheel Chairs

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The aim of this study is to develop better function and performance for embodiment of electric-powered wheelchair from the aspect of human *kansei*. Embodiment is the concept which frequently used in robotics or neural science. An embodiment of electric wheelchair is to realize the function which is felt natural like flesh body. We studied it through the two standpoints. One is how it move, the other how we feel (*kansei*). *Kansei* is a concept that includes emotion and sensibility. *Kansei* was defined as an intuitive ability to react and evaluate the values like pleasure and comfort. As we were factoring out elements in motions that seemed to have been concerned with embodiment, we came to the guess that such subtle motions that existing electric wheelchairs never have had, might help people with lower limb disability regain harmony with their body. We have focused on the following motions with the office setting in mind:

- Unconscious gesture (UG) that is made when people try to release or avoid stress.
- Subtle motions to change position

We have hypothesized the objectives of these motions, designed and built an experimental device to mechanically reproduce these motions for an evaluation experiment.

Keywords: kansei engineering

0202

## Researching the Research Culture in Art & Design: The Art and Design Index to Theses

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*Tom Fisher is research tutor for Art and Design at Sheffield Hallam University, UK, and is responsible for training research students. For this reason he has an overview of the range of PhD projects being undertaken in Art and Design and the issues that they raise. With Professor Judith Mottram he constructed a database of completed PhD projects in the UK - the Art and Design Index to Theses - which is a resource for students and allows us to reflect on the precedents that exist for research in the field.*

### Abstract

The Art and Design Index to Theses is a newly developed database of completed UK PhD projects in Art and Design. This paper describes the database and draws out what it can contribute to collective understanding of research in our field - to our research culture. It places this discussion in the context of the development of art and design education in the UK since the 1960s, briefly analysing the entries in the database in four time periods; before 1975, 1976-1985, 1986-1995 and 1996 - 2005. It notes increase in numbers of completions over this period and the development of approaches to research degree work that include the practice of art and design. It identifies some different ways in which subject matter and methods are articulated in the various sub-disciplines and the relationship of this to debates about the appropriate nature of research in art and design. Finally, recommendations are made about the necessity for the field to continue to develop reflexive self awareness through analysis of this sort.

### Keywords:

research; certification; doctoral education; practice-based research; research community development; research degrees;

0203

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*Kristina Niedderer MA(RCA) PhD is a design researcher and craft practitioner. She was originally apprenticed as a goldsmith and silversmith and worked as a journey(wo)man with Ulla and Martin Kaufmann in Germany. She then trained as a designer and design researcher in the UK and has a PhD in Design. In 2005, she held a position of Artist in Residence at Middlesex University, where she conducted research into the creative possibilities of Argentium™ Sterling Silver. Since September 2005, Kristina is a Postdoctoral Researcher at the University of Hertfordshire and works on the Experiential Knowledge Project. She also continues her collaboration with the Argentium Project as a Visiting Researcher.*

**Clare E. Harrison, BA (Hons)**

*Clare trained at Middlesex University, where she gained an honours degree in Three-Dimensional Design, specialising in Metals Design. After her degree, Clare became self-employed and worked at a school as an artist in residence, where she tutored A-Level and GCSE students and encouraged the use of metalwork in Art, Design and Technology studies. Clare joined the Argentium® Silver Project and began working for the School of Arts at Middlesex University, in March 1997. With her experience and knowledge regarding the history and development of Argentium® Silver, this enables Clare to co-ordinate the technical aspects of the project. Her role is focused upon supporting the technical and commercial progression of Argentium® Silver through practical research, evaluating and documenting technical information and providing assistance to users of the alloy.*

**Peter G. Johns, FIPG**

*Peter Johns is the inventor of Argentium® Sterling Silver. He trained as a silversmith and is a Freeman of the Worshipful Company of Goldsmiths and the City of London.*

*Argentium® Sterling Silver was developed through his research at Middlesex University, which initially focussed upon preventing firescale in sterling silver. Further research revealed other superior properties of the alloy, including high tarnish resistance.*

*Peter directs the research activities and product development program for the Argentium® Silver Project, this includes promoting the technical benefits of Argentium® Sterling Silver through lectures, presentations and practical demonstrations across the globe. Peter has presented his research at the world famous Santa Fe Symposium.*

This paper documents the investigation into the creative possibilities of Argentium™ Sterling Silver. The aim was to test the qualities and performance of this new material in the complex environment of practical application and to complement its scientific development with an exploration of the new artistic opportunities that it might offer.

For this purpose, two designs of tableware were developed, one of which was based on using a range of traditional techniques, the other on using new technologies such as laser-welding and laser-bending. The performance of Argentium™ Silver was compared with that of traditional Sterling Silver based on the extensive experience of the artist-researcher in working with Sterling Silver. Additionally, direct comparative tests between both materials were conducted where necessary and appropriate.

The outcome of this research was twofold. Firstly, it provided an assessment of the material's qualities and performance within practical application, which allowed recommendations to be made for its use in creative practice of relevance both to makers and industry. Secondly, it showed that the utilisation of new technologies can offer new avenues for designing silver, such as the development of a new formal language which may help (re)forming contemporary views of the material silver.

**Keywords:** craft, investigative practice, new technologies, materials research, Argentium™ Sterling Silver

0204

## Rationales for role playing in design

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*Assistant professor in the user research group at the TU Delft since 2002. I have lived and worked in the Netherlands since 1998. PhD in Design from Staffordshire University (UK), Industrial design degree from the HDK Saar (Germany) in 1994.*

*Professional experience ranges from product design consultancy to user research for design*

In approximately the last ten years, there have been reports of role playing techniques in the design-related literature. The paper examines the rationales being given in the literature for its adoption. Three rationales are identified: communication within the design process, the increase of technological complexity, and the experience and empathy of designers. The paper then develops a fourth rationale that could warrant the use of role playing techniques: attentiveness to social change. The literature on role playing shows that the technique has this potential. In our own work, we have run three projects involving role playing techniques. Having monitored these projects from an action research perspective, I examine whether our own efforts were able to live up to the four rationales that have been identified. Positive outcomes, shortcomings and points for further attention and work are reported. I conclude that role playing exercises of interaction scenarios, held in the right setting and circumstances, offers designers the opportunity to access, through own experience, the innovation potential that lies in people's interactions with each other and with products.

Keywords: research methods and tools for design, technological & social change, communication in design processes, design and the body, interaction design research

0205

**World 3 Hermeneutics: In Search of a (better) Model of Architectural Design Studio Teaching/Learning**

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*I am a doctoral student in the Middle East Technical University. My field of study is architectural education and computer aided design. I have 4 years of professional and 10 years of teaching experience.*

The main aim of this study is to draw a sketch of a studio model for architectural education that will contain both the program and the paradigm as two main reservoirs for architectural problem solving. While reconsidering and reinterpreting these couples in a coherent system, the present study summarizes Karl Popper's evolutionary epistemology and his three world ontology as an epistemological basis for the proposed model and for the argument of the study. Then the study focuses on the analysis and close reading of the World 3 objects as the core component of the studio model, for understanding and learning how to design, for the production of architectural knowledge and solving architectural problems. It will conclude by making some remarks on the applicability of this core component in the studio by proposing a studio model.

**Keywords:** Architectural education, Architectural design studio, Epistemology, World 3

0208

## WORKSHOPS FOR SUSTAINABLE INTEGRAL DESIGN

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*PhD student from University of Technology Eindhoven; studied architecture and worked as an architect for 3 1/2 years after the study; partly based on personal experiences started with research entitled 'Integral design methodology in the context of sustainable comfort systems'*

In order to support integral building design processes in the context of sustainable comfort systems, the cooperation between building design disciplines in conceptual design phase has to be improved. A designers' working environment in the form of workshops is used to develop a design methodology that provides a suitable foundation for integration of activities of a building design team as well as integration of sustainable comfort systems in the conceptual phase of building design process.

Within these 'learning by doing' workshops the actual design processes performed by experienced designers are observed and newly developed process models are applied, tested and evaluated. The proposed approach, where 'morphological overviews' were used in different design team settings to enhance communication and structure design team knowledge, was warmly welcomed by professional participants.

Preliminary conclusion could be drawn that (development of) design team communication is dependent on number of present design disciplines within design teams. In situations involving larger design teams, morphological overviews were more helpful in structuring communication between team members. However, their use was not always beneficial for final design concepts.

**Keywords:**

communication in design processes, concept generation, design methodology, interdisciplinary, methodological approaches in design

0213

## Interactive Storytelling Exhibitions

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*Graduated from the University of Lisbon, Faculty of Fine-Arts, in 2001; Arlete Castelo is a Communication Designer and Researcher in the fields of Interactive Design and User Participation in Narrative Spaces. Last July, she concluded her Master of Arts in Creative Practice for Narrative Environments, in Central Saint Martins, London, with a dissertation on the same subject shared here today with you. Previously, working for the Royal Festival Hall, she conceived and developed a series of public interactive installations set on the urban space, involving tactile surfaces and sound, a project called Keeping in Touch. She has also developed several communication campaigns and, for some years now, directs an editorial project called Palmada.*

This working progress paper aims to initiate a basic criteria for the development of interactive devices for exhibition spaces. These were extrapolated through analysis of several exhibits. Namely the Churchill Museum in London, designed by Casson Mann, and Verket in Avesta Sweden, by the Swedish Interactive Institute. Exhibition design is going through deep changes. Museums opened cabinets and glass cases, complementing the objects with new perspectives allowed by digital interfaces. In the 1990s, cumbersome computers kiosks proliferated through galleries, filling the curatorial debate with controversy and often leaving visitors with a sense of frustration when unable to successfully manipulate the interfaces. Nowadays, a significant shift in approach is taking place, enabled by the use of new media and sensor technology. The interactivity is leaving its peripheral role, being embedded directly into objects or even space itself, and reacting to visitor presence and action. Rather than presenting a unilateral communication of grand-narratives, museums aim more and more to offer immersive narrative experiences where visitors can construct their own story and even leave their mark behind. No longer passive spectators, visitors now assume an active role, endowed with significant agency, triggering events, exploring the space and developing their own interpretation of the story told.

Keywords: alternative technology and innovation, design and digital media, design and the cultural sectors, emerging technologies, exhibitions, interaction media, participation, sensorial interfaces, user experience

0218

**The Statistical Evaluation of the Concrete Samples of Laboratory of Turkey Republic Highways Association**

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Within the development of the technology, the quality control of the building materials such as the concrete is done by the statistical methods. When using the statistical evaluation, the concrete is probability accepted or rejected. Therefore, high quality concrete can be obtained according to the statistical evaluations. Within the help of the statistical evaluations, what the project strength should be and for this project strength how the production of the concrete should be are answered. The aim of the statistical evaluation is obtaining the quality of the community from a group of samples which represent the community. When the number of samples increases, the probability and the estimation increase. Nowadays, instead of the deterministic system, the statistical system is used and the realistic and correct results are obtained. In this work, at first the general informations of the statistical evaluation and usage for the quality of the concrete are described then the quality of the concrete samples of laboratory of Turkey Republic Highway Association is evaluated by the statistical methods. The results reveal that the concrete samples have the highest quality and have the adequate strengths.

Keywords: Standard Deviation, Quality Research methods for design, values, materials, evaluation

0219

**Cultural and scientific exchanges between Russia and Western Centres with the community of the Jesuit “savant’s” in Peking in the XVIIIth century through Antonio Nunes Ribeiro Sanches’s intermediation**

João Miranda

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*Teacher at IADE and reasercher in the fields of History of Science and Material Culture in Modern Period*

The cultural relevance of the works and thought of António Nunes Ribeiro Sanches (1699-1783) for the Portuguese culture of the ‘Enlightenment’ is well-known. It’s writings aimed to induce reforms in Arts and Education, as well as in many other domains related to Culture and Social issues are an important reference in works dedicated to Portuguese culture in the Modern Period.

The purpose of our paper is to point out the importance of a new particular line of research which, in our opinion, fully reveals the relevance of Ribeiro Sanches’s thought and initiatives in cultural and scientific life in Europe of the ‘Enlightenment’: the role he played as an active intermediary between cultures, his fellow ‘savants’ and ‘philosophes’ and scientific institutions.

The thematic variety of his writings (memoirs, notes, projects, correspondences and other materials) reflect his immense labor and show that his intense cultural intermediation, although focused on the two cultural realities he has been always particularly attached to (Russia and Portugal), should be analyzed in a broader sense: as a recognized among the ‘enlightened’ circles ‘authority’ concerning reforms in Culture, Applied Arts and social issues and playing there an active role — delivering his contributions to Diderot’s and D’Alembert’s editorial project (‘Encyclopédie’), cooperating with and Buffon’s research, writing his own projects for reforms in Applied Arts and Education, establishing and contributing to diversify the contacts between scientific circles in Europe and even ‘overseas’.

**Keywords:**

**china**

**cultural identity**

**history and philosophy of science**

**history of technique**

**material culture**

0220

**The evolution of the Mars Daisy**

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*Dr Andree Woodcock is Senior Research Fellow in Coventry School of Art and Design. Her interests include computer supported co-operative working, design research and educational ergonomics.*

The paper traces the evolution of the Mars Daisy animation; a visualisation developed to initiate collaboration between two groups within the university, enhance communication and understanding within the Cogent Computing Group, publicise an expanding, difficult area of research and enrich the learning experiences of students.

Keywords: animation, design reseacrh, visualisation, information dissemination

0221

## The Reorganization of Graphic Design History

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*Wen Huei Chou is currently Associate Professor of the Overseas Chinese Institute of Technology, in Taiwan. She newly graduated with Doctoral degree from the Faculty of Design in Swinburne University of Technology in Melbourne. Chou's research interests focus on the design history, design theory curriculum, culture industry and design visualization. In this paper she especially looks into the design history's reconception from deeper historical and globological perspectives. Email: cris@asia.edu.tw.*

To resolve the marginalisation of East Asian design in graphic design history, this research argues for design history's reconception from the perspective of deeper historical and globological structures than the recent prominence of Euro-American design. That Western society has integrated its current global power with processes of cultural imperialism is evident from the writing of graphic design history. The meta-discourses of Euro-American modernism and postmodernism constitute the roots of privileged and prejudicial knowledge in the history of graphic design, establishing Western developments as the yardstick for the production and ordering of graphic design history. Substantive frameworks for shaping design history are necessary. However, frameworks are also necessarily subject to change as historical conditions alter. The rise of East Asian economies raises the issues of the cultures that support them, including their cultural heritages, which have had a world historical influence over fields like writing, printing and design. Writing the history of East Asian design cultures not only acknowledges their historical importance, it is fundamental to their future development as distinctive design spheres while opening up the scope for culture-based knowledge and understanding to reorient homogenous Western design.

***Key words: Taiwanese Graphic Design History, Graphic Design History, Globological Perspective, Euro-American Design, Cultural Marginalization***

0222

Who Evaluates Design Exhibits?

*A New tool for capturing intangible values in design exhibits*

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In academia, new approaches to visitor and museum studies have become common topics at conferences. Until now, however, publications have highlighted the background philosophy, underlying principles, or practical results, with limited attention to the methodology and practical issues in conducting these studies. By means of this study, I hope to provide a foothold for the curator and educator regarding design exhibits, allowing them to further develop the theoretical basis of the field. This paper examines museum exhibit activities according to their scale and purpose and advocates the need for evaluation strategies in the design exhibition sector. These evaluation studies are developed for design exhibitions from the educational aspect and tested more specifically for contemporary design.

*Keywords: case study, evaluation, design research methods for curators, exhibitions, participatory design research*

0223

## Designing polysensory rooms for children with Autistic Spectrum Disorders

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*Dr Andree Woodcock is Senior Research Fellow at Coventry School of Art and Design. Her interests include CSCW, design research and educational ergonomics*

It is the intention of the UK government to make educational provision in mainstream schools, for children with special educational needs. One group of children included in this are those on the autistic spectrum. With varying degrees of qualitative impairment in social interaction, communication and restricted patterns of behaviour, accompanied by hyper- and hypo-sensitivities, there is a need to develop a low cost, tailorable environment that can be positioned in main streams schools, without placing an undue burden on technical and human resources. This paper provides an overview of the design of such an environment from requirements specification, concept and detail design stages, to realisation and evaluation of a prototype version, located in a primary school.

Keywords: user centred design, design for special needs, children

0225

## Legibility of Street Signs

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*Stuart Gluth is the Studio Head of Graphic Design at the University of South Australia. His passion for typography developed despite an undergraduate degree in Industrial Design and his current research interests include legibility, Design as a legitimate research activity and teaching creativity. He is also principle of his own design consultancy and acts as a consultant for other studios. Current projects include the development of bitmapped fonts for the screen and paper engineering. He chooses to commute an unreasonable distance each day to live in the beauty of the scrub at Aldinga where he also tries to find time to paint landscapes*

We recently did some simple tests to determine how we could improve the legibility of street signs, using design analysis and simple testing techniques to validate the resulting outcomes. From a starting point evaluating existing signage and the Standards specification (not necessarily the same thing) plus a little knowledge gleaned along the way we used a step by step process of changing typographic variables one at a time in what we thought might be an improved, proceeding through such issues as borders, surrounding space, capitals versus lower case letters, letterspacing, roman versus italic type, reversal of figure ground, contrast between figure and ground, colour and lastly typeface, we arrived at a considerable apparent improvement in the legibility of street signage, such that we judged that we had a 50% improvement over existing signage in the distance we could effectively read the signs at night (both using reflective lettering)

### **Key Words**

**Signage, legibility, design, analysis, testing**

0226

'MAPchester':

Producing an open-source map of Manchester, supporting an online interactive wiki information artefact.

