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Peter Storkerson

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JORGE FRASCARA AND DIETMAR WINKLER ON DESIGN RESEARCH

JORGE FRASCARA, DIETMAR WINKLER

EDITOR'S INTRODUCTION:

Communication design, generally, is an outlier in the larger field of design, by virtue of its non-participation in empirical research and its lack of interest in the kind of accountability to performance that is taken for granted elsewhere. DRQ is presenting articles to examine communication design and its relationship to research and disciplinarity, particularly with regard to education.

The last issue examined design education within the institutional context of university art schools and departments. In this issue, we have an overview of communication design education and research from two senior communication design educators and practitioners: a colloquy that links a vision of the social goals and responsibilities that can give communication design significance with actual and operational requirements of research informed practice and education.

JORGE FRASCARA AND DIETMAR WINKLER ON DESIGN RESEARCH

Jorge Frascara discussed elsewhere (Frascara 2007) some of the many ways in which visual communication design practice, education and research fall short of meeting the needs of society. In the following article Dietmar Winkler (DRW) and Jorge Frascara (JF) will further elaborate on the problem, to outline some of the ways in which design research could – or should – develop. In the process, indispensable references to the current state of design education and practice will surface, as ways to recognize the three fronts on which change should happen.

DRW:

AN ACHIEVABLE SOCIAL CONTRACT FOR THIS CENTURY:

One emancipated step for design education and practice ... and mankind, because it is much too urgent to postpone till tomorrow.

Vision without action is merely a dream, action without vision is merely passing time, but action with vision can change the world.

Nelson Mandela

All disciplines go through evolutionary stages. At the end of the last century, design's conceptual thinking, was still anchored in the knowledge of traditional technical guilds and the aesthetics of the decorative arts. Design is still primarily providing visualization and formatting skills. The assortment of projects

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Editor:

Dr. Peter Storkerson

Associate Editors:

Dr. Vesna Popovic

Queensland University of Technology, Australia

Dr. Kristina Niedderer

Hertfordshire University, UK

Dr. Artemis Yagou

AKTO Art and Design, Greece

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Peter Storkerson, peter@drsq.org

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From the Editor:

DISCOVERING WHAT WE DON'T KNOW

PETER STORKERSON

As we know, disciplines are not simply collections of facts, findings, or things known. They are also objects of study in themselves. Any student of a discipline studies not only the knowledge contributed by the field but the field itself. A discipline enframes and transforms the knowledge it comprises, by providing a taxonomy, defining interrelations between its taxa and, in particular, by defining what is inside and outside of its domain, thus, what should be studied or disregarded, how it should be studied, and what can be done with the results.

As a communication designer, I have long been mystified by my field's lack of disciplinary interest in the processes at its heart: how the configuring of abstract elements in space and time constructs meaning. Without a disciplinary container, knowledge is borrowed and syncretic, an admixture of practical experiences and facts appearing *sui generis*, without reasoning or dialogue. No matter how many such fragments are brought together, they do not themselves produce a whole.

Nevertheless, there is no interest in a disciplinary understanding of communication design. It is as if there is no need for it, or it is trivial, or it is invisible.

Sarah Igo's 'The Averaged American' (Igo, 2007) describes the origin of a new discipline in sociology: the empirical study of norms of behavior and beliefs in one's own society. The major event defining the arrival of this new discipline is a still famous 1929 study, 'Middletown' by Robert and Helen Lind. It was an overview of the town of Muncie Indiana based on historical studies and survey research.

Surveys were not new, but they had been focused on aggregate data (census), or on problems such as deviance or marginal groups: 'accident prevention, child welfare, truancy, and venereal disease as well as Czechs, Greeks, Finns, and widows.' (Igo p.29). What Middletown sought was not deviance but typicality or 'averageness': to discover what it actually was. It avoided defining the issues to study. It was organized according to a general, anthropological taxonomy of work, family, raising children, leisure, religion and civic activities. Within that organization, it was possible for the issues and essential dimensions of the town to reveal themselves – the urbanization and industrialization of an agrarian culture, patriotism, a sharp social division into two classes, race, the effects of the automobile on sexual relations, and so forth.

Middletown was widely read, and it transformed Americans' pictures of themselves 'telling Americans "who we are," "what we want," and "what we believe."' (Igo p.3) Middletown is credited as instrumental to the emergence of mass society, not just by what it found, but by social construction: creating a self-fulfilling social belief in the existence of "averageness" as that mass society. It also permanently altered the rhetoric of discourse on social issues to one in which popular beliefs could be trumped by data.

Middletown revealed averageness as a realm of inquiry that had been in plain sight, waiting to be looked at. The earlier interests in problems such as deviance were not displaced but incorporated and subsumed under more comprehensive categories of grounded social theory that developed into a new, powerful technology supporting a broad range of social analysis and engineering for a broad variety of purposes: a discipline.

How might this apply to design? One common notion of design, as a pragmatic approach to addressing problems (rather than a systematic, disciplinary study of human interface) looks like the social science interest in problems and deviance preceding the leap. Communication design seems further behind, at the time when norms were the teachings of the churches, and the received knowledge of the ancients. In the main, its approaches are intuitionist: its teachings based on traditions; its instructional methods based on the atelier tradition of learning from the master.

What caused, the leap taken by Middletown? Igo attributes it to 'several streams—scientific, institutional, commercial, and cultural' ... 'and from the waging of war to the expansion of national media.' (Igo p.8), that is, the forces of modernization. Other design fields such as experience design and HCI are actively researching and developing disciplinary knowledge, so it may be that communication design simply becomes obsolete: its functions absorbed into other fields.

Igo, Sarah (2007) *The Averaged American: Surveys, citizens and the making of a mass culture*. Cambridge, Harvard University Press

has not significantly changed: posters, book jackets, menu and CD covers, reports, pamphlets, books, and now web pages. The only additions over the past decades have been graphic and typographic information explications (useful in newspapers, magazines, textbooks, and exhibitions) and a current interest in the evolution of internet-related communication. The content, even the context of design, is still usually researched, declared, and defined by others. In short, little has changed. Graphic designers provide style but not contents or context.

The electronic communication world of today is impatiently waiting for design to emerge from its technical and vocational cocoon to begin initiating, facilitating, and managing new concepts as intelligent authors, researchers and developers of content. Designers have technical tools for typography, graphics, illustration, movement and sound. Those tools afford the opportunity to construct information environments and to begin to author content related to complex contexts and sociological issues. This gives designers opportunities to bite-off projects of larger scope and greater social relevance.

Is it not strange that after fifty years of supposedly outstanding design education taught by graduates from prestigious schools, the contents/quality of design education has not increased or become more sophisticated? Instead, design education has been compacted and condensed, and the Gibbs schools now list preparation for graphic design next to criminal justice, and other social, health, and programmatic careers in hospitals, physician offices, clinics, insurance companies, geriatric and assisted living facilities, including cosmetology, and body massage. Design has come a long way, baby! Unfortunately, down hill.

The American Institute of Graphic Arts was founded as a small, exclusive New York club in 1914, just about the time of the emergence of marketing and business sciences, and about twenty years later than the American Medical Association. Researchers at medical schools and teaching hospitals represented by the AAMC (Association of American Medical Colleges) have been responsible for many medical breakthroughs. As major centers of medical research, the nation's medical schools and teaching hospitals conduct more than half of all extramural research sponsored by the National Institutes of Health. From new approaches in prevention and diagnosis to successful treatments and cures, research advances pioneered at AAMC member institutions have dramatically improved the health of our nation. So, what happened to the AIGA and the other "professional associations"

of design? Where are the intellectual resources, the holding tanks for research on color, readability/legibility, visual language and visual literacy (beyond Itten, Gerstner, Klee, Kandinsky, Dondis, etc.)? Where is the vision of institutions like the Kansas City Art Institute? Their leadership seems totally out of touch with contemporary reality. At the University of Illinois, I found greater interests and deeper understanding of communication and visual literacy among students in software engineering, robotics, and linguistics than among undergraduate and graduate students majoring in design.

If universities fail to recognize that, even in 2008, design education is being taught at vocational skill levels, nothing will happen. If universities threaten to and finally jettison the anti-intellectual programs in design education, or force them to grow deep connective roots with the other true campus disciplines, then, and only then, will we see movement toward fulfilling design's potential. By the same token, when accrediting agencies in the U.S. like NASAD (National Association of Schools of Art and Design) and the other professional spokes-organizations, like AIGA (American Institute of Graphic Arts) openly express dissatisfaction with the education delivered by the majority of American schools, something will happen and very fast.