Mick Lockwood

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*Lockwood, Multimedia Lecturer, Salford University UK*

*Embryonic Researcher: Locative Media*

This working paper in process documents the research creation and development of the Mapchester Futuresonic Artefact. The Artefact is a Locative Based Information resource to be embedded into the Futuresonic website. The resource will offer all concerned with the Futuresonic Festival, location based information on venues and events over time. The Artefact will have wiki functionality offering users the capability to edit their own information, flag up locations and events, and comment and chat about topics related to the festival. The festival is held in Manchester 20 -23 July 2006. [www.futuresonic.com](http://www.futuresonic.com). The project makes use of Open Source Mapping Data produced in conjunction with [Openstreetmap.org](http://Openstreetmap.org). This project aims to develop an Open Source Location Based Mapping Tool which will act as a foundation for a series of Location Based Media Projects planned for the near future.

Keywords: concept generation; interactive media; user-centred design; Locative media;

0227

## The Design of Costumes – Diversity of Creation in the 20<sup>th</sup> Century

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*Fausto Viana is a set and costume design teacher at Escola de Comunicações e Artes, at Universidade de Sao Paulo. His main research is directed to costume design of the scenic revolutions of the twentieth century, and he has been developing research on that field for more than ten years, having visited the United States, Russia, Germany and France.*

Costume creation in the 20<sup>th</sup> Century involves a huge discussion of design. Costumes are no longer a "beautiful piece of art". The level of importance of costume creation leads to the work of the most important drama directors of the century. Costume creation involves design and this way it influences other designs, including fashion, creating unique objects. This paper shows how seven important directors - Artaud, Brecht, Stanislavski, Appia, Gordon Craig, Max Reinhardt and Ariane Mnouchkine – deal with costume as part of their art. Most of all, I work on how this affects contemporary theatre creation.

Keywords: DESIGN, COSTUME DESIGN, STAGE DESIGN

0229

**Defending the Domestic Environment from Advertising: the Commercial Rhetoric Art Project**

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Commercial Rhetoric Art Project examines advertising's impact on the domestic environment through a body of creative work. By applying the methodologies of collage, montage and assemblage, commercial messages were subverted, juxtaposed and recontextualized into a critique of consumer culture. Issues of consumption, waste and sustainability are raised, and the role that graphic designers play in this system is questioned.

Keywords

Advertising, design criticism, design authorship, consumer culture, collage, montage and assemblage, domestic environment.

0230

Research through DESIGN through research - a problem statement and a conceptual sketch

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This paper re-addresses the issue of a *lacking genuine design research paradigm*. It tries to sketch an operational model of such a paradigm, based upon a generic design process model, which is derived from basic notions of evolution and learning in different domains of knowing (and turns out to be not very different from existing ones). It does not abandon the scientific paradigm but concludes that the latter has to be embedded into / subordinated under a design paradigm.

Keywords: research through design, evolution, learning, knowing, fuzziness

0231

**Hugo Kükelhaus' Physiology of Cognition and Perception**

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This working paper examines the cultural and pedagogical implications of the work of Hugo Kükelhaus (1900-1984) whose interest in the physiology of cognition and perception resulted in profound if little-recognized contributions to contemporary theories of intelligence, education, and design. The enduring topicality and necessity of Kükelhaus' methodical sensitizing and integration of "the logic of the organs" is illustrated by a survey of the phenomenological immediacy and vivid feelings induced by his 'experience field for the development of the senses', an itinerant exhibition of 40 experimentation and play "actions" designed to effect connections with the physiological legitimacy of "internal nature".

Keywords: Art and design education, cognition/perception, creativity, teaching and sensorial interfaces

0233

## The Design Methods Movement: Strategies for Inquiry

Richard Buchanan

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The design methods movement of the 1960s and 1970s occupies a central place in the development of our understanding of design methodology in the twentieth century. However, the movement as a whole and its pluralistic diversity has received little explicit philosophic or theoretic attention. It is time to begin a more careful consideration of the movement, beginning with the major strategies that lie behind the work of individuals such as Bruce Archer, John Chris Jones, Christopher Alexander, and Horst Rittel. This paper will address the broader perspectives and strategies of Dialectic, Inquiry, and Design Science upon which the work of these individuals is grounded.

The common ground of the individuals who participated in the design methods movement include: the goal of making explicit the practical work of designers; the effort to find a new scientific basis for designing; the concern for "systematic" methods—hence, methodology—and a concern for the context of design thinking. However, the common ground of the movement concealed deep differences in strategy. These differences were not evident in the beginning, but they emerged gradually, reflecting the pluralism of the disciplines of design practice and the field of design studies. For example, Bruce Archer focused on the discipline of designing and what we may interpret as the development of "productive science." John Chris Jones focused on the relationship between rational science and creative imagination, resolved into rational rhetorical methods of analysis, synthesis, and evaluation. Horst W. J. Rittel focused on the idea of design as argumentation, supported by rhetorical methods that, late in his career, he explicitly recognized. Finally, Christopher Alexander focused on the development of form and "pattern language" in a search for ways of making beautiful buildings of the quality of buildings in the past. His later repudiation of the movement focused on the impossibility of separating the activity of designing from the formal study of the methods of designing—revealing in even greater clarity the dialectical roots of his strategy of inquiry.

By approaching the design methods movement through its diverse intellectual and practical strategies, we may find a broader framework than has hitherto existed for consideration of the movement. In turn, this may encourage further inquiry into the movement and the subsequent development of research in the design community.

Keywords: Methods, inquiry, strategy, philosophy, design, science, dialectic

0235

**The Social Life of Clothes**

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The aim of my research is to explore the ways in which we can interpret clothes in different contexts, particularly the exhibition context; I examine the ways we can understand fashion as material culture, the types of evidence we can retrieve, and the ways we can interpret it. I have used the work of fashion historians, design historians and social anthropologists in order to construct a more vivid set of meanings for reading the special exhibition of fashion. This research was prompted initially by an exhibition in London at the V&A of the designer, the late Gianni Versace ['The Art and Craft of Gianni Versace' 2002/3], which was then followed by a Vivienne Westwood ['Vivienne Westwood' 2004] retrospective. Both exhibitions told rich and varied stories focussing on the artistic and craft qualities of the production of the garments. Neither addressed the consumption of fashion, and although the V&A has enabled a range of curatorial explorations, there remain issues to explore around the cultural consumption of fashion and the nature of evidence used to present a 'story'.

Keywords: Culture, Exhibitions, fashion, material culture, postmodernism

0238

## Design Classification of User Successive Reinvention Product

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With the advantages of low cost and fast assembly, modular products manufacturers create products with a great variety. However, the users' desire and creativity may not be fully emphasized. Despite being able to exert a certain amount of self-creativity in designing the product, 'the final product' has already been decided, given the limited options on the already-produced modular units. In order to satisfy users' increasing 'self idea realization' needs, products are expected to allow users to implement their creativity by designing the final product on their own. This research not only defines "User Successive Reinvention (abbreviated as USR)" but also explains its characteristics. In this research, "user successive reinvention" is defined according to the internal interface, external interface and user technique. The research looks into the four types of 'successive reinvention' which are the function of the product, the degree of user self-design allowed by the product, user-friendliness and users participation in the development process. Lastly, using The Lego Co. and Panasonic VS3 mobile-phone panel as case study models, we aim to test and verify the feasibility of the process. This brings up the idea of how to use design on upgrading degree of design for designers, helps to improve the current 'user-self reinvention' concepts and in turn, provides a more appropriate design suited to the different competent user groups. Users, thus, become the re-innovators of the 'final product' of USR products. This research leads designers to jump over the formerly developed procedures and gradually become the key trend of product design conception.

Key words: method and process, user participation, user experience, product design, design management

0239

Are we designing female audiences? The case of BEME.com a women's commercial online portal

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*Alongside teaching commitments, Noemi Sadowska has spent considerable time undertaking research in design. Increasingly aware of feminist discourse, she chose to use her creative/professional design and research skills to address its implications for the ways in which women are targeted within the Internet publishing industry. These interests which have seen Noemi participate in a number of conferences and lead her to pursue a PhD which questions whether web design could potentially offer alternative ways of communicating to female users that resist the gendered status quo. This research work has been recently published as part of 01.AKAD, Sweden and it is featured in the Encyclopedia of Gender and Information Technology, USA.*

Feminist critique of design practice has drawn attention to continuing problems women have as design practitioners and design consumers. A case study analysis of BEME.com, a commercial online portal design for female Internet users, offers an opportunity to address some of the issues such a critique raises. Notwithstanding that Internet technology and design offer new means of communicating with women, a feminist critique highlights that particularly within a commercial context there is an unwillingness within design practice to problematise its participation in the processes that embody gendered meanings. Instead, gender frequently features as part of design practitioners' creative toolkit when designing for female audiences. This paper maps out ways in which design practitioners, whilst creating BEME.com, 'design' their female audience through a reliance on gender as a tool of differentiation and definition. The paper draws on documents obtained from the commissioning publishing house and interviews with the design team and online/publishing industry professionals to substantiate the analysis. Its purpose is to argue that contemporary design practitioners need to recognise the significance of questioning women's participation in and consumption of, design practice.

Keywords: feminism and design; female web users; design and information technology: interface design, user-designer experience; consumption

0242

## Culture: A source for Product Innovation

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There is little in-depth research that can assist designers to use culture as a catalyst for designing innovative products. This paper addresses this gap in the literature by exploring how culture can be used as a source of product innovation within Botswana's context. The concept of culture and design are intertwined, thus modification in the former evolution both reflect and determine developments in the latter. The paper discusses an experimental design approach conducted with design students at the University of Botswana. The approach analysed and identified socio-cultural factors that impact upon design and challenged participants to transform and encode these factors into product design features. The visual and textual data generated by participants was analysed by the qualitative content analysis methodology. The paper concludes by discussing how designers can integrate socio-cultural factors consciously rather than 'incidentally' in order to design innovative and culturally sensitive products.

Keywords: Design and culture

0247

**A New look at Design Thinking: Research in Progress**

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This paper reports on work in progress in a programme of highly innovative cross-disciplinary collaborative research into design thinking. This research programme departs from current reductivist theoretical approaches to design including computational and neuroscience models; instead the programme uses empirical methods from behavioural and cognitive psychology, social anthropology and neuropsychology to study elite designers at work. Designers are usually characterised as creative individuals who work alone and autonomously, and design education is almost universally oriented accordingly. In practice, however, designers also typically work in two other key environments: in design teams and in interaction with computers in CAD environments. Pilot studies indicated that differing thinking processes are required for elite design performance in each of the three environments, and this research programme is developing comparative models of the thinking processes of designers working at elite levels in each of these three key environments. This research programme promises to achieve a significant “break through” to a new understanding of the complex psychological processes of designers, particularly elite designers, at work in their work environments, and the comparative models derived from this research will provide a new basis for recognition and education of designers and management of complex design environments.

Keywords: design, creativity, thinking

0250

## Critical reflections on design and emotion

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Design communities have recently witnessed a growing interest in the role of emotions. This interest has produced, among other things, a series of emotion-related events and publications which have brought to the foreground a considerable amount of relevant projects. This paper looks with a critical eye at this dynamically developing domain, questions its originality, discusses the conditions of its emergence and comments on its substance. As historical aspects of design suggest, emotion in design is as old an approach as industrial design itself. The renewed preoccupation with emotion has been favoured by the dominance of pleasure-oriented branding and marketing which has characterized consumer societies in the last part of the 20th century. This has resulted in a rather superficial treatment of human emotion, which leaves large areas of it outside the remit of design. I argue that, as we are gradually moving towards communities based on diversity, collaboration, and co-creativity, it would be worthwhile to reconsider the current emphasis on emotion in design. If "design and emotion" is to play a positive role for society in the near future, it should perhaps shift from the apotheosis of personal hedonism towards the exploration of socially relevant, culturally specific, as well as shared aspects of human emotions.

Keywords: design and emotion, design history, critical thinking

0252

On "Design": Groundwork for the Study on the Semantics of the Word "Design"

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This working paper pretends to enounce a reflection on the semantics of the word "design" and its consequences in theory and practice. In this sense, I develop a brief study on the historical development of the semantic of design, attending to sudden burst of *clades* (branches), of new design (or based design) disciplines, and its influence to this theme, with the analogy to evolution and its taxonomic methods of classification. In the end I present future orientations to this study and its future aims.

Keywords: philosophy and theory of design, design theory, ontology.

0253

## Framing a Learning-Based Approach to Interactive System Design

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When users interact with an interactive system to achieve goals, their knowledge is utilized, accumulated and generated, formulating and continuously modifying their mental models of the system. This process can be considered the users' learning process of the system. The goal of this research is to identify users' learning process through interaction, as well as to provide system designers with the knowledge on this process, so that they can employ such knowledge into the design process. This paper, in particular, investigates the relevant literature to form the standpoint of the overall research. The survey encompasses theories and methodologies from three different research areas: Cognitive Science, which provides the foundation of the basic concepts in a human cognitive process, and Human-Computer Interaction and Artificial Intelligence, which account for the Cognitive Science theories in more applicable ways. Although the previous works provide useful insights on the process of learning through user-system interaction, there is little research on integrated methodologies that are able to incorporate users' learning process into design practice. Therefore, this study proposes a learning-based approach to interactive system design, which involves the conceptualization of learning processes, the implementation through knowledge representation, and the validation of this methodology. By doing so, it aims to provide users with easier and richer experiences in the use of interactive systems.

**Keywords:** design theory and methodology; learning-based approach; system design; cognitive psychology/cognitive science; mental models

0254

## NON-BASIC DESIGN OR THE COMPASS NEVER RESEMBLES THE CIRCLE IT DRAWS

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Design activity is to be able to listen to the external world, as well as to talk to it. Academic life Academic life is the first encounter where the first break in the language of man occurs in order to construct this dualistic action. For architecture students, this first encounter is mediated through basic-design. The text below should be considered as an attempt to constitute the concepts and principles of design-politics, which can be defined as non-basic, i.e. against basic design conventions.

Keywords: design education; design philosophy; design teacher: design methods ( design concepts and concerns), geometry and structure; manifestoes

0255

## Design Classification of User Successive Reinvention Product

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Modular products take advantage of using the least cost and fast build-up to create the most diverse products. However, the users' desire and creativity may not be fully emphasized. Despite being able to exert a certain amount of self-creativity in designing the product, 'the final product' has, in fact, been already decided, given the limited options on the already-produced modular units. In order to satisfy the increase in users' 'self idea realization' needs, products are expected to allow users to implement their creativity in designing the final product adjusted to their own creativity needs. This research not only defines "user successive reinvention" but also explains its character. In this research, "user successive reinvention" is defined according to the internal interface, external interface and user competence and looks into the four types of 'successive reinvention' which is the function of the product, the degree of user self-design allowed by the product, user-friendliness and users participation in the development process. Lastly, using The Lego Co. and Panasonic VS3 mobile-phone panel as case study models, we aim to test and verify the feasibility of the process. This bring up the idea of how to use design on upgrading degree of design for designers and helps to improve the current 'user-self reinvention' concept, in turn, provide a more appropriate design suited to the different competent user groups. Users, thus, become the re-innovators of the 'final product' of these USR products. This research lead designers to jump over the formerly developed procedure and will gradually become the key trend of product design conception. Key words: user successive reinvention, user participation, use's new product experience, product design, design management

0257

## The designed object that we know and see

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*Michael Biggs is Professor of Aesthetics, Reader in Visual Communication and Associate Dean Research for Art and Design at the University of Hertfordshire [UH], UK. He has degrees in both Fine Art and Philosophy, and was Senior Research Fellow in Philosophy at the University of Bergen. In 206/7 he will be Guest Professor in Practice-based Research in Architecture and Design at the Universities of Lund, Göteborg and Stockholm. Michael specialises in fundamental research into the nature of so-called practice-based research in art and design. He is especially interested in the epistemological status of "knowledge" in socio-culturally determined fields such as art the creative and performing arts. He is also interested in the role that artefacts play in the generation and dissemination of this knowledge, and the arguments one might make for what they contribute and why they are essential in doctoral submissions and practice-based projects.*

This paper discusses perception of the designed object and how our knowledge impacts on our visual perception of that designed object. It expands on the notion of interpretation both in the context of material culture and in the context of psychology. It explains how the approach to interpretation in both disciplines relies on an active observer/perceiver. The issue of perception of the designed object is approached using the theories of the perceptual psychologist Richard L. Gregory. His work is shown to be especially relevant because there is a degree of commonality between his view of interpretation and that of material culture. The overlap of the two approaches is sufficient to invite a greater exchange between the two disciplines. The conclusion of the paper is that a visual perception transformation occurs when knowledge filters our perception of the designed object. The paper maintains that this transformation of our visual perception of the designed object is a case of perceptual illusion, as coined by Gregory, and that it occurs when knowledge overrides visual perception.

Key Words

Psychological theory building in the design field

Visual perception

Consumer perceptions

Design and branding

Cognition/perception

0260

Expanding the boundaries of form theory  
Developing the model *Evolution of Form*

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*Cheryl Akner Koler is a sculptor who teaches and researches in the field of pragmatic aesthetics with a focus on the organizing capacity of form and space. Her interests are to support the formgiving phases within the design process as well as expand the limits of design aesthetics today.*

The design research community is beginning to recognize the organizing capacity of form as a scientific method of its own right. The aim of this study was to a) develop a pedagogically framed case study method that applied a participatory action research approach and b) create a 3-D form model bridging geometric- to organic structures. A 10-step-concept-translation-form method was developed which resulted in a "Evolution of form" model with two axes: The first horizontal axis presents a sequence of geometrically derived forms that gradually take on organic qualities of convexities and concavities. The second axis expands the model in a vertical dimension to include a *bipolar spectrum* at each stage. This vertical dimension opens up a dichotomy between congruent and incongruent properties in relation to original features of the geometric form.

The discussion deals with the active formgiving process; the need for sculptural awareness and the inner sense of form; validity of the created method and model and finally the pros and cons of aesthetical abstractions that build on geometric references.

Keywords: art, geometry, aesthetic, perception, embodiment

0261

## Brand Design or Design Brand?

### The role of strategic design in the corporate identity

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A few years ago, my German professor exclaimed: "we have crossed the material phase of design and now we are in the visual decade."

By means of this exclamation, in 1998 Antonio Benincasa was capable to carefully observe and describe his working context, nevertheless probably his temporary forecast was not very accurate.

It seems that all the scientific disciplines supporting the great corporations are oriented towards the quality and to the typical tools of visual communication. Both marketing and asset management are exploring an alternative modality more oriented to soft qualities of contest analysis in order to identify those products and promotions which lead to the total dematerialization of the product.

In this new morphology of today's global product offer, corporate images become the most significant and visible tools of any promotion campaign and on any shelf.

As a matter of fact, nowadays, the claim, visual and art underline only their brand on the market and not their specific product diversification strategy.

Therefore, the semiotic quality of all the great brands has become highly sophisticated and more strategic in comparison to the past. To experience the brand has become more important than to live the product.

Paul Rand, in 1970 with his "eye, bee, M", has impressed the emotional phase of graphic design of a global brand and Peter Saville has outlined its technological dimension through the 2002 image for the online Design museum.

It is curious how Apple's corporate image has changed throughout the decades remaining perfectly coherent to its computer's design; or how from Nike's perceptive synthesis we have turned to Unilever's "sign confusion" without changing their finalities.

**Today, it seems obvious how John Maeda's typical fuzzy graphic, mixed to all brand experience expressions, can generate an unforgettable story which can be identified in**

A unique element: the logo.

Keywords: Aesthetics in the media, creative industry, design and branding, design and emotion, experience, graphic design, identity and design, product taste, visual research, visual, visual communication.

0262

## DESIGN FOR DEVELOPMENT: TOWARDS A HISTORY

Victor Margolin

Although design for development can scarcely be found in the literature on development theory, since the 1960s it has been sporadically introduced to the development process. The Amhedabad Declaration on Industrial Design and Development resulted from a meeting in January 1979 to discuss the promotion of industrial design in developing countries. Of all the theorists writing about design for development since the Ahmedabad Declaration, Gui Bonsiepe is the only one who has honored its spirit. Bonsiepe has presented a comprehensive model of the development process that was much wider than the current emphasis on basic needs although he recognized the importance of these as well. However, there are various reasons for a lack of design involvement in development. First, is that design is little understood among the myriad organizations involved in the development process, particularly in the less advanced stages. Second, and more important is that if design begins to contribute to the success of large national enterprises, it may upset even further the asymmetric trade advantages of the developed countries.. Lastly, design is barely considered in the development theories on which governments and outside funding agencies base their policies. What is needed is a more dynamic model of development that recognizes a continuum of activity ranging from the alleviation of poverty to the amelioration of trade.

Keywords: design and development, design history

0263

## Privileging the Sketch: Coop Himmelblau, Nonlinear Dynamics and the Psychogram

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The Coop Himmelblau partnership of Wolf D Prix and Helmut Swiczinsky has, since the 1960s, been engaged in the attempt to break away from mainstream approaches to architectural design and production. Originally contemporaries of Archigram, Pichler and Kiesler, Coop Himmelblau's manifestos for architecture have, since that time portrayed a growing preoccupation with feed-back mechanisms, with looping, folding and the attempt to recast architecture as metaphorically chaotic. While there have been extensive critical analyses of Coop Himmelblau's early post-Vitruvian, or anti-humanist, propositions their approach to design in the late 1980s and early 1990s has rarely been considered in such detail. Throughout this latter period the rhetoric of Coop Himmelblau has been reliant upon a vocabulary of "interference", "chaos", "indeterminacy", "iteration" and "open systems"; all terms that at that time were in common use in science and geometry. The present paper undertakes an analysis of the possible connection between the process of architectural design and the science of nonlinear dynamics in the rhetoric of Coop Himmelblau. The focus of the paper is Coop Himmelblau's celebration of the original design impulse or instance—what they call the psychogram—and its interpretation by Michael Sorkin as a reference to scientific complexity.

Keywords: design theory, design process, design tools, creative design

0264

What are the visual communication requirements of a built environment?

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This paper aims to explore the role that visual communication plays in the urban environment, and the potential for further discussion as a single domain. The scope of enquiry covers aspects of Geography, Urban Design and Graphic Design, exploring briefly the broad contexts for the subject, and the relationship between the emerging disciplines that are playing an increasing and highly visible role in how we use public spaces. It concludes that Graphic Design is playing a significant role in determining the success or failure of the multitude of behaviour settings in the built environment, and a closer relationship with Urban Design will create better conditions for design practice.

Key words

Visual communication, built environment, graphic design, urban design, interdisciplinary

0266

## Wallpaper Tiger: The Florence Broadhurst Collection and the Questions of Cultural Appropriation in Design.

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*Alana Clifton-Cunningham is a fulltime academic within the Fashion and Textile Design program at the University of Technology, Sydney. Her area of research is avant-garde knitwear design that explores unconventional materials, mixed media and form. Clifton-Cunningham is currently enrolled in the Master of Design program at the College of Fine Arts - COFA (University of New South Wales) and is currently exploring theories relating to knitting, and questions whether contemporary knitwear design is fashion or art.*

In 1959, Sydney based textile designer Florence Broadhurst emerged on the design scene with a collection of prints inspired by Japanese motifs; Art Nouveau and Deco swirls, abstract weaves and traditional tapestry designs. Setting up her studio in the heart of avant-garde Paddington with a team of young designers and screen printers at her side, Florence Broadhurst, also known as 'Madame Pellier', began creating her lavish, bold coloured designs. These eclectic prints were extensively utilised for wallpaper and interior furnishings and introduced the Australian post war consumer to vibrant geometric patterns and valiant colour plans.

If one examines the cultural debates around textile design and cultural appropriation, one is faced with a choice: either to accept the concept that appropriation belongs to a series of mechanisms that include the assimilation and incorporation of *Other* materials or 'signs' into one's own culture to enlarge, re-inforce or exoticise, or to conclude that the *raison d'être* of the designer is that of aesthetic and social commentary. Through investigation and debate, this paper will explore the design and cultural influences of Florence Broadhurst and the Broadhurst Print Collection, and question the issues around cultural appropriation, or 'borrowed inspiration'. It will reflect on the boundaries between representational and non-representational, abstract and figurative design that echo a kaleidoscopic mix of traditional practices and new inventions that ultimately sway in the murky waters of artistic licence, cultural transmission and power relations. This paper will also consider the multiple ways in which Florence Broadhurst consumed and rearticulated her own political agenda's dominant signs; from the discourses of art, history, Orientalism and fashion in general. By examining the diverse interplay between the complex processes of the appropriation, consumption and production of Broadhurst's designs, the aim of this paper is to examine and question the ambivalent nature of textiles and its production of meaning in cultural life.

Keywords: cultural identity, design and culture, cultural hybridization, artifact/textiles, critical thinking, art and design

0268

## Inclusive software design - Graphic design in context

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This study investigates interactive multimedia design within the context of graphic design. Investigation conducted raised questions on techniques and methods which might facilitate and support the use of interactive communication by people with visual impairments. The aim is to validate the hypothesis that design may be used to enhance access to multimedia user interfaces and improve navigation of visually impaired (VI) users. The substantial and original aspects in this study concern the proposal of specifically designed Graphical User Interfaces (GUI) tailored to the visual capabilities of VI users, and a navigation colour pallet (NCP) – navigation tool incorporated in a specifically designed standalone multimedia software application. The designer used real world navigation as a metaphor and a source of ideas in the construction of virtual navigation using the 'airport terminal' concept as an arbitrary choice of location. Thus, a software working model was used as a vehicle for evaluating the proposed design features and validate the hypothesis forthcoming from this study. During evaluation of this pilot software application (PSA) evidence was provided indicating that the design of software offer the possibility for traditional graphic design practices to be applied. Conclusions drawn indicated that the proposed design features added values to accessibility and navigation issues for VI users.

### **Key words**

Graphic Design (Communication design), Innovative design, Inter/multidisciplinary collaboration in design, Human Centre design, Innovative technology and accessibility for the elderly & disable.

0270

DESIGN IN DEVELOPMENT: Case studies from Jordan

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*Qassim Saad, Senior Lecturer, Originally from Iraq, Saad's research focuses on design as a "strategy force factor" for developing countries. As well as contributing to the infrastructure needs of these states, Saad believes well-thought-out design interventions have the power to make people's daily lives easier in countless ways. These are among the questions Qassim Saad has been exploring, as he develops his practice portfolio for RMIT's industrial design doctoral studies programme*

This paper examines visions for the Jordanian economy that are based on current directions for the promotion of industries through a focus on creativity, originality and identity (Jordan Economy Brief History, 2004). Design can play a key role in these areas, a fact that has encouraged developing countries in Asia, Africa and South America to support industry-oriented design policies that enhance local expertise (Amir, 2004). Jordan provides success stories which demonstrate how design can contribute towards development. This research uses case studies to illustrate two approaches where design has been used to promote industry in Jordan. Design continues to play a key developmental role in Jordan, with international assistance allowing increased cooperation between design education and professional bodies.

Keywords: design and development, design education, craft and design for development, product development

0271

## What it Takes to Design in the Virtual World

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*Associate Professor Anthony Williams has worked in the Design field for over 20 years as a designer, researcher and teacher. His specific research area is collaborative design covering face to face as well as virtual design teams. He has been recognised as a leading teacher of Design most notably as a recipient of the National Award of Teaching Excellence. He was the Project Leader for the research project being reported in this paper.*

The operational differences which result from using different electronic communication media and its impact on generic design skills have been the basis for the research reported in this paper. The outcome of this research is the development and mapping of generic skills profiles for virtual design teams and the designers who work in them. The research findings also identify changes in generic skills profiles between the traditional mode of team design as well as the different operational states of current and future ICT environments. This paper examines design team activities, processes and skills occurring in co-located environments and links these with those of virtual teams. This is achieved by documenting the results of analyses of video data of designers involved in collaborative design using various ICT technologies, ranging from traditional co-located systems to high bandwidth 3D virtual worlds. The analyses identify that 'appropriate generic skills' are necessary when interacting and collaborating using different electronic media and this study presents a case for ongoing research into the area of generic skills within virtual design teams.

Keywords: case study, collaborative design research, technical communication, participatory design (cooperative space), communication, coordination and collaboration in groups

0272

## Dealing with Ugliness

Proposals for the re-evaluation of an industrial site

"Oliva" factories at the city of São João da Madeira - Portugal

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*João Mota is a Visual Artist and Designer. He undertakes research in non-commercial large-scale images set in urban environments.*

*Graduated with a Master of Fine Arts in Lisbon and New York and a Ph.D. in Design at Aveiro University. Taught design courses at NYU (New York University in 1995) and GSD (the Graduate School of Design at Harvard University from 1995 to 2000). Since 1996 he is a Associate Professor at Aveiro University – Portugal.*

Last thirty years of Portuguese urban experience brought intense changes to rural and urban landscapes. The case study of "Oliva" factories at the city of *São João da Madeira* – Portugal, is an opportunity to discuss the evolvement of policies in design processes. This paper seeks to analyse the results originated by the role of order in planning, in an abandoned industrial site in Portugal, and calls for an enhanced participation between designers (urban agents, architects, communication and product designers, urban planners) the visual artists and politicians (residents, local and European government). The empirical material of this study was produced between 2002 and 2005 and comes from team work between the *University of Aveiro* and the municipality of the aforementioned city. This paper concludes that sites experiencing deep programmatic changes grounded in fragile planning agendas produce always unavoidable experiences with disorder. Ugliness is there we simply can't miss it. Even, if we do not like or overlook, ugliness is part of the existing conditions of the site. Moreover, ugliness the same way landmarks do becomes intrinsically imbedded with surrounding architectural fabrics. It coexists with the architectural and social fabrics, and as conditions mature, so does its ability to adapt to the changing conditions trough time.

### Keywords

Architectural Design; Design and Development; Environmental Design; Sociocultural aspects of Design; Revaluation of the Industrial Heritage.

0275

**The Unity of Experience:  
Perspectives on the Products of Design**

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*Education*

*Ph.D. (expected May 2007). Research Studies in Design in the Faculty of Fine Arts, School of Design and Crafts (HDK), Göteborg University, Sweden.*

*Fil. Licentiate, 2005. Research Studies in Design in the Faculty of Fine Arts, School of Design and Crafts (HDK), Göteborg University, Sweden.*

*Fil. Mag. ( Master of Fine Arts in History of Art), 2002. Faculty of Arts, Department of Art History, Göteborg University, Sweden.*

*Special courses in the School of Design and Crafts (HDK), Göteborg University, Sweden.*

*Diploma in Art and Craft (Combined BA & MFA), 1992. Tallinn Art University (formerly Estonian Academy of Art), Estonia.*

*Exhibitions*

*As a practicing artist I have had ten solo art exhibitions, and have participated in a dozen international group exhibitions.*

*Grants and Fellowships*

*I have received seventeen cultural and research grants and fellowships.*

This paper arises from practice-based design research that I am conducting for my doctoral degree. In that research, I am investigating the acoustic and aesthetic properties of hand-tufted fibre products that may be used in interior spaces. After producing and testing material samples, I am now moving on to further questions about the experience of such materials in situations of practical use. Specifically, I am investigating how such materials may be used to enhance experience when they are placed in interior spaces. I want to understand the possible criteria for explaining how these materials help to create a unified experience. To me, this is a question of principles. What principles shape our understanding of wholeness in experience? To address this question, I will explore the idea of unity or wholeness of experience in three philosophers, seeking criteria that may be employed by the practicing designer when seeking a concrete solution to a problem of interior space. The three philosophers are Maurice Merleau-Ponty, Roland Barthes and John Dewey. Through this work I hope to demonstrate how practice-based research can lead to fruitful investigation of fundamental theoretical problems. The research results will be of significance foremost for architects, designers and design researchers.

**Keywords:** aesthetics, artefacts (for generating understanding of the design space and for "use" in a broad sense), case-based design, experience, interior space

0277

Ethics for the Artificial World,  
Attraction, Science, Design and a Cloven Viscount

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*Eduardo Corte-Real is currently the Scientific Board President of Escola Superior de Design/IADE. From 1999 to 2005 he was the president of the Directive Board of the same school where e co-did the following: Founded the Research Unit UNIDCOM/IADE financed by FCT, the Magazine "Idade da Imagem", The IADE's Editorial Centre, the international conferences "Senses&Sensibility", Pride&Predesign (a Cumulus conference). Created and Coordinates the Master Course In Design an Visual Culture in IADE. In 1999 received a PhD in Visual Comunication in Architecture at FA-UTL where he graduated as an architect in 1985.*

*He currently teaches Drawing, Pre-Photography and Art and Popular Culture. He was awarded funding for two research projects as principal researcher. One on way finding in complex buildings concluded in 2004 and a current one on Drawing and the Portuguese Visual Culture from the 50's to the 80's. He his editor-in-chief for the electronic journal "The (radical) Designer" and was elected for the DRS council in September 2006*

The paper argues that Design will fulfil the Renaissance promise of the modern human once destroyed by the contemporary secession between art and science. This study follows a work focused on the legitimacy of formal production that identified *Disegno* as the core of the social devices in favour of the practical arts. Being affiliated to a research centre's track devoted to the understanding of Material Culture, the author concern is to contribute to the knowledge about the relations between cultural production *strictu senso* and Design culture. By connecting Historical evidence to metaphorical evidence in contemporary Literature, a delimitation of field will emerge.

From Alberti to Italo Calvino, the rise and fall of the modern human connected to design is underlined. Especially Calvino's work "The Trilogy of our Ancestors" is particularly eloquent about the human condition as designer as well as designed.

Keywords: architecture, art/science controversy in design & design education, design history, history of technique, history and theory of architecture

0278

## The ethical cycle and judgment in design

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This paper starts with the claim that the design analogy, i.e., the analogy between design and ethics, helps to understand and to deal with moral problems, and suggests some useful strategies for addressing moral problems. In applying the basic problem solving cycle of design to ethical decision making, we develop a model for moral problem solving. In this light we discuss two general issues in applied ethics: the role of ethical theories and the place of individual judgment versus collective deliberation. Then we will reverse the analogy, and draw lessons for the area of design.

Keywords: ethics, design, evaluation, values

0279

**Knowledge Management for Design research:  
Knowledge in – Knowledge for – Knowledge through**

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*She is a post doctorate researcher on design research for the creative industry. The research focusses on knowledge management to meet the competences set by the industry using the conceptual frame work of cybernetics. Currently she's involved in the [inter]national debate on the Creative Industry as a policy advisor and researcher such as for the dutch Innovation Platform.*

*Next to this she is a managing director of the Professional School of the Arts Utrecht, a collaborative MA and PhD program with the University of Utrecht. She also supervises (MA and PhD) students within the postgraduate school of Art, Media & Technology.*

Nowadays both institutions in higher art & design education as well as the academic world are joining their forces. Driven by a need to explore and demonstrate how design education, design research and the implementation of research outcomes into industries empower the innovation platform. Central to both these educational institutions is their nature in which they value learning and creativity. Education and knowledge creation is the core business of these organisations. The aim of these cooperations is to further more serve the demands set by the creative industry. As such, it is quite remarkable how poorly developed the notion of knowledge management is at the level of this cooperation. Although lecturers and educational staff put a lot of energy at enabling knowledge creation and facilitating learning at a student level; very little organisations have developed a knowledge vision on how they can enable knowledge creation within this new dimension.