JF:

SOCIAL RELEVANCE

Social relevance is indispensable if the design effort is to make sense and push the development of design research, education and practice. One must find a need to be addressed; it can be an extreme need, such as teaching Africans to avoid AIDS contamination, or a simpler need, like making phone bills easier to understand. Most of the efforts in the design profession are now directed at activating the consumer market; hence this article will not deal with that side of the profession, which is well taken care of. Confronting important human problems would put our best resources to the test. In front of such problems, deficient design responses become immediately visible. Solving complex social problems requires concerted intelligent research and action; one cannot just resort to routine knowledge and methods. One need not go far away and look at tragic settings to find interesting problems. Everyday needs, such as properly laying out scientific communication (i.e. cutting down the time it takes to a medical doctor to consult pharmaceutical information in a document), or designing devices that facilitate

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older people perform daily tasks (bottle openers and the like), can provide a long list of possibilities for the development of design responses to genuine daily needs of people.

As Dietmar notes, the demand for design intervention is normally determined by the client. If designers want to be socially relevant, we must become active agents in the identification of problems, because clients only see a need for design when that need has become obvious. Corporations and government agencies normally know about only advertising, corporate image, publication design and signage. People at large – from the top to the bottom of education and financial power – do not see the possibilities that design could offer in the management of daily life, or in addressing ills in society. Unfortunately, good examples of such designs do not abound, nor are they publicly visible; good design is often invisible. Scientific content specialists, such as computer engineers, medical doctors and lawyers are normally the ones who prepare communication documents, leaving the designers out of the picture. To complicate things further, not all designers are good document designers, most are trained as specialists in styling. In addition, people tend in general to accept things as they are, believing – in a quasi fatalistic way – that the way they are is the way they have to be. Karel van der Waarde in Belgium (van der Waarde 2006), Karen Schriver in the USA (Schriver 1997) and David Sless in Australia (Penman & Sless 1994) are good examples of designers who generate useful design work through an effort to demonstrate to clients the difference they can make to the client's management of activities. They work on the basis of an informed practice, building on existing knowledge through a consistent implementation of research methods in their design processes.

DRW

AN INVITATION TO SHAPE HUMAN EXISTENCE FOR THE BETTER

We face many development challenges, but it is no good tackling them piecemeal. Each of them affects all the others. We need to tackle them all together, with a common strategy, a clear timetable, and measurable targets.

UN Secretary-General Kofi Annan

Activists do not ask, 'why act?', but rather 'when?', 'where?' and 'how'? These dedicated and courageous individuals are important partners in the quest for a better, fairer and safer world.

Secretary-General Kofi Annan

Interdependence is undeniable, and the need to take action to achieve sustainable development more urgent than ever before.

June Zeitlin, Executive Director, Women's Environment and Development Organization

Design must be involved in issues more complex than social entertainment. The United Nations Millennium Declaration agreement was adopted by a hundred eighty-nine world leaders, highlighting the following concerns, among others:

- Human values and principles of conduct;
- Peace, security and disarmament;
- Economic development, poverty eradication;
- Environmental preservation, protection and rehabilitation;
- Human rights and participatory governance;
- Protecting the vulnerable sectors of society, such as the young, aged, and underprivileged because of lack of health services, education, economic support, or opportunities;
- Global focusing on the special needs of countries;
- Strengthening the relationships between nations;
- Humanitarian assistance.

(<http://www.un.org/millennium/declaration/ares552e.htm>)

In view of the enormously long list of severe and potentially devastating social world problems, including over-population, economic melt-downs and famine, it would be of conspicuous importance and urgency that educational institutions, and the design programs they house, join forces, form consortia or other cross-institutional curricular collaborations, and pledge unambiguous commitment to developing pragmatic educational programs that support the urgent timetables, goals, and objectives of the UN Millennium Declaration, which is just about to pass its first decade's milestone.

Even the brief list above presents enormous opportunities for conceptualizing large information environments through research, which is ideal for communication design, as each of the possibilities relies on communication skills. But most designers have been ill prepared for these tasks by their institutions. There is a distinct difference between graphic de-

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sign as useless styling and communication design as a way of supporting a social discourse between diverse segments of society. Thus, design programs should:

- ▶ develop efficient and supporting communication tools to promote solutions for problems;
- ▶ offer federal, state, and local governments their services to facilitate local, regional, national, and international efforts for developing and disseminating innovative plans for achieving the goals within reasonable timeframes;
- ▶ facilitate the adoption of their plans.

JF

PROFESSIONAL RELEVANCE

In addition to the social relevance we are proposing here as a departure point, the design response to a problem can become professionally relevant. This happens when the process followed and the methods used support the validity and reliability of the solutions proposed. A well-solved design problem becomes a methodological model that can, with some adaptive effort, be transferable to other situations. Given the current lack of education in reliable methods within the Communication Design curricula, research-based professional practice confronting human problems can become an integral source of new information for design to expand its knowledge base.

DEFINING A PURPOSE FOR A DESIGN INTERVENTION

A design intervention must have a clearly stated purpose: it should be based on the recognition and definition of a reality that needs to be changed. To do this, it is essential to establish the operational objectives of the project, that is, what the project is supposed to do (not how it is supposed to look) (Cross & Roy 1975), and to recognize the intermediate objectives that must be met in order to achieve the final ones. The final objectives of any communication design project focus on the response of the public. This response can be verified in attitudes, knowledge, or behavior.

Here are a couple of examples. At the Master of Medical Design of the University IUAV of Venice students dealt with real problems perceived at the hospital and after the patients go home. One student designed a device to help old people manage the daily taking of multiple drugs. The device was smart, linking visual design, mechanics and electronic communications, but when discussing the proposal with the Director of Geriatrics, the director pointed out that the manual

dexterity the device required was above the ability of many potential users. This is the beauty of designing for specific contexts with specific users in mind; it becomes possible to evaluate the quality of the design response. The difficulties are perceived during the development of the product, when they can be fully addressed.

I taught a workshop on user-centered communication design with Guillermina Noël at the invitation of Chris Myers at the Philadelphia University of the Arts. When a team of students showed their first redesign of a pharmaceutical leaflet to the users, the users indicated their preference to the existing one. It took an effort to reposition students and eliminate the aesthetic preferences they had acquired to produce something that was genuinely better than the existing design. Without including user research in the design process, there is little hope that a novel and good design proposal will be created.

When defining the purpose of an intervention, the objectives must be achievable and measurable. There have to be good grounds to believe that what is intended is achievable on the basis of previous experience, or on some other indicator that could support the objectives proposed. The objectives proposed should relate to measurable or verifiable results, making it possible to assess whether the effort was worthwhile, the extent to which the objectives were achieved, and what corrective actions might improve the performance of the design. This might imply an iterative alternation between design and research, certainly involving the user population.

INFORMATION GATHERING

Once the purpose of an intervention has been defined – and possibly, re-defined – one has to identify the full scope of intended users of the existing or proposed design device, so as to really understand how the design is or shall be used.

Information gathering requires imagination, insight and tenacity. It also requires sensitivity and an unprejudiced approach. Skills in listening and observing without imposing heavy personal filters are rare. It is always difficult to step into someone else's shoes. Social anthropology can teach us a great deal about the observation of people's behaviors. When one designs objects or communications one has to be aware that users do not come empty and naked. People use products in very many ways that are often unrelated to their intended purposes. People come to a product with guesses and expectations derived from their personal experiences

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and needs. As design researchers, we need to recognize the difficulties we face when trying to get to know “the other”: their histories, expectations, and particular needs.

METHOD, BUT NOT ONLY METHOD

The design process cannot be reduced to a mechanistic set of steps. Method without imagination contributes very little to the design profession and the solution of complex design projects. Having a set of steps to follow helps achieve a reasonable level of performance, but if one seeks a high level of performance, one should remember Niels Bohr, when he said to a colleague: “No, no, you are not thinking; you are just being logical.” (Frish 1979, 1)

Defining the purpose of a design project and including a thorough array of intermediate objectives requires an alert mind, flexible strategies, good working memory, and a clear idea of the final goal. Many times, this involves abandoning a strategy that seemed logical but was the result of tunnel vision.

Michael Burke was designing diagrams and pictograms explaining how to assemble a device to illiterate Africans when it became apparent that they could not understand graphic information. Instead of making the information clearer, or larger, or supporting it with verbal explanations, he made a paper model that could be cut out and assembled as a way to demonstrate how the real object should be put together.

Working for a patient with aphasia, Guillermina Noël realized that instead of designing a tool to help the patient communicate verbally, so he could again interact socially, she could better achieve her final objective by designing a board game, so the patient could interact without resorting to his very reduced speech.

In research on the effectiveness of different safety messages for the backs of school buses, I found that the best strategy was not to write a new message or to select a new typeface, but to wash the buses.

During World War II, Tom Nelson learned how pilots were able to estimate their altitude without instruments, through the types and scales of surface textures they saw on the ground, and how very simple animals like cats and crocodiles distinguish visual textures from one another, but not shapes. He hypothesized that visual patterns could help teach letters to children whose lack of immediate memory prevented them from learning the shapes of the letters. Working with me, he developed a system for teaching letters to children that capitalized on the ability to distinguish

between patterns. The system associated letters to background patterns. Once the patterns were distinguished, the children were able to transfer that ability to the perception of shapes and edges. (Nelson et al 1981, Frascara 1980).