The postdoctorate research presented in this working paper elaborates on methodologies for structuring learner-centered open-ended learning experiences (such as formal- and informal learning), validating knowledge created through design research and practice, competences to meet the demands and adapt to this highly innovative field of creative industry.

Keywords: knowledge for and knowledge of, circularity/cybernetics, creative industry, knowledge exchange between design practise & academia

0280

DESIGN: Category Formation, Prototypicality and (Aesthetic) Preference

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*My special field of interest concerns art theoretical and aesthetic issues. The title of my Ph.D.-thesis is "Mimesis as the Representation of Types - The Historical and Psychological Basis of an Aesthetic Idea". This work attempts to investigate a long-standing tradition within the history of aesthetics according to which the function of pictorial representation consists, or ought to consist, of the rendering of general or idealized types rather than particulars. In general, I am quite well acquainted with art theory issues as well as disciplines which seem to have a bearing on them. It seems that this combination of philosophical reflections with empirical, most notably psychological, research, which I consider to be essential for field of research, occurs rarely within aesthetics, and thus it appears that my work, at least in this respect, might be considered to be quite innovative.*

*I have also been participant as well as lecturer on several international congresses or conferences where some of the topics above have been discussed.*

Cognitive psychology has, to a considerable extent, investigated the capacity of humans and other living creatures to categorize objects and events. The formation of categories enables us to apply previous experiences to new ones, to make inferences, to make predictions about the future, and they provide efficiency in communication - just to mention a few examples. Important questions, however, are how categories arise at all (i.e. whether, or to what extent, they are the result of environmental features or constructive processes on the part of the categorizer), and how they are represented in consciousness. Numerous cognitive psychologists have, following the psychologist Eleanor Rosch's initial work (1975; 1978; 1994), attempted to investigate the nature and acquirement of categories in general, most notably that of taxonomic categories. In this paper, I intend to give an outline as to how psychological categorization research might have implications for understanding some significant aspects of our preferences for instances of "design". More specifically, I shall argue that matches and moderate mismatches between instances (and/or types) of design and beholders' mental representations and schemata may lead to hedonic effects and thus may have a bearing on their (aesthetic) preferences. KEYWORDS: Aesthetics, cognitive psychology, psychology of art

0283

## Development of Sketching Support System

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*I graduated from faculty of science and technology of Keio University.  
Now, I am a 2nd-year master's degree student at graduate school of Keio University.*

In the process of embodying the external form of a product, design is created by sketching. Sketches are able to reflect the aesthetic sense of designers the most easily, making them the most efficient design tool. Sketches can be classified into thumbnail sketches, rough sketches, and rendering sketches according to the embodied idea. Among these, rough sketches are used for developing the idea.

In this paper, a system to support deciding a product-form in the rough sketching process and evaluate the designed product shape using 3D models constructed from the rough sketch is described. This system has a function for extracting/generating sketch lines, function for interactively modifying sketch lines, and function for constructing 3D models from rough sketches. This system is developed by the authors and is built in Visual C++ programming language. As the input device of sketch lines a pen tablet or a tablet PC is used. The user draws sketches on the computer directly using it. In order to support rough sketching, algorithms which automatically extract/generate the desired sketch-lines are proposed for drawing sketch-lines. A method to construct 3D models form sketch lines is also proposed.

**Key words:** design, digital design, computer aided design (systems and application), design support, 3D modeling assistance

0286

**Values for sustainability in city design & A gentle declaration**

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*The author is affiliated with the Texas State University in San Marcos, Texas. His areas of research interest include architectural design and theory, public space and user experience.*

In this paper, the idea of city making is explored within the framework of civic environmentalism. Civic environmentalism is a holistic perspective that sees community health, ecosystem health, social health, economic health, present conditions and future conditions, all as interdependent. The aim of the paper is to propose values for making and re-making the city in a way consistent with promoting physically and socially-sustainable environments. Its primary lessons are that the city must be seen as part of a continuous environment and it must continuously be made and re-constituted in a way that it is respected and loved. Tools and strategies for accomplishing that end include history and memory of the city, recognition of the interdependence between city and nature, a sense of community and a sense of place. The paper discusses values that have been abstracted out of life goods as powerful constituents for the foundation of a spirit of civic environmentalism.

Keywords: architecture and planning, design and sustainability, design philosophy, space and place, urban regeneration

0289.

## Complexity and the Interior of the Western Early Christian Church

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The current paper examines the question of the complex interior form of many Early Christian era churches. It is part of a larger question about the history and form of the church. Using the church of San Lorenzo Maggiore in Milan as a case example, the paper illustrates a variety of impulses that may have come together at the time of building of these early churches. The primary goal of the paper is to propose that the visible complexity is embedded in a network of many, rather than few, factors. Of the impulses that may have contributed to creating the complex church interior, the following elements are discussed, among others: mirror of Heavenly Jerusalem, a place of transcendence, need for isolation, enlivening, communicating the idea of God, knowledge of material and building, siting and landscape.

Keywords: architecture, Christian, dynamic interior environments, representation, space and place

0290

Body is a Space and it is Public

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The human body is a space and the space is not exclusive. That the body is a public site is the primary argument proposed in the following paper. Acts on the body, consequently, are acts on a public site. The public character of the body is aided by both imposed cultural practices and the desirability of the individual-owner of the body to conform. The argument of "publicness" is, in the end, beneficial because the contestation of the body that it precipitates into discourse (i.e. between the body as private and public) makes the idea of the body meaningful both as a re-valued object and as a re-evaluated system within design thinking.

Keywords: design and public, design and the body, identity and design, public space, socio-cultural aspects of design

0291

**Studying Design Engineers use of Information Systems:  
Which variables to control for?**

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*John Restrepo is an assistant professor at the Technical University of Denmark. He is a Mechanical Engineer and holds a PhD in Product Design Engineering from Delft University of Technology in The Netherlands. His research and teaching activities include Innovation in Product Development, Mechanisms Design and User-Centered Design.*

Studying information usage by design engineers involves considering technical, social, cognitive and volitional factors. This makes it challenging, especially for researchers without a cognitive psychology background. This paper presents a summary of key findings in researching information use and processing in design, discusses important issues on the selection of a research strategy and sums up the important variables that need to be controlled for.

Keywords: analysis of design processes; cognition, creativity and computers in design; information processing and knowledge management in design; research methods and tools for design;

0292

## A Systems Analysis of the Problem of Professional Practice in Design: "Why Mac Computer Systems Reduce Creativity and Inhibit Quality Improvement of Novel Innovative Design"

T Love

*Curtin University, Perth, Western Australia, Australia*

*Terence is a researcher with an interest in design and design research across several design disciplines. He currently lives by the beach in Western Australia and works way too hard for such a wonderful lifestyle.*

Critical review of professional design practice, creativity and quality improvement in design is weak in the design literature relating to design processes and the computer technologies that support them. This paper takes a systems perspective focusing on the role of professional design practice and its relationships with creativity, quality improvement and computer hardware and software used by designers. The analyses developed in this paper indicate that professional design practices along with tools, processes and regarded as 'creative' or supporting creativity structurally inhibit creativity and quality improvement in design. In essence, that:

- Professional design practice acts against the creation of innovative novel designs
- Professional design practice acts against quality improvement in creating novel innovative designs
- Technologies widely regarded as 'creative' and central to 'creative' design - such as the Mac computer and associated graphics software - structurally inhibit creation of innovative solutions and reduce the possibilities for quality improvement in novel, innovative, creative design.

The paper demonstrates the value of a systems approach in identifying counter-intuitive outcomes.

Keywords: design research, creativity, computer aided design (systems and application)

0293

**Development of a Collaborative Design-focused Research Approach for Interagency Cooperation Addressing Youth Anti-Social Behaviour in Rail Environs**

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*Terence is a researcher with an interest in design and design research across several design disciplines. He currently lives by the beach in Western Australia and works way too hard for such a wonderful lifestyle.*

This paper reports the development, trialling and evaluation of a design-focused research method for collaborative design of interagency strategies and cooperative interactions to reduce anti-social behaviour by young people in rail environs. Youth anti-social behaviour in publicly accessible spaces such as train stations, parks, streets and retail environments has proven difficult to address via 'simple' single agency approaches. Most anti-social behaviour is not criminal. It can, however, have adverse impact on other potential users of the same spaces. To some constituencies with pecuniary interests, youth anti-social behaviour can have significant adverse financial impacts on their operations. In retail environments, for example, youth anti-social behaviour discourages shoppers from fully engaging in the planned shopping 'experience', with reductions in retail income; in public transport environments, it discourages travellers from using public transport. This results in a reduction on the public return on investment from public transport expansion programs, and an increase in cost associated with, e.g. pressure to provide increased resources for private transport infrastructure.

Keywords: social system design, system thinking, practice-based research

0294

## Necessary, Unnecessary and Sufficient Conditions

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*Michael Biggs is Professor of Aesthetics, Reader in Visual Communication and Associate Dean Research for Art and Design at the University of Hertfordshire [UH], UK. He has degrees in both Fine Art and Philosophy, and was Senior Research Fellow in Philosophy at the University of Bergen. In 206/7 he will be Guest Professor in Practice-based Research in Architecture and Design at the Universities of Lund, Göteborg and Stockholm. Michael specialises in fundamental research into the nature of so-called practice-based research in art and design. He is especially interested in the epistemological status of "knowledge" in socio-culturally determined fields such as art the creative and performing arts. He is also interested in the role that artefacts play in the generation and dissemination of this knowledge, and the arguments one might make for what they contribute and why they are essential in doctoral submissions and practice-based projects.*

This paper claims that whether a work is classified as research is a matter of judgement. This judgement is made by the audience and is evidenced by a change in their practice and by the attribution of that change to the researcher's work through referencing and the acknowledgement of intellectual property. The contribution made by this paper is to identify that there are three necessary and sufficient conditions for such a judgement. These are that it be appropriately disseminated, contextualised, and have consequential originality. To achieve these conditions it is desirable, but neither necessary nor sufficient for the researcher to have the intention that the work be classified as research. If the former three conditions are met then it is irrelevant whether the "author" intends the work to be research. It is therefore a further outcome of this paper that the judgement and classification of a work as research is an issue of reception, and the role of intention at the point of production is relevant only in increasing the likelihood that the conditions will be met for that reception.

Keywords: practice-led research, research, aesthetics, ontology, production/consumption

0295

## Sertões Da Bocaina Green Room

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*João Lutz, 48, graduated in Design, holds a D.Sc.in Production Engineering.*

*Works in Rio de Janeiro, Brazil, as a product designer and researcher focused on issues related to ecological design and education.*

*Since 1997 coordinates the Design course of Centro Universitário da Cidade and since 2004 is the president of ANPED, an association of researchers dedicated to the development of design research in Brazil. Also, since 2005, coordinates the Bocaina's Backcountries Green Room, in partnership with the brazilian Ministry of the Natural Environment.*

Different futures are possible. Human societies and human beings are historic phenomena. We can interfere with some of the futures that quickly approach. The past determines some options for the present. The future is uncertain but some things are now certain. Schools are special places where it is possible to rationally interfere in the future. This paper tells of a story, a case study concerning a design research developed in a private design course that led, through Participatory Action Research, to a green room. From product design, beyond ecodesign, to ecological design. From teaching to education. eco design;education;participatory action research;

0296

## Context-Sensitive Visualization for User-Centered Information System and Product Design

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*Eui-Chul Jung is currently a PhD candidate at the Institute of Design at the Illinois Institute of Technology under the sponsorship by ILJU Scholarship Foundation in . He holds a bachelor's and master's degree in industrial design from the Seoul National University .*

*He had worked at Design Group 'able', Inc. as a representative designer for 5 years and had lectured on web & multimedia design at Multi-Campus of Samsung Data System for 4 years. He also worked at Trigem Computer, Inc. as a team head for 2 years.*

*He was awarded a prize of '2001 Korea Industrial Design Award twice time, and a prize for 'Special Recognition' of JAD Design Competition sponsored by Samsung.*

*His research interests are in Design Knowledge and Management system, Context-sensitive Visualization, and Modeling Methods to Bridge Physical and Media Space.*

*Keiichi Sato is a professor and Ph.D. program co-coordinator at the Institute of Design , Illinois Institute of Technology. His research and teaching focus on general design theory and methodology, particularly design knowledge and process, human-centered system/product architecture, methods and concepts to enhance the design of interactive systems, products and services that bridge media space and physical space. He has extensively published his research, served as a reviewer for many publications and been invited to many organizations as a speaker. He has received many awards and recognition including Best Paper awards at ASME DETC-DTM Conference, ACM-IEEE Design Automation Conference, IEEE Robotics and Human Communications Conference, and Essen Design Innovation Selection. He is a member of ACM-SIGCHI, ASME, Design Research Society, IEEE, Japanese Society for Science of Design and editorial member of International Journal of Design. He holds a B.S. and M.S. in Engineering and an M.S. in Product Design.*

Pervasive computing technology enables information systems to deliver their information services through diverse interactive products distributed across our activity space. For effectiveness and quality of information delivered to enhance user experiences, it is critical to shape information for delivery with appropriate contents, resolution, format, and timing according to user's context changes. The concept of CSV (Context-Sensitive Visualization) has been proposed as a middleware for information systems and products development to deliver domain and system data to a user in context-sensitive way. Through the authors' previous research, context has been defined as a set of user's mental models activated by trigger elements in the given situation. The goal of this paper is to propose theoretical foundations to implement the concept of CSV by examining context models and exploring visualization schemes for the context models. Context models - how a user acquires and manipulates information in such a ubiquitous and pervasive environment - are surveyed and represented to provide criteria and scope for developing visualization schemes for CSV. Data encoded in knowledge-based information systems and products are visualized by integrating and dynamically mapping with two-layered visualization schemes: knowledge visualization and context model visualization. The main benefits of CSV are 1) improvement of information delivery and interaction quality by positioning information in user's context model, and 2) the development of a common design framework to incorporate context-sensitivity into information system and product design for intelligent home, office, car, and mobile environments.

**Keywords:** Human Centered Design of Products and Systems, Knowledge Representation, User-Centered Design Research, Design Knowledge and Context-of-Use, Context-Sensitivity

0298

## The Role Of Design Eureka in Design Thinking

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*Yi-cheng Chiang is an environmental design teacher. She graduated from graduate school of architecture and majors in design thinking for Ph. D. degree. She is interested in topics relative to creativity of design. Yi-cheng is an architect, too.*

Most of design researches have paid attention to the rational aspect of design, such as systematic process, design reasoning, design knowledge and so on. However, flashes of insight really occur in many designs. By protocol analysis, the present paper studies such a particular thinking phenomenon of design—the so-called 'design eureka'. Design eureka always occurs suddenly and is so slippery to catch and to explain. Before design eureka can be understood by analysis, it is the first task to capture it successfully. This paper aims to develop an effective method of describing design eureka in order to have further analysis possible. Four real-world protocols, all experienced design eureka in their design process, are deeply investigated by a series of analyses. In the tables and network-figures of the analytic method, the actual evolutions of design thinking are visualized and show out the place of "design eureka" in the context with design "bottleneck". Secondly, through the advanced content analysis, the evolution of bottleneck problems and the "exterritoriality" of design eureka are revealed and explained. Three critical characteristics of design eureka are discussed. The results indicate a kind of particular faith in designer's intention, which plays a central role of design-art creativity and makes design to go beyond problem-solving scope but near a kind of art-working.

Keyword: analysis of design thinking, architectural design, critical thinking, creative processes and design, design cognition

0299

## Integrating design theory and practice: Color, light and dynamic processes in interior design learning experiences

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University of Montreal, Montreal, Canada

Dr. Tiiu Poldma is a designer-researcher-practitioner with over 20 years design experience. She is associate professor at the School of Industrial Design at the University of Montreal and holds a Doctor of Philosophy from McGill University. She is Director of the Research Group GRID and heads up the Form-Light-Color Research Lab. Her interests include dynamic human experience in interior space, and how interior space mediates and enables positive human responses in various types of environments. As regular researcher at the Montreal research institute CRIR, she is examining the effects of the lit environment on Alzheimers' patients and their activities, and how design of the interior environment enables the well-being of vulnerable populations.

Most of design researches have paid attention to the rational aspect of design, such as systematic process, design reasoning, design knowledge and so on. However, flashes of insight really occur in many designs. By protocol analysis, the present paper studies such a particular thinking phenomenon of design—the so-called 'design eureka'. Design eureka always occurs suddenly and is so slippery to catch and to explain. Before design eureka can be understood by analysis, it is the first task to capture it successfully. This paper aims to develop an effective method of describing design eureka in order to have further analysis possible. Four real-world protocols, all experienced design eureka in their design process, are deeply investigated by a series of analyses. In the tables and network-figures of the analytic method, the actual evolutions of design thinking are visualized and show out the place of "design eureka" in the context with design "bottleneck". Secondly, through the advanced content analysis, the evolution of bottleneck problems and the "exterritoriality" of design eureka are revealed and explained. Three critical characteristics of design eureka are discussed. The results indicate a kind of particular faith in designer's intention, which plays a central role of design-art creativity and makes design to go beyond problem-solving scope but near a kind of art-working.