When Ronald Shakespeare changed the public name of his client and called “Subte” to “Subterranos de Buenos Aires” (the underground trains operator), he was taking advantage of popular language to establish a brand that already had deep roots.

This was work done with imagination, open-mindedness, and alertness to a broad field of possibilities: indispensable components of good research, which goes beyond the mechanic application of proven methods.

DRW

A CALL FOR INSTITUTIONAL, PROFESSIONAL AND INDIVIDUAL ALTRUISM: PROFESSIONAL CONCERN FOR THE WELFARE OF OTHERS

When Susan Hockfield, President of MIT (Massachusetts Institute of Technology) outlined her ambitious agenda for that institution in 2006, her vision was clearly broader and wider than producing mere technologically keen, ingenious gadgets and processes, or notoriety and financial success. She was looking for transformational advances that change society for the better, including advances in education, health, and medicine. In her efforts, she asked for the melding of social and physical sciences with all other technological disciplines to bring about a truly positive revolution with direct benefits for the world citizenry. She envisaged a “great circle” of research disciplines informing a “cauldron of intellectual collaboration”.

THE SIGNIFICANT SHIFT FROM SIMPLE TO COMPLEX DESIGN THINKING

Her address continued a half-century of MIT history. It did not actually begin with Robert W. Mann in the late 1960s, but he contributed greatly as engineer, rocket scientist, and developer of the world’s first biomedical prosthetic device. He changed my approach to design at that time. I had worked on the design of the inauguration material for another new MIT president, which he oversaw, and we became good friends. As he freely shared his knowledge and attitudes with Univer-

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sity of Massachusetts graduate students, I began to recognize him not just as an engineer, but also as a leader in the field of design, turning design into an intelligent discipline.

Mann was involved in sensory aids evaluation and Braille computer translation systems for the blind: applying his pioneering in computer-aided design and his experience in powering rocket systems to his commitment to helping those with disabilities. From the mid 1960s, his research was focused primarily on the application of technology to human disabilities. Mann's "Boston Arm" was the first artificial limb to rely on a combination of biology and technology for its control: using the electrical impulses, connecting brain and muscles to "power" biomechanical devices. Mann studied anatomy, skeletal joints, the biomechanical role of cartilage, measurements of skeletal and tissue pressures, and also the behavioral and emotional ramification of his design – a truly multidisciplinary approach to designing.

The public still credits engineering and science almost exclusively for the success of moon explorations, while the scientists involved recognize this amazing human success as collaboration in form of sharing responsibilities, not only across disciplines and expertise, but continents, peoples, and global politics. While listening to why Robert Mann made the switch from "powering rockets to empowering people," it became very clear that "design" as it was and still is taught at most art/design schools, is irrelevant. Mann's chart of disciplinary interactions showed a decision tree of great complexity branching out from the project to very specific areas from the biological, behavioral, social and material sciences; mechanical, electronic and computer engineering; among many others. He said: "Success? You can't just measure the tip of the iceberg. That part of perception belongs to the public and journalists. They like to focus on the heroic. But the designer needs to look at the whole – lock, stock, and barrel – the major submerged part – and be responsible for the good as well as the 'warts and all' of the project."

Designers are responsible for the entire design process, from beginning to end, not just that part in which they see themselves as experts or which provides them with notoriety. What is the long-term effect of a design solution on a culture, on behavior, relationships? While the designed object may be ephemeral, the negative or positive impact is lasting. It is true that even research directions that result in little, can contribute greatly to better understanding, when information is openly shared.

Looking at the chronology – the progression from Gutenberg's legacy – communication design started like many

fields as a unified field, mostly in the hands of printers serving the state or religion and their constituents, from which the universities and the publishing industry emerged. Then broadsides offering opposing political positions and the opportunities for social dialogue enabled journalism to emerge, while the inclusion of announcements of skills, products, and services ushered in the advertising industry. Then, the emerging technologies of photography, cinema, video, and digital typography, design, and communication further impacted each of the areas, as specialization separated and refined them. The various needs in education, health, welfare, government, industry, and commerce allowed specialized areas of expertise to emerge in the categories of informing, educating, and entertaining, separately, but also in many possible and varied combinations.

The current situation in design education is confusing. On post-graduate levels, institutions are struggling to evolve positions. What is most interesting is that many schools present courses that deal with office and project planning and management or translation of traditional problems through emerging technologies, but very few deal in any depth with the complex, expansive and pervasive field of human communication. Undergraduate education makes great distinctions between visual and technical design subjects and isolates design from the rest of the university. There is little crossover between design projects and the core university education as represented by its "distribution requirement" courses. There is no deep introduction into the evolution of thought, language, and logic; the new generations know little about communication, at least beyond Marshall McLuhan headlines and information bytes – I know, he would be horrified. The result is that those who are asked to reveal the culture to others are not better informed or educated than the general public, sometimes less.

Cannot the demise of true graphic imaging – concentration and endurance of skilled and time-consuming interactions between hand and eye, tools and materials, and decisions and choice from a larger range of technologies are tested, rather than the expedience of software packages like Adobe Illustrator or Photoshop – be laid directly at the feet of the majority of design educators? Have not they themselves been trained in their graduate programs to abandon their craft and become institutional administrators and politicians, full of talk but totally incapable of crafting an image or letterform? But then, did not this approach to image-collage start

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already with designers like Bradbury Thompson at Yale, who institutionalized the process of blending photographs, type, and appropriated graphics, like cuts of maps and historical images, graphic marks and signets, and who, as stated by Communication Arts, “influenced the design of a generation of art directors”? Only the association with Armin Hofmann, and faculty like Inge Druckery, Philip Burton and others, rounded out the visual design experience at Yale.

The past decade ended on many positive tones. Buckminster Fuller closed out the last century, and left for design a vital legacy of synergy, suggesting a vigorous discourse between disciplines (which has not been realized as of yet by most design programs, especially those housed in art schools or remote from interactions with the other vital disciplines). Fuller asked designers to understand relationships – possible interactions, independence and interdependence between all disciplines – progressing from isolation to synergy, recognizing the discrete advantages of the contributions, revelations, and influences of disciplines upon each other, acting together or sharing knowledge to find solutions for complex problems, and create greater effect than could be produced by the disciplines operating independently or in parallel.

Fuller’s lifelong goal was to initiate the development of a Comprehensive Anticipatory Design Science in an attempt to foreshadow and solve humanity’s major problems through high technology, by providing more and more life support for everybody, with fewer and fewer resources. Fuller’s “Spaceship Earth” envisaged a positive way of finding answers to his recurring question: “Does humanity have a chance to survive successfully, and if so, how?” He was not alone; many futurists recognized that his time, defined by divisive tendencies to inhibit, separate, and control nations, races, religions, sciences and humanities, synthesis would be the right banner to unify human beliefs. As history seems to attest, the absence of a collective worldview condemns humanity to endless conflicts that inevitably stem from incompatible, partially correct, locally situated systems of justification. Thus, from the perspective of Gregg Henriques, a clinical psychologist and faculty member of the Combined-Integrated Doctoral Program at James Madison University, there are good reasons to have a shared knowledge about humanity; more could be achieved, on higher and greater levels, and to the benefits of more people.

A good example of efforts by other disciplines may make clear the great dynamic paradigm shifts that have transpired in the latter part of the twentieth century altering the

knowledge reservoir considerably. Henriques proposed the Tree of Knowledge System (2004), also known as the ToK System, for the theoretical unification of scientific knowledge. It depicts knowledge as consisting of four levels or dimensions of complexity, namely Matter, Life, Mind, and Culture, that correspond to the behavior of four classes of objects: material objects, organisms, animals, and humans; and four classes of science: physical, biological, psychological, and social. Henriques argues that developing such a system for integrating knowledge is not just an academic enterprise in an increasingly complex world. The fragmented state of knowledge can be seen as one of the most pressing social problems of present time.

In many ways design resembles the incoherence that psychology tries to bring into focus through the analogy of the Tree of Knowledge System: recognizing that there is no single agreed upon definition, no agreed upon subject matter; that there is a proliferation of overlapping and redundant concepts, a large number of paradigms with fundamentally different epistemological assumptions, and that specialization continues to be increasingly emphasized at the expense of generalization, thus encouraging further fragmentation. The ToK System offers the opportunity of moving academic knowledge toward the interlocking of fact and theory into a coherent, holistic view of knowledge, by offering new perspectives on how knowledge is obtained because it depicts how science emerges out of culture and that the four dimensions of complexity correspond to four broad classes of science.

In trying to translate the Tree of Knowledge into design, it becomes clear that the education that most designers receive does not prepare them for a world of complexification, which requires the integration of knowledge from various disciplines, or provides the analytical tools to foster informational syntheses. The vocational aspects of design education, traditional and electronic, prevail.

JF

IDENTIFYING THE INTELLECTUAL RESOURCES REQUIRED

A design project is normally interdisciplinary. Very seldom does a designer work on a product to be used by designers. Even in that case, does one know how to approach designers? Does one know how designers perceive, learn, remember, interact with information and use it? Can one refer to “designers” as (if they were) a homogenous group? Although

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the segmentation of the public is an indispensable strategy when it comes to designing effective communications, every segment is formed by a cluster of profiles: profiles that share many traits but that also differ in many ways from one another. When working on traffic safety communications planning and trying to reach the 18 to 24 year-old males who were highly exposed to the risk of collision, I had to go through a long process of fine-tuning. Conventional information about the psychological and social profile of the age and gender group was too general. Males 18 to 24 appear over-represented in the statistics, but looking closer, only 3% of that population was involved in injury collisions. The question was: is this a random occurrence, or are there definable differences between this 3% and the remaining 97?

An important step in any research project is to recognize the personal limitations one has in terms of the knowledge required to confront a problem and to identify who could have the required knowledge and experience. When I began to do research in traffic safety I hired an expert for the first set of focus groups I organized. This expert was used to do research for marketing, and his approach had to be adjusted as we went along, because some practices of marketing research – like deception – are not acceptable in social research, or at least in the kind of dialogue I wanted to establish with the participants. This experience, nevertheless, served me to understand the mechanics of the method.

By my experience, traffic safety research groups are a good case of interdisciplinarity, involving social scientists, road engineers, health personnel, public servants, police officers and law makers, and working with private groups such as Mothers Against Drunk Driving.

DRW

All communication, in many ways, deals with conflict resolution, especially if author or sender of the message and receiver inhabit different psychological, behavioral, educational, economic, social, political/ideological, religious or cultural platforms or environments. Philosopher Hans Georg Gadamer believed that a fusion between two or more horizons is always necessary to aid in any communication process. Communication design programs rarely deal with the complex issues encountered in the process of negotiation to level the communication planes for better understanding. Students resolve issues, disconnected from a real and pragmatic context, mostly from their own experience, even though everybody does know that one cannot save whales from an

IBM or Microsoft office desk, geared to support the annual company goal declaration, even if the image may be engrossing and commanding attention. These assignments without context teach little about the complexity in intercultural communication.

Depending on the intellectual isolation of the designer, a solution can turn out to be destructive rather than constructive. Designers should remember the responsibility of physicians to the medical oath (“first, do no harm”), even if, on the surface, this seems a preposterous request for the current design vocation. It is not an unreasonable demand for a profession that wishes to be admitted to an association of disciplines. It is true that the ephemeral works of communication designers rarely inflict lasting physical pain. But it is also clear, that without question, and with great frequency, their work alters to its detriment, the culture for which they are responsible.

Designs alter interactions between segments of society. Because of its institutional and corporate sponsorship, design habitually increases rather than reduces the distance between the privileged and disadvantaged by its one-sidedness and through the careless heightening of anxieties in persons who confront their need to comprehend obtuse, opaque, and dense vernaculars or legalese, in communications produced by institutions, corporations, and religious and federal agencies for their mercantile, banking, investment, marketing and political goals. Communication design often wastes valuable time and resources of learners and citizens who seek information through precise, fast, and reliable modes. The work often obscures and obfuscates instead of easing the comprehension of competing and incongruous issues. Expedient, shallow concepts interfere with logical decision-making in the public arena, even though democratic governance requires informative communication, and each citizen’s social contract, at birth, promises equal access to all services as well as free speech and movement. But most importantly, designers, without blinking, willfully estrange and separate rather than bring together, warping social perceptions of human worth, not just for a moment but for decades to come.

JF

OUTLINING A METHOD TO MEET A PURPOSE

There are methods that serve as general structures for the organization of the steps of a design process. At a higher level of detail, there are methods that help in the finding

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of reliable information and methods that help creating new information. The headings of all design and research methods, however, are empty intentions. Methods help intelligent action be efficient, they do not help incompetent imitators do good research.

Methods in design research need to be adapted to problems, and need to develop as one moves forward in a project. Methods provide good checklists and departure points. They help remember that that should be done, and when. Other methods help define “how” something could be done: helping to chart future moves and permitting the generalization of procedures. But more than taking an off-the-shelf, ready-made structure to meet the purpose of a design project, designers need to depart from existing knowledge, conscious that every design situation benefits from new knowledge, that is, if one wishes to find the best possible response to a design problem, and if one aspires to enriching the collective reservoir of the profession. Note that I say “response” and not “solution.” I do not think design problems can be solved, they can only be reduced. One can conceive responses that are always possible to improve at a future stage, when more information becomes available, or when a more intelligent designer meets the problem.

The general model I tend to use as a departure point for my design process is based on work by Christopher Alexander, Nigel Cross, Robin Roy, John Chris Jones, Bruce Archer, Gregory Bateson, and David Sless, who have specifically discussed design methods, but I also derive my way of working from Ron Easterby, Harm Zwaga, Anthony Wilden, Edward Hall, Ronald Shakespear, Richard Saul Wurman, Claude Lévi-Strauss, Jean Paul Sartre, Gilles Deleuze, Felix Guattari, Herbert Spencer, Jean Piaget, Edgar Morin, Maria Montessori and many others listed in the references below. Method and substance are always intertwined; ways of working are ways of thinking, and they affect not only how we do things, but also what we do. My design process generally involves nine steps:

1. Contact with the client
(or initiation of project by myself);
2. Information gathering;
3. Conception of the design strategy, including performance specifications;
4. Design development and production;
5. Evaluation of the product or parts thereof;
6. Refinement;
7. Implementation;
8. Performance evaluation;

9. Feedback to design development.

Each one of these steps involves research. The richest of these steps in variety of possibilities might be “information gathering,” since there we can find literature research, focus groups, anthropological observation, expert interviews, user interviews, role playing (including user trips), and user testing.

However, as I said above, design and research methods only help intelligent action, they do not generate it.

Under the name of the widely spread “participatory design” method, I have seen inadequate objects designed with users, or by following users’ wishes too far. Participatory design when used by a sensitive and experienced designer can be a useful help; in the hands of an inexperienced designer it can provide the mistaken feeling of being right, even when one is not. Participatory design is viewed by many as the Ferrari of the user focused design research methods. A Ferrari, however, would not help a blind person drive. It will not even help an ordinary driver. The priorities of a project involve choices, choices are judgment calls, and judgment involves assigning value to information, an operation that is too complex and varied to be definable by a series of steps.

To make things more complicated, Alexander adds: “We know that we shall never find requirements which are totally independent. If we could, we could satisfy them one after the other, without ever running into conflicts. The very problem of design springs from the fact that this is not possible because of the field character of the form-context interaction.” (Alexander 213) This calls for a discussion of the situations of implementation.

THE SITUATION OF IMPLEMENTATION

Many designers have moved from a concern with objects to a concern with people. The design of an object is only a means to meet a need that affects people. We have to understand people’s needs and wishes, and create the objects that meet them. The objects that we create are embedded in people’s actions and situations. They become contextualized, redefined, and transformed through use. We must be sensitive to the environments where our design products come to life and to the people who use them.

In the education field we should change from designing teaching aids to designing teaching situations. The success of a learning experience cannot be trusted to the design of a teaching aid. The whole activity has to be planned so that

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the teaching aid contributes its best to the experience. Many details enter this terrain, but certainly the teacher's actions, the student's actions and the environment in which the intervention occurs, contribute to the learning event and must be seen as part of the design problem. This problem is not only intellectual, but also emotional. We know that people learn better when they want to learn. We should think not only in cognitive terms when designing teaching aids, but also in motivational terms. The material should both motivate the teacher to teach and the student to learn, and it should become, in a way, theirs.

Something similar affects the working environment. We should move from the design of work stations to the design of work. Despite all we know today about ergonomics, it is not possible to invent and design the perfect chair on which a person could be sitting for eight hours a day, five days a week, without becoming physically fatigued in one way or another. It would be wiser to design a work pattern which, including the design of furniture and tools, would be centered on the design of the activities to be performed, on the efficiency of the person's work, and also in support of the person's wellbeing. Henry Ford's idea of the efficiency of the assembly line has for long been recognized as flawed, based on a misconception of human work. Good design research, aimed at solving a performance problem, often uncovers a social problem. All this of course, defines the design problems as interdisciplinary. Design problems are not only technical, they are above all, human.

EVALUATING THE DESIGN INTERVENTION

Every design intervention is a working hypothesis. In order to evaluate the extent to which the objectives of a project have been met, these objectives must have been clearly articulated from the beginning, and criteria for the assessment of the design action must have been spelled out. A design product must respond to a number of concerns; the more the concerns can be articulated before and during the design process, the better the response will be. The evaluation of performance should go beyond comparing different alternatives, because testing alternative solutions only allows us to choose the best option available, not the best option possible.