Keyword: analysis of design thinking, architectural design, critical thinking, creative processes and design, design cognition

0303

Modelling a Contemporary Understanding of Representation in Art An Experiment with Analogue/Digital Augmentation

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*Vigdis Holen is a Norwegian artist and researcher recently qualified as professor in information design. She is full time employed at the Faculty of Computer Science at Ostfold University College in Norway. Currently she is working in her research laboratory in Karlstad, Sweden.*

It is quite common today to think that humans use science to understand nature and art to represent and interpret the world. The artist/designer offers to his audience his representation and interpretation of the world as he makes his works publicly available. He offers the audience to see the world through *his* cognitive 'glasses' with *his* cognitive mind.

This study visualizes what art is in physical materials as a concrete constructed setup in a closed laboratory environment. The art-makers information is inserted as extra layers in between the observer and the observed to model the knowledge transmitted from the maker to his audience. The layers possess information as representational images and texts leaving the remaining surroundings untouched.

The setup attempts to isolate the phenomenon of art and give it a tangible and visible form. The intent is to get closer to the substance of art by creating a situation where it is possible to concretize and study it by distinctly to focus on the representation process. The paper accounts for the experimental setup of images and texts as added spatial augmented representations to the laboratory surrounding. The result is an affordable, unsophisticated and designed environment with broad application potential.

Keywords: Democratic art/design, visualization, perception, optical phenomenon.

0304

## Study of Core Design Ideas in Transportation Design

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*Johannes Uhlmann is head of the Industrial Design Chair of the Technische Universität Dresden. He studied industrial design at the School of Art and Design Berlin Weissensee and wrote his second PhD thesis about design education in Dresden.*

*Jens Krzywinski studied Industrial Design at the Technische Universität Dresden, where he is research associate now. His PhD research focuses on core design ideas in transportation design.*

From the view of work psychology, the core design idea is the most important stage in design process, because its availability determines the success. This success regards the design object and also the design process, which should be passed with ease and delight.

A core design idea is the first solid unit of knowledge in design processes with ill-defined problems. In the Design Process Planning, which is based on the work-psychological Action Regulation Theory, core design ideas act as a compact guiding principle. It includes the anticipation of the result and regulates the course of the design process. This leads to questions about the verification of existence and about the description of mode and function of core design ideas.

0305

## Designing From *Dasein*: Explicating Design Futures From Hermeneutic Conversations With *Authentic* Personal Experience

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*Ian Coxon is a PhD student in his final year, under the joint supervision of the University of Western Sydney in Australia and the University of Applied Sciences in Koeln Germany. Ian came to university life at the age of 45, after twenty years in corporate marketing. He received his first class honours degree in Industrial Design in 2002, and this qualified him for an Australian postgraduate award; which has enabled him to undertake his present doctoral research, into Designing / researching, lived experience.*

*His presentation deals with a method he has developed through his research, to assist designers to gain an intimate understanding of peoples everyday experiences, and how this can be used to develop better design solutions and hopefully assist us to be better designers.*

This paper presents four explorative approaches to developing design futures from deep (*Dasein*) understandings of individual lived experiences. Using a 'framework' or Taxonomy of Experience (*ToE*) developed out of earlier hermeneutic phenomenological research as a basis for exploration; four approaches to explicating design understandings from this experiential base are presented. Language from Martin Heideggers philosophy of existential *Being*, is used throughout this paper to help communicate and support the different explorative approaches and outcomes that unfold through hermeneutic, interpretive analysis.

The analytic explorations presented in this paper are drawn from an empirical study of the lived experiences had by individual customers and designers within a niche but scientifically significant automobile market (Delucchi, Kurani, Nesbitt, & Turrentine, 2002a). Throughout this paper, parallels are drawn between the individual experiences of these customers and designers, and the philosophical guidelines for developing experiential understandings, developed by phenomenologist's such as Martin Heidegger and others.

Conclusions are drawn, that indicate that, if a *Dasein* [pronounced da zign; meaning '*Being*-there'] understanding of a particular experience is able to be made manifest through the use of a *ToE*, it provides experiential understandings in their wholeness (a unity), which are the existential foundations for understanding *Dasein* experience itself; and that these understandings are essential to moving *forward* as a designer. (Design as essentially future oriented) This is design *from Dasein*. The conclusions suggest Design from *Dasein* might offer a point of departure from *Inauthentic* (A Heideggarian term) design practices such as linear, static or rear vision design. It is further suggested that Design from *Authentic Dasein* can provide, future oriented, forward moving, design foundations from which *Authentic* Design can proceed

Keywords: design research methods, experience, design and emotion, hermeneutics, phenomenology

0306

**Exploring innovation focused design methods in advanced product development environments.  
A case study: Yacht design practice within the modern boating industry.**

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*The author is an norwegian industrial designer, teaching design methodology and product design at the Oslo School of architecture and design. Besides a personal interest in yacht design, he has run his own design office since 1990, providing services for small and medium sized norwegian manufacturers.*

Scope

Because each design field often requires individual approaches to working methods, investigating specific and highly specialized design arenas can create new and interesting insights. This paper explores the use of innovation focused design methods in advanced product development, by studying one design arena as a case: The expanding yachting industry. The focus is on sailing yacht design in a contemporary perspective, by studying relevant working methods applicable to yacht design. Due to the diversity in this industry, this kind of research requires an extensive introductory description in order to display its wide range of design practices. What are the characteristics of innovation focused design methods within the yachting industry? Are there differences in applied design methods in opposite yacht segments?

Aims

This paper aims at answering these questions by carrying out a comparative study of applied design methods in two different areas; the low-cost mass production yacht segment and the more exclusive one-off / customized yacht segment.

Conclusions

The investigation reveals a wide spectre of design methods, dependent of product segment, yacht size, complexity and costs. The design methods used by mass-production manufacturers indicate an aspiration towards the images and principles used in the one-off/customizing segment. Conclusions to be continued.

**Key words**

- Design Management
- Design Methods
- Innovation
- Product Development
- **Yacht Design**

0307

## EVALUATION OF A PRODUCT UNDER AN ATTITUDINAL APPROACH

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The research presented in this article, performed in Brazil, consisted of the evaluation of a specific product, the shaver, through the attitudinal approach techniques. The target product was chosen because it has a clear and unambiguous main function. Besides, it used individually and frequently. Shavers are found in the Brazilian market in a great variety of models, brands and prices. We tested a sample of shavers that are for sale in most drugstores and supermarket in Brazil. All the participants were men. They were gathered according to their educational levels and kind of professional activity. The analysis of the result of the probing tools had allowed the identification of the needs and preferences of each group, and their ways of evaluating the shavers.

Keywords: design, product design, attitudinal approach in design.

0309

## Functional Sales From A Consumer Perspective

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*Viktor Hiort af Ornäs and Oskar Rexfelt are PhD students at the department of Product and Production Development, Chalmers University of Technology, Sweden. Viktor is employed at the University of Skövde, Sweden. Their research concern user centered design.*

Design aims to create solutions that assist users. While much design has focused on physical goods this could also be accomplished through services. Increasing the service component of products may be a way to move towards functional sales, in which the customer pays for goal fulfilment instead of a physical product. Functional sales have been seen as beneficial from commercial, societal and environmental perspectives. It has primarily been discussed in relation to business to business markets but is interesting also from a consumer perspective. However, concerns have been raised about whether consumers would accept ownerless consumption. Based on focus group interviews around four hypothetical product offers we identify some characteristics of a change towards functional sales and ownerless consumption from a consumer perspective. The impact on consumers' lives may be described through how it changes the activities in which they engage. New products imply new ways of doing things, and new things to do. Changes may be enabling (assisting the consumer in desirable activities), disabling (constraining what the consumer can do), and may also relieve or introduce musts. Functional sales may support more user-centred solutions but poses great challenges and producers need to adopt a user centred process.

**Keywords:** new product development, user centred design, New product-service systems, Sustainable consumption, technology adoption

0310

## Are inclusive design features delightful, satisfying or expected?

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*Evandro Guimaraes is a lecturer of industrial design at the Universidade Federal do Maranhão in Brazil and currently a full-time PhD student at Staffordshire University, UK. He has deep interest in design research around inclusive design and assistive technology. For the past 12 years, he has been designing and manufacturing low-cost assistive devices for low-income communities in Brazil along with his students and friends from the Independent Living Center of São Luis, capital of Maranhão State. His university UFMA and other two Brazilian institutions, FAPEMA and CNPq, have sponsored his research. Evandro has worked as research assistant at the Center for Assistive Technology (CAT) at the State University of New York, Buffalo, where he pursued his master's degree and designed assistive devices that have been manufactured in the United States of America.*

David Durling is Professor of Design, School of Arts & Education, Middlesex University, London.

His education was in furniture and industrial design, with a PhD in design education. He has practised design in various fields including furniture, interiors, product design and design management. For a decade he ran a design consultancy specialising in science laboratory planning and equipment. His research interests range across doctoral studies, creativity and its links with personality, education, and research methods training.

He has held several professional positions. He is the longest-serving chair of the international Design Research Society, and edits its popular 'Design Research News' which is distributed by email to over 6800 researchers worldwide. He was a panel member for Art & Design in the UK Research Assessment Exercise 2001, and for 2008. He is also Visiting Professor in Design at the University of Central Lancashire UK, and external examiner for industrial design at the National University of Singapore. He has co-chaired various conferences such as 'Doctoral Education in Design' 2000 and 2003; 'Common Ground' 2002; and 'Futureground' 2004. He is a member of the College of Peer Reviewers AHRC, a Fellow of the DRS, and an executive member of the new International Association of Societies of Design Research.

Cherie Lebbon FRSA, Senior Lecturer in Design theory at Coventry University is a professional and experienced lecturer, researcher and designer with a particular emphasis on inclusive industrial design, with a proven track record of innovative and successful project work. She worked as a team member of a large EPSRC funded research consortium on the first stage of the i-design project, resulting in a book, for which she was an editor, and the prototype of an online research resource for inclusive design. She contributed to the further development of the web-based learning resource on inclusive design for the Royal Society of Arts, providing key concepts for the website design, researching and mapping the content, plus conducting user testing of the website and analysis of the results. She is an external examiner for BA Product Design at Lincoln University and has substantial connections with other UK universities both as a consultant and visiting professor. She has supervised successful PhD candidates.

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Drew Smith, currently studying MA Automotive Design candidate at Coventry University, has an interest in the social and cultural impact of design. His particular interest lies in the realm of the automobile and its role in modern

The paper describes the outcomes of a study testing the Kano model (Kano, 1984) as a tool for designers to measure user's reaction to particular product features relating to inclusive design. The study follows a rigorous methodology, ensuring that sample sizes allowed full statistical analysis using One-Way ANOVA, t-test and correlations tests for verification of findings.

The Kano model was used to evaluate the design of the Good Grip™ potato peeler and using the 'Lancashire' potato peeler as basis with three distinct user groups, Young, Disabled and Elderly. The results suggest that there was very little difference in reaction between disabled and young user groups and a significant difference between those and elderly users.

Video footage taken during the questionnaire sessions was analysed to further determine users' reactions. Through comparison of the two methods some surprising things were found for example, there was a high frequency of indifference amongst the three groups of users.

These results show that the Kano model has worked as tool for ranking features' importance and predicting what features of an inclusively designed product will or not be a delighting factor for the user.

Keywords: emotions in design; inclusive design; evaluation

0311

WHEN IS A NEW THING A GOOD THING?

TECHNOLOGICAL CHANGE, PRODUCT FORM DESIGN AND PERCEPTIONS OF VALUE FOR  
PRODUCT INNOVATIONS

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Organizational scholars recognize the importance of customers' perceptions for the successful adoption and diffusion of product innovations. Yet most studies have focused on how innovating firms develop necessary new competencies and learn about customers' needs rather than on how customers' perceptions may be influenced by the firms' technological and design choices. Drawing on psychological research, we argue that innovations with different degrees of novelty present customers with different degrees of incongruity, thereby triggering varying cognitive and emotional responses, which have varying effects on customers' perceptions of the value potential of product innovations. We develop a framework that articulates how firms can use product form design to influence these cognitive and emotional processes. Our theory suggests that the current view of product innovations as outcomes of technological search should be extended to recognize that product form design endows new products with symbolic and aesthetic properties, which can have significant consequences for how the technologies that firms introduce are perceived and adopted.

0312

## Visual Thinking: Can Drawing Contribute Knowledge to Medicine?

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*Lucy Lyons is a drawer studying for a practice-led PhD. Her thesis, Delineating Disease: Investigating Fibrodysplasia Ossificans Progressiva Through Drawing, examines how drawing as a methodology can offer new insight and visual information on a rare congenital disease. She is studying at Sheffield Hallam University and her research is based both at the Royal College of Surgeons of England and the Nuffield Orthopaedic unit, Oxford University. She has been a painting tutor at City and Guilds of London Art School since 2001.*

The aim of this paper is to ask if drawing can contribute to the knowledge of disease. The foci are on methods of data collection and interpretation and in considering why and how images are made and how that process in itself has a direct affect on their epistemic value. The majority of cases discussed are within the scientific fields of physics, biology and computer science as these are the areas where visual thinking is mainly used and discussed. I am arguing for a process of visual thinking, different from medical illustration, which can offer knowledge within medicine, specifically pathology. Referring to discussions from the MIT *Image and Meaning 2* conference in July 2005, and conversations with experts in medical imaging, amongst other sources, I will outline the implications of the various intentions and processes of visual thinking, using both historical and contemporary cases. I will demonstrate how interpretation of data; the effects of how that data is originally collected and the manner in which the information is visually communicated, all have a great effect on the results. Examples both personal and previously documented will be used to point out the challenges created by these conflicting concepts and suggestions made concerning the search for the ubiquitous universal tool for visual thinking.

**Keywords:** drawing, visual communication, visual thinking, methods & tools

0313

## A constructivist approach to wayfinding map studies: Construction of spatial knowledge in people-map-space interactions

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*Christopher Kueh is a PhD candidate in Curtin University of Technology, Western Australia. With his thesis currently submitted for examination, his vision in design education is to emphasise on interdisciplinary design approaches. His goal is to link design education with the practising industry, and also to bridge design (in general) with other aspects of contemporary society.*

Effective wayfinding map design requires the application of knowledge about how people interact with maps and the actual environment. This paper presents a research that applied constructivist perspectives to study the ways people construct individual spatial knowledge by interacting with maps and the actual environment. The findings revealed that people construct spatial knowledge based on experience and active interactions with entities in a specific built environment.

Keywords: knowledge construction, information design

0314

## Design Factors Affecting the Legibility of Text on the Screen

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*Stuart Gluth is the Studio Head of Graphic Design at the University of South Australia. His passion for typography developed despite an undergraduate degree in Industrial Design and his current research interests include legibility, Design as a legitimate research activity and teaching creativity. He is also principle of his own design consultancy and acts as a consultant for other studios. Current projects include the development of bitmapped fonts for the screen and paper engineering. He chooses to commute an unreasonable distance each day to live in the beauty of the scrub at Aldinga where he also tries to find time to paint landscapes*

This paper discusses the issues surrounding the presentation of text for reading on the screen. This is seen as important as increasingly large amounts of information are available or will become available via the computer and access to this material needs to be able to be read without deforesting the planet. Considerations such as bitmap versus anti-aliased presentation of text, typeface design, the importance of space as a design consideration in layout and reasons to design for existing rather than future advanced technology are put forward. Arguments made for the value of the design process as an approach to solving some of these problems. Some design outcomes proposed for various perceived problems of reading text on the screen using existing approaches, systems and typefaces. Low technology approaches such as Microsoft's ClearType system are analysed as a model for their creative approach to using existing technology better than it was ever intended. Proposals are put forward for future directions for design research follow as the result of the conclusions arrived at

Keywords: Design Factors Affecting the Legibility of Text on the Screen

0316

## Using Cartoons to Engage Stakeholders in Innovation and Design of IT Artefacts

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*Lars Albinsson is a industry doctoral candidate at the University College of Borås and Linköping University. He dropped out of the university in 1986 to form a successful consulting firm called Unusual Systems, and have been working with innovative projects for clients like Volvo, IKEA, ABB and Microsoft. Today he is writing a dissertation while still consulting for select companies and serving as board member on others. He lives with his family on an island on the Stockholm archipelago that can only be reached by boat.*

This paper presents how cartoons have been used to engage a large number stakeholder in the design of a radical new type of IT-artefact. It demonstrates how cartoons can increase the number of people that are actively involved and also how they can aid innovation, making them useful in many types of design. It also shows how they can serve as starting point for "traditional" IT artefact development methods. It includes a case study of a pioneering project were student will participate in the design of a versatile, omnipresent electronic agent, an e-Me, that schools, authorities and companies are required to address with interacting with the student. It might be thought of as turning the internet around – rather than having students find and keep track of sites, the sites will have to come to the students and interact with them in the way specified by them.

Keywords: Design Methods, Design Processes, Participatory Design, Reflective Practice, Systemic Design, Cartoons in Design

0318

## Transferability – A Wonder on the Ground of Design Research

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*Rosan Chow has finished her PHD in design in 2005 in Germany. Her research interests include design as inquiry, design-driven research and design for development.*

Drawing on our recent experiences in two research projects in interface design, we propose an alternative to the model of design research that uses generalizability as one of the fundamental criteria. Instead, we suggest that transferability is a more 'designistic' factor, and that by privileging transferability in the design research process, we shift design back into the centre of design research. Although this strategy remains to be explored in depth, we provide one example of this kind of research, which involves a number of moves to repurpose an interface for one domain (drama) and community of users (actors, directors, and students) to another domain (football) and a different community (players, coaches, and fans of the game).