To close

- The more one knows a problem, the better one can deal with it.
- Existing knowledge is normally insufficient to deal with a new situation: hence the need for research.
- Research is always useful, not only to produce a good design proposal, but also to defend it.
- Every design problem is interdisciplinary, and therefore it requires information and experts from various areas of knowledge.
- Every design project involves the design of how to collect information that is sufficient, precise and reliable.
- The methods used to collect the information must be appropriate, since this determines the reliability of the information collected, that is, its defendability.
- The frontiers of applicability of the information collected must be clear, since this defines its external validity, that is, the relevance of the conclusions to other situations.
- The interpretation of results should be carefully attended to. This establishes the internal validity of a conclusion, that is, the degree to which the cause-effect relationship affirmed by the conclusions of a research process is defendable.

The purpose of research in design is to orient the practice; it should help make things well. At a higher level of abstraction, it can be oriented toward the development of theories and methods. Design practice can involve research, but in and of itself, design practice is not research. Without research we are left with intuition based on existing knowledge.

Research involves the generation of new knowledge; it is different from information gathering, which is only the organization of existing knowledge. Information gathering could be the first step of a research program. Studies at the Master level in design are oriented at equipping the student with the existing knowledge of a design field: the student becomes a master in a clearly defined terrain, acquiring an experience that can become a methodological model for design and research. Doctoral research must be oriented at

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the generation of new knowledge. But without a meaningful problem research is useless, however carefully developed it may be. Meaningful problems are great motivators for intelligent action, they defy people to think well.

Research helps reduce doubts and increase certainty. It helps make informed choices. To conceive the best strategy to confront a complex problem, we need to go beyond existing models and see the wider picture, working interdisciplinarily and with intelligence. Intelligence (from the Latin *intus-legere*, 'to read inside'), is the ability to find differences between things that are normally seen only as similar, and find similarities between things that are seen normally as only different (Hofstadter). It is the ability to make distinctions, find connections, particularly between disparate things or apparently isolated events (Bateson).

There are four conditions that must be met to develop useful advanced research in design: the problem should belong in the design discipline, the methods used should be a model for the profession; the topic should be socially relevant; the process should involve the users.

Intelligent research is a way to acquire dependable and useful information. A way to discover answers to meaningful questions by applying scientific procedures to attain reliable new knowledge (Ary et al). Researchers are permanent doubters.

Jorge Frascara, Dietmar Winkler

Dietmar Winkler

Dietmar R. Winkler, educated in design in Hamburg, Germany, is professor emeritus at the University of Massachusetts Dartmouth. He is the former director of the School of Art and Design at the University of Illinois at Urbana-Champaign. He also held the Joyce C. Hall-Chair as director of the Center for the Study of Form, Image, and Text at the Kansas City Art Institute. Prior, for approximately twenty years, he was a senior faculty member of the Design Department, the dean of the College of Visual and Performing Arts, and an adjunct faculty member in the cognitive science program of the Psychology Department at the University of Massachusetts Dartmouth.

Since 1960, he has been examining professional design practice and the education of design and communication subjects. His interdisciplinary interests have been to expand narrow traditional visual and form/function literacies to include user-based design in behavioral, social, and cultural contexts. He is a member of the editorial board of advisors to *Visible Language* journal for which he has written on design and educational issues. Other papers have appeared in publications of AIGA, ICOGRADA, and *TipoGrafica*.

In design practice, he has worked as type and design director, responsible for the development and implementation of various long-term publication programs, identity systems, and design and production staffing plans at Brandeis University, Harvard Business School, Massachusetts Institute of Technology, University of Massachusetts Dartmouth, as well as the WGBH Educational Foundation. His design work has been awarded, exhibited, and published by art director clubs of Boston, New York, and St. Louis, the Type Directors Club of New York, the American Institute of Graphic Arts. Reviews and visual presentations have also appeared in publications and books of the national and international professional media: *Art Direction*, *Communication Arts*, *Graphis* (Switzerland), *Idea Magazine* (Japan), *Novum Gebrauchsgrafik* (Germany), *Print*, among others.

Jorge Frascara

Professor Emeritus, Department of Art and Design, University of Alberta; Fellow of the Society of Graphic Designers of Canada; Member of the Icoграда Past-Presidents Forum; Member of the Editorial Boards of *Design Issues* (Carnegie Mellon University/MIT), and *Information Design Journal* (John Benjamins); International Fellow, Society for the Science of Design (Japan), Advisor, Doctoral program, University IUAV of Venice, Italy, and contributor to its Master in Medical Design.

He has organized several international conferences and design education projects, has been advisor and reviewer of several design education programs and has lectured and made presentations in twenty-six coun-

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tries. He was Chairman of Art and Design at the University of Alberta (1981-86), President of Icoграда (1985-87), and Convener of the ISO TC145 SC1 WG2, Design Criteria for Public Information Symbols (1977-84).

He is the author of *Communication Design* (Allworth Press, 2005); *User-Centred Graphic Design, Mass Communication and Social Change* (Taylor & Francis, London, 1997); and editor of *Designing Effective Communications* (Allworth press, 2006); of *Design and the Social Sciences, Making Connections* (Taylor & Francis, 2002); of *Graphic Design, World Views* (Kodansha, Japan, 1990); and of the ISO Technical Report 7239, *Design and Application of Public Information Symbols* (ISO, Geneva, 1983). He has also published three books in Spanish and more than 50 articles internationally.

He has juried many design exhibitions and competitions and has conducted research with the support of various Canadian organizations, has been Board of Directors Member, Communication Research Institute of Australia (CRIA) and Editorial Advisor, Tipográfica, Argentina. His professional experience includes illustration, film animation, advertising and graphic design, and now concentrates on research and development of visual communications for safety and information design.

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CURRENT RESEARCH IN DESIGN

TABLES OF CONTENTS FROM LEADING DESIGN JOURNALS: SPRING-SUMMER, 2007

ARCHITECTURAL DESIGN, 78:4

**SPECIAL ISSUE: PROTOARCHITECTURE:
ANALOGUE AND DIGITAL HYBRIDS**

JUL.– AUG. 2008:

ISSN: 0003-8504

[WEB LINK](#)

Versatility and vicissitude: an introduction to performance in morpho-ecological design (6-11)

Michael Hensel, Achim Menges

- Redefining the utilitarian debate on performance by redefining form 'as the multitude of effects, the milieu of conditions, modulations and microclimates that emanate from the exchange of an object with its specific environment—a dynamic relationship' and performance as 'the synthesis of this dynamic ... making form and function less of a dualism and more of a synergy that aspires to integral design solutions and an alternative model for sustainability'

Form, force and structure: a brief history (12-19)

Remo Pedreschi

- The work of Robert Maillart, Pier Luigi Nervi, Eduardo Torroja, Felix Candela, Heinz Isler and Eladio Dieste ... illustrate the important changes and contributions that have taken place and how they influence the way we think about performance from an engineering point of view.

Form, force, performance: multi-parametric structural design (20-25)

Klaus Bollinger, Manfred Grohmann, Oliver Tessman

- challenging the '20th century classification of structures according to defined building typologies [that] was central to engineering design'

Metabolism and morphology (26-33)

Michael Weinstock

- an account of the dynamics of natural metabolisms ... [suggesting] ... an agenda for the development of metabolic morphologies of buildings and cities

Material performance (34-41)

Michael Hensel, Defne Sunguroglu, Achim Menges

- researching 'the characteristics of wood in order to explore how a material's variable behaviour and its response to extrinsic stimuli might substantially contribute to performance-oriented design'

Manufacturing performance (42-47)

Achim Menges

- Freeform construction, a collaborative effort to develop construction-scale rapid manufacturing processes

Performance-orientated design precursors and potentials (48-53)

Michael Hensel

- the potential of past approaches to passive environmental modulation as a reworked spatial paradigm for design that interrelates material, spatial and environmental dynamics with dynamic patterns of habitation

Inclusive performance: efficiency versus effectiveness towards a morpho-ecological approach for design (54-63)

Michael Hensel, Achim Menges

- morpho-ecological approach to design ... [challenging] ... some of the most deeply entrenched dogmas of architecture as a material practice, such as the notion of efficiency in design and construction

Complex brick assemblies (64-73)

Defne Sunguroglu

- current research on 'brick ... [as] ... a material with unlimited possibilities, almost completely ignored by modern technology'

Membrane spaces (74-79)

Michael Hensel, Achim Menges

- Developing membrane structures: 'the findings of a series of membrane-research studios'

Aggregates (80-87)

Michael Hensel, Achim Menges

- [arguing] for a better understanding of the behaviour of ... [aggregates] ... in order that they can be used in their loose form ... [requiring] ... a radical departure from architectural design based on assemblies and assembly processes

Environmental intensifiers (88-95)

Aleksandra Jaeschke

- developments in fibre-reinforced composite material

Engineering ecologies (96-101)

Peter Trummer

- a shift from physics to biology as the underlying paradigm of engineering ... and with it a fundamental change in the way we conceive and practise architecture

Designing morpho-ecologies: versatility and vicissitude of heterogeneous space (102-111)

Michael Hensel, Achim Menges

- theoretical and methodological framework for morpho-ecological design in architecture, illustrating it further with two projects that combine research and design

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AI EDAM: ARTIFICIAL INTELLIGENCE FOR ENGINEERING DESIGN, ANALYSIS AND MANUFACTURING: 22:3 SPECIAL ISSUE ON GENETIC PROGRAMMING FOR HUMAN-COMPETITIVE DESIGNS

AUG. 2008

ISSN: 0890-0604

[WEB LINK](#)

Human-competitive machine invention by means of genetic programming (185-193)

John R. Koza

- Genetic programming now routinely delivers human-competitive machine intelligence for problems of automated design and can serve as an automated invention machine.