Keywords: research quality, design-driven research, interface design

0319

**BODY – SPACE – MOVEMENT**

**Spatial Orientation, Sensitive Awareness and Creative Practice in a Learning and Educational Perspective**

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The main focus of this research project concerns aesthetical learning processes. The focal point in the project is the *body-space interaction*. I aim to illuminate and discuss the role of spatial orientation and sensitive awareness in relation to the rise of consciousness and learning in general, and for the creation of and teaching in 3D design in particular.

During recent decades, there has been an escalation of research within various fields concerned with the body's relationship to the production of knowledge. A new understanding is being developed through the fields of phenomenology, existentialism and the new philosophical anthropology that can be seen to challenge Cartesian dualism and the objectification of the body. Together with neurophysiologic research, the so called "cognitive metaphor theory", and "dynamic system theory", it represents a change that confronts dominant theories about the growth of consciousness and learning.

I am investigating the contribution of this new knowledge to the aesthetical field and vocational studies where the creation of 3D form is essential; directed against a fundamental understanding of spatial- and aesthetical categories.

Keywords: the body-space interaction, tacit knowledge, aesthetics, cognition and design, practise-based research

0320

## Look and Feel, Cad Systems Innovations

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- *Master in Science and Materials Engineering – Aveiro University*
- *Ph.D. in Rapid Prototyping and Rapid tooling (Mechanical Engineering) – FEUP/INEGI.*

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*Publications: More than 40 publications in international conferences and journals.*

The state of the art of some technologies that are focused to accelerate the product conception and development step is analysed.

CAD and Reverse Engineering technologies that are employed in the first phases of the development process have a significant influence on the time consumed to produce prototypes for customers' approval.

The integration of haptic interfaces in CAD systems, which at present state are already crossing the limit of commercial viability, is an extra advantage to shrink the development phase of a new product.

The advantages of integrating these technologies in the production cycle are demonstrated using, as an example, a shoe branch company, that after adhering to the new rapid product conception and development tools, improved its productivity and capacity to produce functional prototypes in reduced times, resulting in an increased company credibility and acceptance at international level.

Keywords: Haptic interfaces, computer based systems for product modelling, design & innovation processes, case study, industry

0323

## Design Process for Specific Styling

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*Ms. Halvorsen is a master student at the Norwegian University of Science and Technology. At time of this research she was an exchange student at the National Taiwan University of Science and Technology. She is focusing her studies on design strategy and management.*

*Dr. Wen-chih Chang is a professor and the chair of the industrial and commercial design department and also the director of graduate school of design, National Taiwan University of Science and Technology. He earned his Master Degree in Industrial Design at Syracuse University, NY in 1980. Since then, he has been an industrial design teacher and product designer. In 1993 he gained his doctorate in Design management at the Manchester Metropolitan University, UK. Being a design consultant for many companies and for many years gives him opportunity to have a closer look at the business world. He specializes in the research of product design management such as design strategy, design quality, organizational creativity and product design performance.*

In this study we are presenting a structured way of applying a specific style to a product. It is often the visual qualities of a product which consumers are exposed to first, and in order to attract consumers, the product must cater to their desires. Using specific styles to appeal to a targeted group is a way to do this. Using a process for bionic design as our model, we have developed a six-step method for designing a product where the goal is to cater to a target group through the use of specific styling. To illustrate this process, we also present a case study where a CD-player is designed with a Chinese style.

Keywords: Styling, design process, style features, case study.

0326

## Use-Inspired Basic Research: Improved Understanding and Innovative Products - a Case Study

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*Dagmar Steffen studied industrial design at the Academy of Art and Design Offenbach (Germany). Her special interests comprises product semantics, material culture and design research. She is a lecturer at the Bergische Universität Wuppertal where she currently conducts her doctoral thesis.*

The paper explores the interplay between disciplinary knowledge creation in basic and applied design research on the one hand and experimental design on the other. As part of my dissertation, several case studies were analysed among them a long-term research project which was conducted at the C\_Lab for customization design at the Academy of Art and Design Offenbach, Germany. Subject-matter of this research were the various implications and effects, that digital technology will have on design, on product semantics, the role of the designer and the user as co-designer. It included questions and hypothesis basic for design as well as experimental furniture design. Firstly, the paper presents the case, which provides rich inside into research that combines a quest for fundamental understanding of the field with considerations of use and practice. In a second step it will be analysed how knowledge creation and experimental design practice takes place in iterative hermeneutic circles, mutually inspiring and correcting. Finally I will classify the case study within a conceptual framework set up by Donald E. Stokes, who argued for a dynamic model of use-inspired basic research.

Keywords: case study, design research, practice-led research, semiotics, customization design

0327

## For the Content Creation of the Virtual Online Museum of the Portuguese Poster

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Helena Barbosa obtained her first degree in Communication Design - Graphic Art from the Faculty of Fine Art, University of Oporto in 1992. Since 1998 she has lectured on the Design Course in the Department of Communication and Art of the University of Aveiro, mostly in the disciplines of Geometry, Reprography, History and Aesthetics of Design, and History of Portuguese Design. In 2002 she was awarded a Masters' Degree with the dissertation "Web Site Stories: Towards a Virtual Museology of the Virtual". At present she is preparing her Doctorate in the area of Design, with a dissertation entitled "The History of the Portuguese Poster in the 20th Century: Towards a Virtual Museum of Portuguese Design", and is responsible for the creation of a virtual on-line poster museum containing around 40,000 exhibits, a project developed by the University of Aveiro.

**Anna Calvera** (Barcelona, 1954)

PhD in Philosophy; Graphic Designer; Studies on Design theory at the DAMS, University of Bologna (Italy) Associate Professor of Design History and Design Studies, and Philosophical Aesthetics at the University of Barcelona (Spain); responsible of design history topics on the PhD Program on design at the University of Barcelona researching on Design and Decorative arts history in Catalan 20th Century. He has been visiting professor at undergraduate and master courses, participating in seminars and lecturing in many design schools and universities both in Europe (Milan, Paris, Lyon, Augsburg, Weimar, Madrid, Seville, Pontevedra) and Latin America (Managua, México DF, Buenos Aires, Santiago de Chile, Havana, Quito, Sao Paulo, Guatemala, Montevideo) and recently in Japan (Osaka). Author of a book on the theory of design by Willima Morris (Barcelona, 1992), of a history of graphic Design in Catalonia (Barcelona 1997) and edited together with Yves Zimmermann a book on the relationship of art and design (Barcelona 2003), and another one on Design Aesthetics (in press). She has contributed regularly to *Temes de Disseny* (Barcelona) and *Experimenta* (Madrid) and also to *TipoGráfica* (Buenos Aires 1996), *Étapes Graphiques* (Paris 1996), *The Design Journal* (Gran Bretaña 2001), *Journal of Design History* (Oxford 1997, 2005). She has been promoting and sometimes organising the International Conferences of Design History and Design Studies since its first edition in Barcelona 1999. She organised the 5th edition of the EAD Conference, Barcelona 2003 being member of EAD advisory board since the 4th (Aveiro 2004). As Academic Head of the Faculty of Fine Arts (2002-2005), she coordinated the team in charge of writing the white book for adapting the undergraduate program of design within the Bologna process.

Virtual online museums of posters have come into existence and today they are part of our cultural material and museological guides. Madeira Luís donated a collection of 40,000 posters to the University of Aveiro and this paper concerns the virtual online museum of Portuguese posters, which is part of a research project being developed.

The aim of this paper is to make known the "scientific issues" that are coming to the fore through this research, namely those that arise as we reflect more deeply upon the project development, or rather, the need for and importance of the museum and its objectives, its virtualisation and content integration. The paper also presents issues related to making the information available through a new interface and to the integration of specific contents that aim to make this museum original in comparison to other museums of the same type. In addition to this, it deals with issues from the visitors' point of view and their reactions to the exhibitions, as well as the need for a curator's web capable of construing the interactive nonlinear story telling in interactive, nonlinear history telling.

The museum's project thus aims to be another history told in a different way, as well as being a contribution to the history of Portuguese design.

0328

The shoe is on the other foot.

Binary Oppositions what constitutes a pair?

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*Helen McAllister graduated from the National College of Art and Design with an MA in Embroidered Textiles. She has exhibited extensively at group shows in Ireland and abroad and is a member of 'The Embroidery Artists'. She has received a number of awards including being the first recipient of the major award of 'The Golden Fleece'. Presently Helen is working on a practice based PHD in Embroidered Textiles.*

*Italy and particularly Venice have influenced artistic production from undergraduate work to PHD, bringing together historical references of Venetian art and fashion and visual observations of surfaces. Artistic production has developed into 3D shoe - derived forms, a mode which to date has not been exhausted, instead this offers the driving force for conceptual discourse of the language of pairs, with constant 'testing' being important in the defining of 'new research' and new outcomes.*

The question addressed is, in order to explore the fundamental definition of what constitutes a pair, is it possible to reach an understanding of this through shoe-derived forms created by textiles processes? How I answered this question is rooted in the methodology of the art practice of 'making'. This mode of research demonstrated that I need to make this work because it does not exist, paired with the knowledge that this process will illicit the answers. This engaged process uses visual sources of Venice paired with the iconic form of the shoe to address philosophical preponderances of a pair.

My answer found components of the binary are not of passive equality of replication, they were about dialogues and interactions of forces united. The contrasts and dynamics of opposing tensions defined my outcomes which were metaphorical of my methodology as well as in the physical art work. The 'language' of a pair in turn questioned shoe-derived forms becoming the vehicle for narrating.

This inquiry brings together a holistic approach to the specialist uniting ethos's of design, history, concept and theory anchored in the practice and contributing to new knowledge and demonstrating the project's wider application through the 'testing' of this work for diverse audiences.

Keywords: art and design

0329

## The Fluid Contemporary Interior

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This paper explores the elision of public and private realms in the interior at advent of the 21<sup>st</sup> century. "The Fluid Contemporary Interior," covering the mid-1980s to the present, surveys the interior spaces of the house, the apartment, the loft, the office, civic spaces, religious spaces, cultural spaces, retail spaces, restaurants, hotels, and therapeutic spaces.

A critical assessment of the social implications of the contemporary interior, this paper examines the fluctuations in design typologies in a globalized era. For example, hospitals are increasingly adopting the form language of spas and health clubs to allay patient's fears and to be more responsive to their psychological needs; at the same time, spas and health clubs adopting the language of clinics to suggest that their services are a vital dimension of physical and mental well being. Civic spaces, from embassies to libraries to schools, are now designed to promote interaction and to erase the memory of anonymous institutional interiors. Offices are using furnishings and spatial strategies formerly in the domain of the home; likewise, retail spaces provide amenities to blur the commercial nature of their activities. My paper not only valorizes these shifts but also questions their implications in the nascent 21<sup>st</sup> century.

**Keywords:** architectural design, interior design, design studies, contemporary design.

0330

## Formative Research for Interface Design for Older Adults: Reducing Adverse Self-medication Behaviors

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*Zoe Strickler is a visual communication designer with a research interest in communication design for health behavior change. She holds the Master of Design degree from the University of Alberta in Edmonton, Canada, and the B.F.A. from the Minneapolis College of Art and Design. Since 1990 she has collaborated on studies that involve health communication interventions, including work in the areas of traffic safety, prevention of drug interactions, interactive interface design for seniors, and adherence to antiretroviral medications for HIV positive populations. During the 1980s she worked as a graphic designer for the firms Eaton & Associates Design Company and Cohen Little Design in Minneapolis, where her design work won national awards for excellence. She is currently at the Center for Health Intervention and Prevention (CHIP), at the University of Connecticut, Storrs, CT.*

The current project *Reducing Adverse Self-Medication Behaviors in Older Adults* builds on an earlier study by the investigators (*Preventing Drug Interactions in Older Adults*), in which a computer software program was developed to help older adults learn to avoid common, harmful, drug interactions. The program contains attractive, simplified animations demonstrating how two types of prescription medications (antihypertensives and anticoagulants) work in the human body, and how these can interact with over-the-counter (OTC) drugs and alcohol in ways that may lead to harmful health outcomes. The interface and animations were designed to be easy to use and appealing to older adults (those aged 60 and older) based on extensive, formative research into the aesthetic preferences, and visual and psychomotor requirements of this population. In a controlled, clinical trial, the program (delivered on touch-screen-equipped laptop computers) was found to increase knowledge about drug interactions and perceived self-efficacy for avoiding the interactions, as well as to reduce reported harmful, self-medication practices among older adults who used the software as compared to control groups.

Formative and usability research is now underway to develop a *next generation* interactive program that allows patients to enter their current, self-medication behaviors privately and independently on a wireless, touch-screen tablet PC. Patient-entered data are analyzed by the system so that educational content is delivered that is tailored to the patient's particular risk behaviors. Patients use the program in a clinic waiting room prior to a visit with their care provider, and they bring a print-out of the computer session to their appointment. Thus, the PEP-NG improves patient-provider communication and practice, and makes optimal use of the patient's and the clinician's time.

Health Informatics

Interface Design for Older Adults

Formative Design Research

Adverse Self-medication Practices

Preventing Drug Interactions in the Elderly

Keywords: design and information technology; interface design, information design and IT enabled, interface accessibility design;the aged; interface accessibility design; usability of information/user testing;

0331

**VISUAL COMMUNICATION IN PORTUGAL:  
PROFESSIONAL TRAINING AND SKILLS IN TWENTIETH CENTURY**

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Throughout the twentieth century in Portugal, confronted with the insufficiencies of formal teaching, professionals from the visual and graphic communication field had to construct through practice the skills that allowed to meet the different challenges encountered. This study aims at disseminating the different contexts of formation and learning in the graphical professions and interpreting them according to the cultural contexts.

Keywords: Portugal Twentieth Century; Visual Communication; Graphic Design Education; Knowledge Exchange between Design

0333

The Wonder of Change: Where do new things come from and how do they get here?

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*His earlier career included working at Manchester Business School, Lecturing at UMIST and carrying out new product development for ICI as well as the innovation research which led to the book *Wealth from Knowledge*.*

**Abstract.**

This paper starts by exploring some answers to questions about the causes and processes of change. These answers range from the ideas of Vitruvius to modern evolutionary accounts using the concept of memes as replicators.

The paper then looks at some evidence gathered by the author and his post graduate students over a period of 40 years in studies of technological innovation, design management etc.

There are two main conclusions -

1. We need to be much more modest in our beliefs that intentionality, rationality, reason, scientific understanding and so on can lead to better things.
2. We need more wonder when faced with the evidence that new things emerge by a memetic Darwinian process of change.

Keywords: design & innovation processes, design evolution & design processes, theory of innovation, history of design, memetics

0335

**Performative Site Seeing:  
Embodied Spatial Representation Practices For Exhibition Design**

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*Sven Mehzoud is lecturing in the spatial arts programmes of the College of Creative Arts at Massey University in Wellington, New Zealand. He specialises in research, spatial representation practices, and design studio for interior and exhibition design as well as scenography. His practical work is often collaborative and interdisciplinary and lies at the intersection between space, culture & performance. It encompasses interiors fit outs, exhibition and set design, art installations and architecture. Many of these projects have been published and have received citations and awards.*

This paper investigates spatial representation in exhibition design. It looks at how represented space is understood through the notion of an embodied practice. The hypothesis, in summary, is that the notion of presenting space through the embodied practice of performance can be applied to exhibitions, allowing for a more complex engagement with represented places, spaces and their stories. As a consequence spatial representation is formulated as an embodied practice.

It proposes a way of understanding space that focuses on our actions in space rather than regarding our environment as a static envelope. It is suggested that emphasising the actions of sitting on the part of the viewer, the journeying to places or a kind of site seeing, intensifies the identification with space and story. The body is recognised and centrally involved in the development and communication of spatial experience and this allows for the reconsideration of strategies in exhibition design.

The investigation constitutes research through a reflective art and design practice. It uses an exhibition project called Southern Lights: Antarctic Collectibles (see Figure 1), which was based on a photographic investigation of Antarctica, as a case study to illustrate its main proposition.

Keywords: Exhibitions, Design Strategy, Representations, Practice-based Research, Space and Place

0337

## Cultural Identity and Colective Memory

### Towards the strategic development of Portuguese sustainable products

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Considering the richness of Portuguese cultural identity, what strategies and tools could be developed to promote the development and sustainment of Portuguese products?

How can their uniqueness be illustrated and shared within global markets?

This study aims at collecting, documenting and promoting cultural identity icons from the Portuguese industrial context in the XXth Century. However, this work is focussed on the past of Portuguese industrial production as well as its achievements and potential for fostering Portuguese product development in contemporary markets.

A rediscovery and re-evaluation of the strengths and potentials of Portuguese culture will aid a promotion of the country worldwide while assisting it with regards to local competitiveness. On a broader scale the proposed study intends to investigate how local identities such as the Portuguese culture can be part - rather than a victim - of the global market.

In the Strategic Design discipline from the design course in the University of Aveiro, students were asked to work under a simple methodology: to identify, to analyse and to re-evaluate Portuguese icon products, under identity and sustainable design approaches.

The data generated within the "Cultural Identity and Collective Memory" project and exhibition, which was conducted at the University of Aveiro and then in RMIT University (Melbourne, Australia) in the form of a workshop, can benefit in the future a range of contexts and stakeholders, such as companies, strategists and producers, as also as it can contribute to the development of the Museum of Portuguese Design which is currently being investigated/created.

0338

## SEMIONAUTS EXHIBITION

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Concept of semionauts is based on a collaborative workshop in applied product semantic interpretation and action in drama context. This experimental platform for implemented textual counterculture is initiated by Otto von Busch, Sebnem Timur, Humanur Bagli and Evren Uzer in Istanbul 2004. A related paper about this workshop and surrounding theme with the title SEMIONAUTS: SEMANTIC DRAMA has also been sent for the design and research society, wonderground international conference in Lisbon in November 2006. This exhibition is a complementary part of the paper and a part of further studies of semionauts theme.

0341

Design leads us where exactly? Leading by design at Rich Mix, a new cultural venture in London

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*Lucy Kimbell works as an interaction designer and artist. She is currently Clark Fellow in Design Leadership at Saïd Business School, Oxford, where she tries to teach design thinking to MBA students and researches service design and innovation. Lucy has led teams designing learning and entertainment services using software and mobile technologies for public and corporate clients for over 10 years. Recent projects have been exhibited at ZKM Karlsruhe, Germany, ('Making Things Public', 2005), The Contemporary, Atlanta, Georgia, USA, ('What Business Are You In?', 2005) and Angel Row Gallery, Nottingham, UK, ('Day to Day Data', 2005).*

### **Abstract**

The aim of this paper is to contribute to knowledge about design by reflecting on an action research project where the author tested ideas explored in recent literature, including those concerning *design leadership* (the opportunity and necessity for designers to shape conversations about strategy; the ability of designers to frame unframed problems in challenging contexts); *design thinking* (the idea that design problems are indeterminate and that there are 'designerly' ways of knowing, thinking and acting); and that *design-led* approaches can help produce engaging information and communication technologies. These ideas were used to respond to an opportunity in which design played a key role in developing a place for public engagement with digital media in a new cultural venture called Rich Mix in London's East End, where the author took a part-time role as lead designer. The working paper presents some of the initial findings from this research based on a case study of the project. These findings examine the limits of design leadership and design-led approaches in a complex, multi-disciplinary project in which the design problem was not initially framed.

### **Keywords**

Design leadership

Design management

Design thinking

Inter/multidisciplinary collaboration in design

Interaction design, and specifically new media, mixed media and interactive visualization

0342

## Integrated Descriptive Interactivity for Complex Collections (IDI)

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Switzerland

*Daniel Pinkas, born in Caracas in 1951. Professor in visual communication, new media and philosophy of art at the Haute école d'art et de design (HEAD) in Geneva. Co-director of immédiat - arts et médias postgraduate program and main project coordinator for the "Formes de l'interactivité" and "Integrated Descriptive Interactivity for Complex Collections" research projects. Author of "La Matérialité de l'esprit" (La Découverte, 1995), "Santayana et l'Amérique du Bon Ton" (Métropolis, 2004) as well as of numerous articles on the philosophy of mind and aesthetics.*

IDI (*Integrated Descriptive Interactivity for Complex Collections*) is a media design research project currently conducted at the Haute école d'arts appliqués, Geneva (HEAA). IDI explores the descriptive potential of interactive video and seeks to integrate video-interactivity into a comprehensive descriptive and documentary approach to complex collections. An *integrated descriptive interactivity* aims at providing an intuitive account of the user's relations to the objects or elements of a complex collection. We must emphasize that our project goes well beyond a simple combination of existing media; it seeks a new documentary modality which allows the user to browse through a collection not only by selecting items satisfying chronological, linguistic or analytical criteria, but also by selecting sensitive or formal properties belonging to the interactive rendering itself. We assume that the experimental protocols developed and tested for a contemporary art collection during the first phase of our research will find suitable applications for many different types of complex collections. This project is co-financed by the CTI/Swiss innovation promotion agency. MAMCO - Museum of Modern and Contemporary Art in Geneva is our partner.

Keywords: descriptive interactivity, chrono-video animation, complex collections, media integration, database.

0345

The Shape of Things to Come:  
Toward a History of Silicon Valley Design, 1980-2010

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The history of California's Silicon Valley has been marked by the rapid succession of key technology platforms: the microprocessor, the personal computer, the software industry, the Internet, and, arguably, biotechnology. This unprecedented "layering" of innovations is unique in the history of technology and has been studied from the standpoint of technology, economics, and even geography. What has not been adequately studied, and what this project seeks to address, is the place of design in this history, viewed not simply as a succession of products but in terms of the transformation of the professional practice of design itself. The most notable development, perhaps, has been the extension of "design" into areas of human experience once claimed by the social sciences: linguistics, cognitive science, cultural ethnography, etc. The result is that how a product takes shape—indeed, what a product *is*—has been transformed during the period under consideration, irreversibly and with global implications. It is the argument of this Working Paper, based upon empirical studies of designers, consultancies and their clients, that the redefinition of professional design practice itself will prove to be the greatest legacy of the brief history of Silicon Valley design.

Keywords: cultural analysis of design, cultural analysis of design, inter/multidisciplinary collaboration in design, new industrial contexts and new design scenarios, professionalism

0347

## Global Design: the Ethics of Designing for a Global World

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*Susana Barreto is a graphic designer and a PhD student at Central Saint Martins, University of the Arts, London. Susana's background is in graphic communication, and she has worked both as an academic, and a design practitioner in Portugal, Macau, and in England. Susana's research interests are focused around the role of culture in graphic communication, cross-cultural design, globalization and design, and design ethics.*

*This paper reflects on the ethical implications of the increasing use of 'global design', mostly within the graphic domain, focusing primarily on branding, as it is assumed to be the most significant vehicle of global design. Since it is a new and expanding subject, it is considered crucial to undertake a definitional exercise, in order to reduce conceptual uncertainty and to ground and substantiate an ethical evaluation of the practice. The paper therefore addresses the meaning of the often vague and controversial concept of global design (against a historical backdrop), suggesting and analysing its different sub-categories. Examples are drawn from the graphic domain, spanning the last decade, to better understand the significant features of global design as well as to test some tentative conclusions of this evaluative project. The paper considers the relevance of anti-global design movements and also explores current views on the topic.*

*The paper further argues that global design is raising additional, and qualitatively distinct, ethical concerns and claims that this practice is in particular need of specific ethical guidance. In this context, it addresses two central issues that are challenging the ethical worthiness of global design: firstly, the efficiency of communication to a global audience and secondly cultural sustainability. Research is based, among other sources, on an ethnographic analysis of interviews conducted with practitioner designers and design scholars for the purpose of the research that the author is currently undertaking as part of a PhD programme.*

Keywords: Graphic Design, Globalization, Ethics, Cultural Sustainability

0348

**The Work of Art and the Public Space**

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The paper relates the loss of meaning of contemporary art in the context of public space with the radical changes the city underwent in face of its adaptation to early capitalist industrialism until recent cases observed in the city of São Paulo. Artistic and urban languages, once united, become separated and neutralized by the predominance of economic values that undertake city planning and revitalization programs.

Keywords: Public space, public art, art market, art x design, urban life

0352

## THE DESIGN PROCESS ILLUSTRATED

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*Born in Rotterdam Hamid van Koten came to Britain initially to study Middle Eastern philosophy. After this he worked as a furniture designer and maker. In 1993 he graduated from Glasgow School of Art with a First in Product Design. Since then he has been the director of a design consultancy working with a wide range of media and including: graphic, industrial, exhibition, interior and architectural design projects and public arts commissions. He has exhibited in the UK and Internationally and has won a number of awards and his work has been much published. Hamid has always maintained links with education and has taught at Glasgow School of Art and Dundee, where he now lectures in the History, Theory and Practice of Media and Design. He is currently hosting an AHRC sponsored International Conference on the role of theory in creative practice.*

### **Illustrating the design process**

Attempting to illustrate the design process is fraught with difficulties.

The various activities that designers engage in are difficult to separate and the approach varies between individuals and between projects. Sometimes designers start with a client's requirement, other times by investigating a material or detailed connections between materials, or by studying a manufacturing process. Sometimes it all starts with just a notion, an initial idea. What is on show here in our "Garden of Objects" is the story of an idea and how it was put into production.

### **Designing is organic**

Often during the process of designing priorities change, emphasis shifts as the brief develops. At VK&C we work fairly organically: different things come into focus as and when they happen, without necessarily corresponding to some preordained pattern or process and often with surprising and unpredictable results.

*Therefore making a map of how to design "is as much help in navigating a designer through the process as a diagram showing how to walk would be to a one-year-old child." Bryan Lawson in "How designers think"*

### **Magic and Logic**

At the heart of every design project there is creativity. Exactly where original ideas come from is somewhat mysterious. Ideas are thus most precious to designers, for truly original ideas are rare.

They are like seeds and the process of cultivating them is a bit like gardening: if planted in fertile ground, watered and carefully nurtured they may develop and grow into finished products. (Alternatively they may be relegated to the compost heap to enrich future projects).

### **Breaking the rules**

The magic of creative, lateral thinking puts up a healthy challenge to tried and tested methods of production, thus pushing technology forwards.

*"Learn the rules so you know how to break them properly." The Dalai Lama.*

Conjunct with creativity is logic: rigorous analysis of performance, materials, ergonomics, production constraints, human factors, marketing data, fashion, environmental implications, packaging, transport, size, price, logistics and so on.

In a designer's mind the magic of creativity and the logic of practicality are in a continuous dynamic tension. 'Horizontal' analytical activity is displaced by 'vertical' intuitive processes:

*Horizontal: technical, material, objective, masculine, functional, conceptual, intellectual, head.*

*Vertical: intuitive, spiritual, stylistic, feminine, between heaven and earth, instinctive, heart.*

*The total information of a product can be mainly horizontal or mainly vertical. Real quality only exists where these two intersect. Marcel Wanders*

### **Problems and solutions**

As solutions are found and questions are answered new questions are formulated and new problems occur. This is why research is never-ending and why designers keep adding sketches, mock-ups, tests and further modifications and refinements as new information arrives; usually until time runs out. This is also why it is not really possible to model the design process as a linear progression through pre-described stages, or as a series of independent activities.

As design activity is multifaceted, applying a wide range of skills to a wide range of subjects, the underlying process - if there is one - is unique with every project.

If nothing else the designing of things is an organic and unpredictable process - much like growing a garden.

### **The design process in the new millennium**

In the first half of the last century designers were preoccupied with formalism and functionality, breaking away from the style-obsessed historicism of the Victorian age. Over the last 50 years designers have gradually swung back to design products with character, expressing symbolic values and reinventing decoration. Now, without ignoring what has gone before, the role of the designer must change again. Not only is there a need to respond to shifts in the demographic make-up of our culture, but with greater environmental awareness true innovation is no longer situated 'inside' the end-product, but in the complex set of circumstances which bring it about: the complete lifecycle.

### **Hidden quality**

Shifting the emphasis of the design process from outcome to context will be a challenge. Through the simple choice of materials, qualitative changes in design, can be made, but -unlike Quentin which makes an ecological statement by its appearance - future objects will not directly reflect their true ecological nature. Real environmentally responsible innovation might lie in redesigning the logistics of distribution, or in the discreet application of a low energy production technology, or indeed in organising the disposal of the product at the end of its useful life.

*"The aesthetics of recycling, if there is such a thing, can only be the aesthetics of the system that renders it effectively practicable (and of which materials and products are merely a part)."*

Ezio Manzini

### **Design is a commercial activity**

In the final analysis design is a commercial activity and is bound by the conditions of a global commodity system. Whether one favours the ethical pragmatism of Victor Papanek or the designer-with-personality of Kerim Rashid, it is all a matter of where to place priorities and it is up to designers to make individual choices, however subjective these may be.

*"Design offers quite extraordinary opportunities to serve the community, to enhance our living environment and to advance humankind - the successful designer needs training to overcome these pitfalls however and to start earning some serious money."* After Steven Fry

0353

## Needs Analysis of E-learning Course "Technologies of Flexography Processes" in Lithuania

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*Professor Dr. Habil. Edmundas Kibirkštis started his research and pedagogical work in 1970.*

*Dissertations: Investigation of Pneumatic self-Exciting Vibrotransducer (doctor of science, 1980); Development and Investigation of Multifunctional Pneumatic Transducers working in mode of Self – Exciting oscillations. Theory and application (doctor habil. of science 1993).*

*E. Kibirkštis has about 150 research and methodological publications, 32 invention certificates.*

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*E. Kibirkštis research areas: identification, diagnostic, prognosis and control of printing technological processes and materials; dynamics of pneumatic systems; mechanisms with smart materials links; development of measuring systems.*

*At this time Edmundas Kibirkštis is the head of Department of Graphic Communications Engineering.*

E-learning has recently become increasingly important for Lithuanian enterprises of flexoprinting. At present, e-learning is not introduced in Lithuanian printing houses. Trying to implement such kind of courses, we need to analyze the demand, determine the peculiarities of implementation. In the present paper the e-learning situation in Lithuania is described, the demand of e-learning course "Technologies of Flexography Processes" is explored. The analysis of this e-learning course demand is performed by a questionnaire method. The questionnaire was presented for the primary analysis, after which corrections were made (assessing the efficiency, perspicuity of the questions). The corrected and finalized questionnaire was presented to the target groups. The received filled forms were analyzed and the conclusions about the demand of this e-learning course and course content's relevance were made.

Keywords: e-learning, experience, flexography, industry, methodology

0354

## A Theory of Modal Thinking in Design

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*Charles Burnette received his BArch, MArch and PhD from the University of Pennsylvania. He has served as Dean, School of Architecture, University of Texas at Austin and as Chair, Industrial Design and Director, Graduate Program in Industrial Design at the University of the Arts, Philadelphia where he directed the Advanced Driver Interface Design and Assessment project, a five year project to develop and demonstrate a computer support system involving simulator assisted design, human figure modeling and research.*

This paper outlines a theory of design thinking that posits modes of thought that collaborate to achieve intentional goals regarding problematic situations. The intent is to provide a model for design thinking that can be computationally supported and applied in practice and to provide an operational basis for research on the use of each mode during design. The modes of thought are described and outlined; concepts of intentional frame and sub-modes are introduced; an example of modal thinking in design is presented, and a computational structure to model and support modal thinking is suggested.

Keywords: cognition and design, design cognition, theory of design, knowledge construction, philosophy and theory of design

0355

## Examining the Human Experience of the Designed Environment: Understanding Discipline-Specific Stances in Design Research and Inquiry

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*Tiiu Poldma holds a Doctor of Philosophy from McGill University and currently is Associate professor in the School of Industrial Design at the University of Montreal. Her research interests include dynamic aspects of colour, light and form, and how interior environments affect human responses. She is regular researcher with CRIR - The Center for Research of Inter-disciplinary Research in Readaptation, where she explores the impact of designed environment on vulnerable populations such as the aged, children and people with readaptation needs.*

This paper is a working paper examining design research that focuses on studying human lived experiences in interior environments. Design inquiry in Interior Design has as its theoretical underpinning ideas objective ideas about humans in physical space as entities. The reflections within this paper and subsequent case study that is presented examines the theoretical ideas about the human experience of space as lived, actual and situated in real time, and how negative reactions to the environment are perceived both socially and perceptually. Design research in this context involves understanding the interior space as dynamic and bound in part by human perceptions and social activities. The case study is presented with a negative problem to be investigated, and the research is done using both inquiry and design thinking processes. The space is again evaluated after changes are made, and the evaluation reveals positive responses both on the relative success of implementing changes resulting from the research and analysis, and on the subsequent perceptions about the space after the analysis and changes are implemented. The case study is presented and the discussion considers how students in design education can inquire about the human, lived experiences and situations that require design interventions, and how this type of research and analysis can integrate design thinking as inquiry using a pragmatic project-situated approach.

Keywords: case study, practice-based research, research methods, light

0356

**The Role of the External Environment in Enabling Design Innovation – a regional investigation of design innovators and laggards**

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*Philippa Ashton has been involved in design management research and education for over fifteen years. She has made a contribution to research in the areas of design and organisational learning and innovation through extensive publication and reviewing for major design conferences and journals. She currently Head of Research and Graduate programmes at Bath School of Art and Design.*

This paper describes research which informed a strategy to deliver support for businesses in the UK's West Midlands to develop design capabilities. It establishes the case for the consideration of external relationships as both a motivator for design innovation and as access to resources for design learning. This premise is then preliminarily tested by investigation of a small regional sample of organisations that have been identified as design innovators. There was then a follow up investigation to provide similar data from companies deemed to be design 'laggard'. The outcome is an insight into the role of the external environment in motivating companies to use design to achieve innovation and the learning opportunities they afford. For innovators, an understanding of the competitive environment seems to drive product and communication design innovation. Up dating in new technology and the need for design aware staff provides the capability to sustain innovation. Whilst the results from the innovators was relatively clear and consistent, those from the laggards was more mixed. Reasons why this might be are discussed at the end of the paper.