Evolutionary synthesis of kinematic mechanisms (195-205)

Hod Lipson

- Discusses the application of genetic programming to the synthesis of compound two-dimensional kinematic mechanisms, and benchmarks the results against one of the classical kinematic challenges of 19th century mechanical design.

Automated synthesis of mechanical vibration absorbers using genetic programming (207-217)

Jianjun Hu, Erik D. Goodman, Shaobo Li, Ronald Rosenberg

- an automated methodology for open-ended synthesis of mechanical vibration absorbers based on genetic programming and bond graphs.

Cooperative body–brain coevolutionary synthesis of mechatronic systems (219-234)

Jiachuan Wang, Zhun Fan, Janis P. Terpenney, Erik D. Goodman

Human-competitive evolved antennas

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Jason D. Lohn, Gregory S. Hornby, Derek S. Linden

- a case study showing a human-competitive design of an evolved antenna that was deployed on a NASA spacecraft in 2006

Automated ab initio synthesis of complete designs of four patented optical lens systems by means of genetic programming

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- how genetic programming has been used as an invention machine to automatically synthesize complete designs for four optical lens systems that duplicated the functionality of previously patented lens systems

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- The use of genetic programming in the automatic invention of quantum computing circuits that solve problems of potential theoretical and practical significance.

Evolving blackbox quantum algorithms using genetic programming (285-297)

Ralf Stadelhofer, Wolfgang Banzhaf, Dieter Suter

- a genetic programming system that uses some new techniques to develop and improve quantum algorithms

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INTERACTION DESIGN RESEARCH IN HCI

ISSN: 0747-9360

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- a model of interaction design research that has evolved at the Umeå Institute of Design, Umeå University, in Sweden

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Jodi Forlizzi, John Zimmerman, Shelly Evenson

- a new model of interaction design research in HCI intended to allow designers to participate more evenly

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- proposing a framework in which we have articulated ideas coming from semiotics to conduct work in interactive system design

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- A prototype is not only a representation ... but ... consists of both the representation and the social interaction the participants create together.

Emergent interaction: creating spaces for play (58-71)

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- methodological concerns such as how we should seek to understand what is built and how it is used—the implementation of technology and its appropriation

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- The values and principles that govern good desktop computing interactions may not apply when we apply computing to the ... rest of our lives.

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User interface design principles for interaction design (85-107)

Adream Blair-Early, Mike Zender

- What designers need to improve interface design is a conceptual framework that can spur innovation. ... The parameters and principles ... we hope, as Winterowd suggests, ... will have the power to not only organize material, but also drive inventive development.

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THE DESIGNFUL COMPANY

SPRING 2008

ISSN: 1460-6925

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The designful company (p9-15)

Marty Neumeier

- To succeed, companies must be agile, nurture inventiveness, and have an enterprise-wide appetite for radical ideas.

The road to authentic brand is littered with design (15-20)

David Lemley

- An abiding employee commitment to the brand ... [is] an evangelical spirit that marks the intersection of brand building, business strategy, and design.

Brand inside meets brand outside (19-28)

Karl D. Speak, Gilman Hanson,

- their work to determine Argosy's brand ethos, as well as the steps they take leveraging that reality to create a robust brand platform that motivates employees and engages the target market

The socio-cultural role of brand in business value creation (27-37)

Caroline A.A. Meads, Pradeep Sharma,

- The benefits of brand can accrue not only to companies and consumers but also to society at large....fostering loyalty and profits to nurturing corporate social responsibility to stimulating the fundamental human desire to come together as a group.

Embedded brand: the soul of product development (37-46)

Guido Stomppff

- Stomppff asks if a brand's essence can be understood and conveyed intuitively.... as themes employees absorb as unstated but very real dimensions of the corporate culture.

Experiential design drives an established brand to a youthful market (45-52)

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- how the company's in-house creative team designed a youth-inspired, interactive experience ...to deliver a compelling commentary on safety and, more subtly, to introduce the corporate brand to a new audience

How tangible is your brand? (52-57)

Mary Weisnewski

- the tale of a consulting firm that looked to branding not only as a way to nurture client loyalty and generate new work but also as a path to sustaining the internal values, mission, and identity of its business

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- how a clear understanding of the messages and power inherent in the visual dimension of a brand can be linked with ... other unique content to extend the range and competitiveness of offerings

Achieving brand-driven business success (65-74)

Connie Birdsall, Neil Johnston

- Brand-building, when done correctly, embraces more than visual design elements, encompassing a firm's product and service line brands, as well as the corporate brand, all linked in a logical and well-conceived strategy that also informs employees' behaviors.

The mathematics of brand satisfaction

Chris Rockwell

- As a company establishes a brand, the expectations increase for that brand to deliver with equal or better quality—the price of success for big brands, which must constantly innovate and over-deliver if they are to maintain reputation and mindshare.

DESIGN PHILOSOPHY PAPERS, 1:2008

ISSN 1448-7136

[WEB LINK](#)

The liquid drop: exposing & utilising difference in the design process

Britt Östlund, Annika Olsson, Bodil Jönsson

- When a group of researchers from physics, engineering and social science met to discuss ageing and the involvement of older users in design innovation, the idea of the sphere arose in the discussion and became the focus for understanding user-driven innovations.

HCI: towards a critical research position

Eric Stolterman & Anna Croon Fors

- We explore and propose a research position by taking a critical stance against unreflective acceptance of digital technology and by acknowledging people's life-world as a core focus of inquiry.

Debate

Intro

Anne-Marie Willis

Everyday truths?

William McNeill & Carleton Christensen

What is so sustainable about services?

C. Christensen

Continued p. 18 →

Voice of sustainment

The gap in the ability to sustain

Tony Fry

- to explore how we might think about the gap between rhetoric and action as it exists alongside what still remain confused articulations of the actual problems by those organisations who claim to be 'change agents' setting out to deliver 'solutions'

DESIGN STUDIES, 29:4
2008

ISSN: 0142-694X

[WEB LINK](#)

Acquiring information from linkography in protocol studies of designing (315-337)

Jeff W.T. Kan, John S. Gero

- This paper proposes methods to acquire information from linkography in protocol studies....Cluster analysis is able to group the linkograph into meaningful clusters, while entropy measures the opportunities for idea development of a team and can also reflect the opportunistic contributions of individual participants.

Workflow Integration Matrix: a framework to support the development of surgical information systems (338-368)

A. Jalote-Parmar, P. Badke-Schaub

- [using] theories of human behaviour in problem solving ... to provide evidence-based decision-making for the development of new surgical technologies

Barriers and enablers for creating shared understanding in co-design projects (369-386)

Maaïke Kleinsmann, Rianne Valkenburg

- This paper explores what the barriers and enablers are for the creation of shared understanding during a co-design process in industry. ... The effectiveness of creating shared understanding is not only dependent on face-to-face communication, but also on project management and project organization.

Deciding about design quality: design perception during a European tendering procedure (387-409)

Leentje Volker, Kristina Lauche, John L. Heintz, Hans de Jonge

- Systematic consideration of stakeholder input and expert evaluation do not preclude a holistic judgement including both rational and emotional aspects of architectural quality. Implications for models of quality perception and selection procedures are discussed.

RE: Definitions of use (410-423)

Johan Redström

- The paper analyses relations between design and use with focus on how open a design (process) is with respect to definitions of use through use.... It transforms the relation between design and use into a question not of who, but of how.

DESIGN STUDIES, 29:3
2008

ISSN: 0142-694X

[WEB LINK](#)

The role of timing and analogical similarity in the stimulation of idea generation in design (203-221)

Ian Tseng, Jarrod Moss, Jonathan Cagan, Kenneth Kotovsky

- the effects of open goals, fixation, and priming, as well as their implications in design problem solving

The impact of tangible user interfaces on spatial cognition during collaborative design (222-253)

Mi Jeong Kim, Mary Lou Maher

- The use of TUIs changed designers' spatial cognition, and that these changes affected the design process by increasing their 'problem-finding' behaviours leading to creative design.