Key words – design and innovation processes, organisational learning, regional design policy

0358

## Comparative Analysis of the Websites of Lithuanian Counties

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*Dissertations: Investigation of Pneumatic self-Exciting Vibrotransducer (doctor of science, 1980); Development and Investigation of Multifunctional Pneumatic Transducers working in mode of Self – Exciting oscillations. Theory and application (doctor habil. of science 1993).*

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*E. Kibirkštis research areas: identification, diagnostic, prognosis and control of printing technological processes and materials; dynamics of pneumatic systems; mechanisms with smart materials links; development of measuring systems.*

*At this time Edmundas Kibirkštis is the head of Department of Graphic Communications Engineering.*

*The qualitative evaluation criteria for the Lithuanian counties websites have been established. The quality of the Internet sites has been measured by means of the heuristic methods, according to the aspects (criteria) of informativeness, attraction, intelligibility, design, etc. By using this evaluation method, the best websites have been distinguished, their strengths and weaknesses as well as the improvement measures have been identified.*

Keywords: websites, representation, quality, research methods

0361

Theatres for Thinking Statement & Exhibition Material

Marlene Ivey and Professor Tom Inns

Duncan of Jordanstone College of Art & Design, University of Dundee, Dundee, United Kingdom

*Marlene Ivey*

*Influenced by the developing theories surrounding collective creativity, Ms Ivey's practice led research endeavours to create objects or environments to support design experiences that are created through social interaction. In 2004 she was awarded a UK Arts & Humanities Research Council Grant for Experimenting with the Co-experience Environment. A senior lecturer and Course Director for Master of Design at Duncan of Jordanstone College of Art & Design, University of Dundee, she is the founder of creativekit.co.uk and was lead researcher for the co-experience environment project.*

*Professor Tom Inns*

*Professor Tom Inns is Chair of Research at Duncan of Jordanstone College of Art and Design, University of Dundee and Initiatives Director for Designing for the 21<sup>st</sup> Century - a five year research project funded jointly by the Arts & Humanities Research Council (AHRC) and Engineering & Physical Sciences Research Council (EPSRC). Professor Inns is interested in how organisations conceive and develop new products and services. This is a complicated activity with many dimensions (strategic, process, resource, organisational, cultural). Professor Inns research explores the role design has to play in making better sense of this activity.*

This research is about creating physical environments and processes for collective creativity. The exhibition will enhance the presentation of the research outcomes because it will offer the opportunity – and the challenge - to present richer information than might be possible in a conventional conference or journal paper.

Preparing the exhibition proposal was an opportunity to bring together two separate but related bodies of research and this has been both surprising and interesting. Visualising the research for the exhibition proposal has helped to quickly establish an interface of greater understanding and commonality between the two researchers.

In preparing for the exhibition the researchers will endeavour to create four new physical products from their research that will be included as material for exhibition.

Two three dimensional models will form the core of the exhibition – one depicting the co-experience environment and the other the workshop shared environment created for discussion and synthesis. Wallpaper will be designed to carry research drawings, sketches, diagrammes etc, manufactured as a product and a sample will form the backdrop of this exhibition.

A useful, beautiful and playful three dimensional interactive (not digital) element will form part of the exhibition to configure the viewer as participant and to gather feedback.

(paper boats etc..origami...making/participation)

Lily tells me about Chinese bars where you can draw anything on the walls...color pens etc shoul coordinate with the paper colour...interactive wallpaper!!!)

Dong-Sik Hong, Mijeong Hwang

*Tongmyong University, Department of Visual Communication Design, Busan, 535 Yongdang-Dong, Nam-Gu, Korea, South*

*San Francisco Academy of Art College USA, MFA SBN Graphic Designer in San Francisco, USA How International Design Competition Merit Award(1998) The 1st Solo Exhibition "Welcom to the Edge...", Korea(1999) Tmava Poster Biennale Selected (2000.2003) Graphis Poster Annual 2001 Award Nagasaki National University Invited Lecturer, Japan(2000,2003) Nagoya Art University Invited Professor(2003) Busan Asian Short Film Festival Official Designer(2003,2004) 2005 International World Ceramic Biennale Official Poster Competition Gold Award(2004) International Poster Biennale Warszawa 2004 Nominated, Poland (2004) The 8th International Biennale of the Poster in Mexico 2004 Nominated(2004) 'Branding Across Asia' Invited Speaker, Hanoi, Vietnam(2004) The 2nd Solo Exhibition "Posterlike VS Artlike", Japan DIC Color Square(2005)The 84th New York Art Directors Club Annual Merit Award(2005) The 17th International Biennale of Humour & Satire in the Arts, Bulgaria, Gabrovo, selected(2005) The Members of The New York Art Directors Club Recently, Tongmyong University, Visual Communication Design Dept. Associate Professor Busan, Korea*

Visual communication design has been represented in varied images from ancient society up until the present time. Especially graphic design, which has experienced artistic upheaval from modernism and postmodernism, has been enabled to deliver messages in a more developed and sensuous appearances. Deconstructionist design wasn't well received by modernism, an advocate of practicality and effectiveness; however, as the beginning of subsequent postmodernism, it started to earn a warm welcome from a number of designers. Postmodernism made it possible for deconstruction to be a new paradigm appreciating neutral respect for varied expressions and designers' idiosyncrasy. Corresponding to this new trend, Edward Fella<sup>4</sup> published his artwork "Letters on America", which introduced a variety of vernacular design works in America. It was the result of years of research, and included materials which were not something completely new to field of communication design but rather symbolic, deconstructive images available everywhere around us. Deconstruction broke away from the previous modernism's unity and standards, and sought to achieve a new tensional deliverance. As a consequence, images were created in destructive and incomplete forms. Graphic design also complied with this new code and its advent fascinated the artists in the fields of advertising, editorial and poster designs.

This paper contends that contemporary graphic design still maintains a deconstructive representation, examines its locality in design works from an aesthetic viewpoint, and researches theoretical approaches to deconstructionist and case studies conducted domestically. There has been incessant critical contradiction in terms of the heritage of deconstruction. I would like to present you with a moment in which you can struggle to decide whether it is a result of an effort to get away from modernism or an offspring of postmodernism.

***Key words: Aesthetics, Art and Design, Graphic Design, Typography, Visual***

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<sup>4</sup> Edward Fella is an artist and graphic designer whose work has had an important influence on contemporary typography here and in Europe. He practiced professionally as a commercial artist in Detroit for 30 years before receiving a master's degree in Design from the Cranbrook Academy of Art in 1987. He has since devoted his time to teaching and his own unique self-published work has appeared in many design publications and anthologies. In 1997 he received the Chrysler Award and in 1999 an honorary doctorate from CCS in Detroit. His work is in the National Design Museum and MOMA in New York. A recent monograph of his work, *Letters on America*, documents some of his extensive practice.

0363

The trace of the casual or a designer's journey towards the formulation of an idea

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The designing process of a project begins from the early stage of the pursuit of the idea that characterizes it. The itinerancy from reality to fantasy, from order to chaos and back again, the narration, the wish, the time and the diachronic or the a-chronic placement of the creator, formulate the central subject-matter that is brought forward in this announcement.

Keywords: Design process, design language, design formulation, formulation of an idea, inspiration in design, chaos, chaotic, Alice, mirror.

0364

**A Study on the Direction of Accreditation for  
Korea Design Education Improvement**

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Lee Soon-jong

2005 Gwangju Design Biennale, General Director, 2005

KSDS, President, Jan., 2004-Dec., 2005

ICSID 2001 Seoul, Vice Chair of Executive Committee, 1999-2001

Seoul National Univ., Professor, 2000-present

KAID, vice chair, 1998-2001

*This Study is conducted as a funded project from the Ministry of Commerce, Industry and Energy. The purpose of this research is to develop an evaluation model for design education accreditation. This model will propose, 6 specialized researchers and well-known figures who representing design education, industry, and government constituted the committee. 10 research meetings and 3 conferences have been held to complete the basic research concerning design demand and accreditation of the inside and outside of the country, and the direction for design education accreditation has been established in terms of the initial commitment. The directions for accreditation standards can be explained by next 4 elements : 1)The design field and Korea's special quality with generality of design education evaluation, 2)Consideration of the future design education environment, 3)Consideration of international competitiveness, 4)Consideration of the core evaluation standard and an innovative design education environment.*

Keywords: creative industry, design policy, collaboration with industry in design education, future values in design and industry, cultural historical aspects of design

0366

*A Study about Development of International Culture Research System  
in Mobile Phone Design*

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Designer, Samsung Electronics Design Center  
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Innovation award, CES in USA 2004

The environment in using mobile devices is rapidly changing with the development of various contents, new technologies, and so forth. Also as the built-in product of the past becoming more portable, they need new usability and various functions for each mobile environment. In the situation like this, if we are only focusing on the technological development, the usability and aesthetic based on consumers' understanding can be deteriorated. And if we are only chasing rapid design trends, functional restriction and cultural identities can be forgotten as well.

With this reason this research is not the study for market analysis and simple technologies in a short term, but it is initiated with the needs of constructing specialized research systems for accurately forecasting the changes and recognizing the possible flows while accumulating the changes in international cultures, technologies, and designs in a long term. This research is to construct database for the information related to mobile device and user, and design, and its purpose is to develop MCR Network which is website-based research system equipping with analysis tool for synthetically analyzing in multilateral directions

Keywords: design and culture;cyber;design methods - design research methods;research methods and tools for design;lifestyle;

0369

## Dynamic Variation of the Perception of Form

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*Cherie Lebbon FRSA, Senior Lecturer in Design theory at Coventry University is a professional and experienced lecturer, researcher and designer with a particular emphasis on inclusive industrial design, with a proven track record of innovative and successful project work. She worked as a team member of a large EPSRC funded research consortium on the first stage of the i-design project, resulting in a book, for which she was an editor, and the prototype of an online research resource for inclusive design. She contributed to the further development of the web-based learning resource on inclusive design for the Royal Society of Arts, providing key concepts for the website design, researching and mapping the content, plus conducting user testing of the website and analysis of the results. She is an external examiner for BA Product Design at Lincoln University and has substantial connections with other UK universities both as a consultant and visiting professor. She has supervised successful PhD candidates. Drew Smith, currently studying MA Automotive Design candidate at Coventry University, has an interest in the social and cultural impact of design. His particular interest lies in the realm of the automobile and its role in modern*

Automotive exterior design is based on the assumption that the perception of form and surface is enabled exclusively by the reflection of light sources external to the vehicle. Recent advances in lighting and display technologies could allow that perception to be altered by introducing a dynamic surface illumination and display system.

The following topics were investigated:

- current, static forms of perception variation utilised by automotive designers
- the use of lighting to achieve perceptual change in architecture
- emerging technologies enabling the incorporation of a dynamic lighting and display system into the automotive form.

The findings demonstrate that there is potential for display technologies to be incorporated into the automotive form to enable perceptual change. Further research is needed to establish the range of perceptual change achievable and determine the types of forms that respond best to perceptual change.

Key words: Perception Design, Automotive design, Light and lighting technologies

0371

## The problems of designing alternatives to the ballot box system of voting

A. Crabbe

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*Dr. Crabbe is research coordinator for theoretical studies in the School of Art & Design. His research interests are both theoretical and practical. He has been involved in collaborative product design projects for the past ten years, including medical devices, rotationally moulded products and telephone voting systems. He has published reports of some these activities in design, clinical and technical journals, and has filed several granted patent applications. His principal theoretical interest has been in the ways artists, designers and scientists represent time pictorially.*

This paper seeks to identify the principal challenges in designing e-voting systems to replace the traditional ballot box system of political elections in representative democracies. It argues that the technical challenges cannot be properly assessed without first considering the potential socio-political impact of e-balloting. ICT offers electorates a new voice by enabling ordinary people to publish their opinions continuously and rapidly. Since such data can easily be organised in quantitative ways, e-voting and canvassing is likely to raise the electorate's expectations for continuous consultation on political matters, rather than wholesale delegation of responsibility to representatives who are only formally accountable for their actions every few years. This raises the question of whether designers of e-voting systems should only be addressing the standards and protocols set out by existing governments, or addressing the anticipated expectations of electorates. Such tensions are illustrated by considering the kind of standards to which we have been designing a telephone voting system intended to be more 'open source' one, in that versions of it could as easily be owned and operated by agencies answering directly to electorates rather than by governments formed by political parties.

### KEYWORDS

E-voting, Democracy, Information Design, User needs

0381

*Pater Noster* as Image  
Retrospective Reflections on a Making Project  
concerning Christian Iconography for Inter-religious Use

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*Dr. Grete Refsum (1953) is a visual artist/designer and part time Associate Professor at Oslo National Academy of the Arts, Faculty of Visual Arts and Faculty of Design.*

*Educationally, Refsum has a MA in Resource Management 1977; Diploma in stained glass 1985; Hovedfag in form 1991, titled Cross/Crucifix, both from National College of Art and Design in Oslo; and a doctorate from Oslo School of Architecture 2000, titled Genuine Christian Modern Art; Present Roman Catholic Directives on Visual Art Seen from an Artist's Perspective.*

*Scientifically, Refsum has contributed with papers at several international conferences on research in art and design. Artistically, she continues her development work on central Christian themes and religious issues, contributing visually to the contemporary discourse in theology. She regularly gives talks and her artwork is regularly exhibited and used liturgically in churches.*

*See the homepage at <<http://www.refsum.org>>.*

This paper is a retrospective reflection on a making process. It accounts for the theological ideas underlying the development project titled *Pater Noster*, and its art/design thinking.

To create peace among nations, peace must reign between religions. Religious leaders throughout the world agree to this statement and have during the last two decades regularly met for inter-religious dialogues. Traditional Christian iconography based on figuration is inter-religiously inadequate. Therefore, one art/design challenge today is to develop a Christian materiality that contributes to the inter-religious dialogues, especially between Christians and Muslims. The aim of the *Pater Noster* project has been to provide examples of a contemporary Christian iconography that communicate Christian ideas without provoking iconographic sensibilities of other religions.

In inter-religious meetings prayer is essential. The undisputable basis of Christian prayer is Our Father, in Latin *Pater Noster*. This prayer is ecumenically shared and accepted by all Christian denominations. The *Pater Noster* project blends tradition and new theological thinking. The old prayer is written by metal thread and wasted glass. The result is the prayer turned into an ornamental image that hopefully will be acclaimed as a legitimate and respected religious expressions by Christians as well as people from any other religion.

Keywords: analysis of design process, design thinking/reflective practice, craft, christian material culture, globalization/inter-religious dialogue, environmental concern

0383

## Interactive Multimedia Design & People with Visual Impairments - Graphic design in context

Rossetos Metzitakos

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*Dr Rossetos Metzitakos is a Graphic Designer. He studied Graphic Arts in Greece at the T.E.I Technological Educational Institute in Athens. He continue his studies in England at the U.C.E University of Central England where he completed a Bachelor of Arts in Graphic Design course and a Master of Arts in Visual Communication. He concluded his studies at a PhD level. Visually Impaired people and Multimedia Design was the area of knowledge gained in this process.*

*At the moment Dr Metzitakos is a Lecture in T.E.I of Athens departments of Graphic Design and Photography and also for the last three years he is Professional Computer Trainer for the Blind and Visually Impaired.*

This design project investigates interactive multimedia design within the context of graphic design with the aim to enhance access of visually impaired people (VIP) to multimedia user interfaces and improve their navigation in a virtual environment. Investigation conducted raised questions on techniques and methods which facilitate and support the use of interactive communication. The goal of the project was to develop a standalone multimedia software application specifically designed for Partially Sighted (PS) and Visually Impaired (VI) users. The substantial and original aspects in the project concern the design of Graphical User Interfaces (GUI) tailored to the visual capabilities of their users, and an incorporated navigation colour pallet (NCP) – navigation tool. The designer used real world navigation as a metaphor and a source of ideas in the construction of virtual navigation using the 'airport terminal' concept as an arbitrary choice of location. Thus, a software working model was developed to test and evaluate the proposed design features. Conclusions drawn from the evaluation of software indicated that the proposed design features added values to accessibility and navigation issues for PS/VI users.

**Keywords:** Design and disability, Graphic design, Design effectiveness, Human Centre design, Inter/multidisciplinary collaboration, Interaction design, Interface design.

0386

## WHAT IS SOCIALLY RESPONSIVE DESIGN - A THEORY AND PRACTICE REVIEW

Lorraine Gamman, Adam Thorpe  
Design Against Crime Research Centre, London, United Kingdom

*Lorraine Gamman is employed as Professor in Design Studies, School of Graphic and Industrial Design at Central Saint Martins College of Art and Design, London. She is Director of the Design Against Crime (DAC) Research Centre as well as Vice Chair of the Designing Out Crime Association (DOCA). She wrote her PhD on shoplifting at Middlesex University and currently directs practice-based Design Against Crime research projects in between writing crime articles. Her publications include *Gone Shopping, the Story of Shirley Pitts, Queen of Thieves* (1996) and CD-Rom *In the Bag* (2000). She has published widely on visual culture, including *Female Fetishism: A New Look* (1994). Her work has attracted research funding from the Arts and Humanities Research Council, Design Council, Home Office, Department of Health, British Transport Police and Transport for London.*

*Adam Thorpe is an established Research Fellow with DAC at Central Saint Martins College of Art and Design, London. His research activities are practice-based and he has contributed to the development of research methodologies that seek to maximize stakeholder value through application of DAC principles and research dissemination strategies that utilise market intervention to promote best DAC practice via product benchmarking. Current research activities include "Bike Off" research project that seeks to generate anti-theft strategies for bicycle parking design and implementation and PauLA (Product Authenticity and Labour Assurance Scheme). He also co-founder and design partner of Vexed Generation Clothing Ltd (Est 1996), Karrysafe Ltd (Est 2002) and Broke Bitter & Twisted (Est 2002). Ongoing collaboration between Vexed Generation and Puma International AG has produced the globally distributed, co-branded apparel collections. Exhibition and retail environment design outputs include Vexed Generation retails spaces and numerous international exhibition stands and installations.*

The first focus of the paper is to define, describe and illustrate 'design against crime' as a socially responsive design movement, differentiating and explaining the socially responsive design approach from that of the movement that calls itself socially responsible design. The aim is to widen discussion about ethical approaches designers, architects and engineers can take in order to help design out crime from society. In the second half of the paper we will focus on the socially responsive practice of Vexed Generation across several design territories including fashion, accessories and design for mobility.

Keywords: theory and practice of design, design against crime, interaction design