Focus on the learning styles of freshman design students (254-266)

Halime Demirkan, Ö. Osman Demirba

- This study explores learning styles of freshman design students.... Findings showed that the distribution of design students ... was concentrated in assimilating group with coordinates close to the intersection of the axes of the Learning Style Type Grid. ... Freshman design students are more related to the analytical skills of theory building, quantitative analysis and technology. ... They have better behavioural skills compared to perceptual learning skills.

Candidate worldviews for design theory (267-303)

Per Galle

- a method by which the philosophy of design may develop sound metaphysical foundations ('worldviews') for design theory and generate philosophical insights into design at the same time

Viewpoint

Design education in Brazil (304-312)

Ricardo Manfredi Naveiro, Regina Celia de Souza Pereira

Design Studies Award (313)

INFORMATION DESIGN JOURNAL,
16:2, 2008

ISSN: 0142-5471

[WEB LINK](#)

Does the taxman need a face? effects of including photographs and examples in a tax form; a field experiment with senior citizens in The Netherlands (85-100)

Carel van Wijk, Anja Arts

An interview with Louis Rosenfeld (101-106)

Saul Carliner

Continued p. 19 →

Are animated demonstrations the clearest and most comfortable way to communicate on-screen instructions? (107-124)

José Marconi Bezerra de Souza, Mary Dyson

Research challenges (125)

Literary potential: the unexplored powers of reading (126-132)

Frank Hakemulder

Typography and disciplinary identity in academic writing (133-147)

Louise J. Ravelli, Sue Starfield

Research watch (148-155)

Book Review

Communicating rights: The language of arrest and detention. Frances Rock (156-158)

Persuasive messages: The process of influence. William Benoit, Pamela Benoit (159-161)

INTERNATIONAL JOURNAL OF ART AND DESIGN EDUCATION

27:2, JUN. 2008

ISSN: 1476-8062

[WEB LINK](#)

Autonomy of artistic expression for adult learners with disabilities (116-123)

Graham C. Young

- [confirming] The use of computer technology (CT) in art ... to offer the chance for self-fulfilment for disabled artists by increasing control over artistic choices and providing for self expression with only minimal assistance required from others

Insights into the integration of traditional filipino arts in art and design education: voices from the academe (124-132)

Cynthia B. Loza, Allan B. de Guzman, Regalado T. Jose

- the first segment of a qualitative study that explores the feasibility of integrating traditional arts in Philippine art and

design education...to provide an impetus for the study and a springboard for discussion regarding the relevance of traditional Filipino arts in a predominantly Westernised educational system.

How can we create the conditions for students' freedom of speech within studies in art? (133-143)

Miranda Matthews

- how the dynamics of students' voice can be productively brought into teaching situations

The contemporary art of collaboration (144-157)

Sheridan Hon

- [confounding] the effects of a comprehensive school's limitations [by allowing] hundreds of participants of all ages to collaborate in a partnership ... to engage with art as a creative process.

White heat or blue screen? digital technology in art & design education (158-167)

Natascha Radclyffe-Thomas

- international research on the adoption of ICT in schools and colleges, specifically ... examples of good practice in art and design education and reviews trends in technology to determine the benefits and limitations for future practice

The act of looking: Wolfgang Iser's literary theory and meaning making in the visual arts (168-180)

Olga M. Hubard

- the process through which five teenagers discover meaning in an abstract sculpture by artist Isamu Noguchi:... how the young viewers arrived at a series of readings that were elicited by the qualities of the work and that built upon each other in a sort of snowballing process

Designing a utopia: an architectural studio experience on David Harvey's Edilia (181-191)

(181-191)

Nese Gurallar Yesilkaya

- a studio project in order to ... improve progressive thinking and critical thought in the design education of architectural students — and also future architects.

Art at the mall: a look at the aesthetics of popular mall art culture (192-201)

Ilona Szekely

- Where does an art student, or the general public learn about buying art? How much, if any, of this process is happening in the art class?

The 'Night owl' learning style of art students: creativity and daily rhythm (202-209)

Sy-Chyi Wang, Jin-Yuan Chern

- [examining] the deep-rooted 'night owl' image of art practitioners and ... [calling for] ... a consideration of the time for learning in art

Book Reviews (210-215)

Arts-based research in education: foundations for practice. Melisa Cahnmann-Taylor and Richard Siegesmund (eds.)

Art rules: Pierre Bourdieu and the visual arts. Michael Grenfell, Cheryl Hardy

The problem of assessment in art & design.

Trevor Rayment (ed.)

Continued p. 20 →

INTERNATIONAL JOURNAL OF DESIGN
2:1, APR. 2008
ISSN: 1991-3761 [WEB LINK](#)

Three-in-one user study for focused collaboration

Turkka Kalervo Keinonen, Vesa Jääskö, Tuuli Mattelmäki

- a human-centered design approach ... which applies a set of methods to speed up and focus on the design process

The product ecology: understanding social product use and supporting design culture

Jodi Forlizzi

- product ecology as a theoretical design framework to describe how products evoke social behavior, to provide a road map for choosing appropriate qualitative research methods and to extend design culture within HCI by allowing for flexible, design-centered research planning and opportunity-seeking

Design, risk and new product development in five small creative companies

Robert N. Jerrard, Nick Barnes, Adele Reid

- five small creative companies ... studied in detail over extended periods of the new product development lifecycle

How to rate 100 visual stimuli efficiently

Yaliang Chuang, Lin-Lin Chen

- two computer-based methods ... for obtaining attribute rating data, based on multiple attribute scales, for a large number of visual stimuli

Design Case Studies

Perceptual information for user-product interaction: using vacuum cleaner as example

Li-Hao Chen, Chang-Franw Lee

- [a study] to identify which product designs for parts and directions are most effective, and then propose how perceptual information could best be designed to facilitate user-product interaction

Perspectives

The nature of design practice and implications for interaction design research

Erik Stolterman

- Science is not the best place to look for approaches and methods on how to approach design complexity.... Any attempt by interaction design research to produce outcomes aimed at supporting design practice must be grounded in a fundamental understanding of the nature of design practice.

INTERNATIONAL JOURNAL OF TECHNOLOGY AND DESIGN EDUCATION
18:3, JUL. 2008
ISSN: 0957-7572 [WEB LINK](#)

Learning in DEPTH: developing a graphical tool for professional thinking for technology teachers (221-229)

Frank Banks, Frank

- case studies from the second phase of an international project—Developing Professional Thinking for Technology Teachers (DEPTH2)

DEPTH2: design & technology trainee teacher's use of a subject construct model to enable reflective critique of school experience (231-246)

David Barlex, David, Marion Rutland

- an inquiry into the case of a design & technology one-year Postgraduate Certificate in Education (PGCE) trainee's interpretation of their school-based experience in England using the DEPTH approach of subject knowledge, pedagogic knowledge and school knowledge

Using the DEPTH model to facilitate learning in an integrated Science and Technology pre-service primary teacher course (247-253)

Gary O'Sullivan

- development of an Integrated Curriculum Science and Technology subject offering as part of the Bachelor of Education

(Teaching) degree for primary pre-service teachers at Massey University in New Zealand.

DEPTH2: developing professional knowledge in D&T secondary initial teacher education (255-263)

Gwyneth Owen-Jackson

- [research on] a visual tool for discussing the aspects of professional knowledge that student teachers are required to develop and this formed the basis of this research.... Findings indicate ... a growth in their knowledge and a development in the complexity of their understanding.... from a generalised understanding to a more specific and sophisticated one.

DEPTH—developing professional thinking for Finnish technology teachers (265-273)

Esa-Matti Jarvinen, Jouni Hintikka, Arto Karsikas

- the Finnish case contributing to the international DEPTH study:The DEPTH tool appeared to work well with most of the teachers.

Using DEPTH as a framework for the determination of teacher professional development (275-284)

P. John Williams

- the use of the DEPTH model in the development of professional development for secondary teachers of engineering

Viewpoints of higher education teachers about technologies (285-305)

Adel Bouras, Virginie Albe

- questionnaires and interviews to identify the opinions of teachers in a training institute for master technicians.... The results indicate that teachers essentially perceive technology as an applied science for which the ultimate purpose is progress and consumption.

Continued p. 21 →

Book Reviews

International handbook of technology education: reviewing the past twenty years. Marc J. de Vries, Ilja Mottier (eds)

Analyzing best practices in technology education.

Marc de Vries, Rod Custer, John Dakers, Gene Martin (eds)

JOURNAL OF DESIGN HISTORY

21:2 SUMMER 2008

ISSN: 0952-4649

[WEB LINK](#)

Useful reading? designing information for London's victorian cab passengers (121-141)

Paul Dobraszczyk

- how the largely anonymous designers of ... the extraordinary range of information designed for London's cab passengers in the nineteenth century ... sought to address the perceived needs and abilities of their intended readers, and ... how actual readers responded

Originality and Jones' The Grammar of Ornament of 1856 (143-153)

John Kresten Jespersen

- how the Grammar came about and ... its design intentions

Empire of glass: F. & C. Osler in India, 1840-1930 (155-170)

Deepika Ahlawat

- [giving] political meaning to the consumption habits of the Maharajas during the late Victorian and Edwardian eras and ... [engaging] with the identities this kind of consumption created in a wider discourse of empire

Translating properties into functions (and vice versa): design, user culture and the creation of an american and a european car, 1930-70 (171-181)

Gijs Mom

- a functionalist, user-centred and quasi-evolutionary theory of agency and technical change in the history of design

Re : focus design

Craft and the limits of skill: handicrafts revivalism and the problem of technique (183-193)

Peter Betjemann

- The era of the Arts and Crafts Movement thus developed ways of thinking about craft that are sceptical of practised, learned or reproducible technique. This essay probes the implications of that epistemological shift, considering its effects on the aesthetics of craft, on the class dynamics of handicrafts revivalism and on the popularization of a medieval style.

Book Reviews

A cultural history of fashion: from the catwalk to the sidewalk. Rebecca Arnold

Encyclopedia of furnishing textiles, floorcoverings and home furnishing practices 1200-1950. Stella Beddoe

Gender, taste & material culture in Britain and North America, 1700-1830. Matthew Craske

Stories from home: English domestic interiors, 1750-1850. Emma Ferry

JOURNAL OF ENGINEERING DESIGN
19:3 JUN. 2008

ISSN: 0954-4828

[WEB LINK](#)

The Parameter design considering the impact of design changes on downstream processes based upon the Taguchi method (299-319)

D. Xue; S. Y. Cheing; P. Gu

- a new systematic approach for parameter design considering the impact of design changes on downstream processes.... in [which] ... design parameters with potential changes are modelled as noise parameters, while design parameters without potential changes are described as controllable parameters

Remanufacturing strategies to support product design and redesign (321-335)

Peggy Zwolinski, Daniel Brissaud

- the factors affecting the success of a remanufacturing operation from a wide range of products that have been successfully remanufactured.... [illustrating] the way the methodology is used in ... redesigning products from a remanufacturing perspectives and developing new products

Parameter analysis for the application of the principle of direct and short transmission path: a valve-actuator design case study (337-357)

Sridhar S. Condoor; Ehud Kroll

- parameter analysis as a tool to create effective configurations incorporating fundamental design principles

Design evaluation of digital consumer products using virtual reality-based functional behaviour simulation (359-375)

Hyungjun Park, Jeong-Soo Son, Kwan-Heng Lee

- a novel approach to design evaluation of a digital consumer product, which can satisfy [the] requirements ... to allow all the people involved in the design process to experience its realistic appearance and functional behaviour ... using virtual reality-based functional behaviour simulation.

Durability choice and optimal design lifetime for complex engineering systems (377-400)

Joseph H. Saleh

- the durability choice problem of complex engineering systems, as seen from the customer's perspective and in the face of network externalities and obsolescence effects

Continued p. 22 →

**JOURNAL OF URBAN DESIGN, VOLUME
13 ISSUE 1 2008**
ISSN: 1469-9664 (ELECTRONIC) 1357-
4809 (PAPER)

Cities afoot—pedestrians, walkability and urban design (1-3)

Space syntax and walking in a new urbanist and suburban neighbourhoods (5-28)

Perver K. Baran, Daniel A. Rodriacuteguez, Asad J. Khattak

- whether space syntax measures in New Urbanist and conventional suburban neighbourhoods are associated with the walking patterns of residents in these communities,... relationships between the number of leisure trips and all three syntactical measures

The relationship of neighbourhood built environment features and adult parents' walking (29-51)

Mariela Alfonzo, Marlon G. Boarnet, Kristen Day, Tracy Mcmillan, Craig L. Anderson

- beyond examining correlations of individual built environment features and walking, to begin to test proposals about which composite characteristics of the built environment ... may have the greatest impact on walking

Urban greenways, trail characteristics and trail use: implications for design (53-79)

Greg Lindsey; Jeff Wilson; Jihui Anne Yang; Christopher Alexa

- how remote sensing technologies and geographic information systems (GIS) can be used to enhance modelling of urban greenway trail traffic and ... relationships between ... trail design and trail use

How far, by which route and why? a spatial analysis of pedestrian preference (81-98)

Asha Weinstein Agrawal; Marc Schlossberg; Katja Irvin

- a survey of pedestrian trips to transit that examined the trip lengths and route choices made by people walking to five rail transit stations in California and Oregon

Integration of immersive walking to analyse urban daylighting ambiances (99-123)

Souha Tahrani; Guillaume Moreau

- the methodology of 'sunlight effects' analysis of both real and virtual worlds and ... a framework for a comparison

Walking and rhythmicity: sensing urban space (125-139)

Filipa Matos Wunderlich

- Walking practices ... [as] choreographed wholes of multiple place rhythms,... [impacting] ... on the rhythmical continuums of urban places, influencing and suggesting their tempo.

Planning for child pedestrians: issues of health, safety and social justice (141-145)

Brian D. Johnston

**JOURNAL OF URBAN DESIGN, VOLUME
13 ISSUE 2 2008**
ISSN: 1469-9664 (ELECTRONIC) 1357-
4809 (PAPER)

Hippodamus rides to Radburn: a new model for the 21st century (163-176)

Fanis Grammenos, Barry Craig, Douglas Pollard, Carla Guerrera

- the Hippodamian grid ... concept in its historical context and attempts to reformulate it in a contemporary planning framework that encourages walking

Toward modernist urban design: Louis Kahn's plan for central Philadelphia (177-194)

Non Arkaraprasertkul

- the debate between architect Kahn and planner Edmund Bacon.... the economic needs of the public realm ... [versus] the powerful form and the system of movement at large

Museums as urban catalysts: the role of urban design in flagship cultural development (195-212)

Carl Grodach

- an aspect of the flagship cultural strategy that has received surprisingly little focused attention—the role that urban design and context play in realizing project outcomes

Envisioning citizenship: toward a polity approach in urban design (213-229)

Michael Rios

- [argument] for a polity approach in the planning and design of public space

Hausmann and Le Corbusier in China: land control and the design of streets in urban redevelopment (231-256)

Daniel Benjamin Abramson

- using contrasting cases of morphological change and street design to examine the political-economic basis of urban design.

Preferences for car-restrained residential areas (257-267)

Aloys Borgers; Daniëlle Snellen; Jos Poelman; Harry Timmermans

- effects of restrained car access on preferences for new residential areas ... how ... effects can be compensated for
-

UPCOMING EVENTS

DESIGN CONFERENCES WORLDWIDE

ARTEMIS YAGOU

2008	15-18 Oct. Copenhagen, Denmark Ethnographic Praxis in Industry Conference http://www.epic2008.com	19 Jun. London, UK EKSIG2009: Experiential Knowledge and New Methodologies http://www.experientialknowledge.org.uk/
3-6 Sep. Falmouth, UK Networks of Design: Design History Society Annual Conference http://www.networksofdesign.co.uk/	24-27 Oct. Osaka, Japan ICDHS 2008 The 6th International Conference on Design History and Design Studies http://www.cscd.osaka-u.ac.jp/user/icdhs2008osaka/index.html	3-5 Sep. Hatfield, UK Writing Design: Design History Society Annual Conference http://sitem.herts.ac.uk/artdes_research/tvad/writingdesign.html
4-5 Sep. Vienna Infoconnectivity IIID Expert Forum Traffic Guiding Systems http://www.iiid-expertforum.net/	27-28 Oct. Malmo, Sweden Sustainable Innovation 08 www.cfsd.org.uk	1-3 Oct. Lisbon, Portugal IADE Anniversary Conference http://www.iade.pt
18-20 Sep. Odense, Denmark Second International DREAM Conference: Digital Content Creation http://www.dreamconference.dk/	31 Oct. London, UK Research into Practice Conference http://www.herts.ac.uk/artdes1/research/res2prac/confhome.html	
21-24 Sep. Seoul, South Korea Tenth International Conference on Ubiquitous Computing http://www.ubicomp.org	19-22 Nov. Istanbul, Turkey DESIGN CINEMA 2008 'Design-en-scène': 3rd International Design and Cinema Conference http://www.designcinema2008.org	
30 Sep.-4 Oct, Bloomington, USA Participatory Design Conference http://www.pdc2008.org	2009	
6-9 Oct. Hong Kong Design & Emotion - Dare to Desire www.sd.polyu.edu.hk/de2008/	1-3 Apr. Aberdeen, UK 8 th International Conference of the European Academy of Design http://www.ead.lancs.ac.uk/	 DesignResearchQuarterly Past issues on the web http://www.drsg.org
9-12 Oct. Lisbon, Portugal Society for the History of Technology 50 th Anniversary Conference http://www.historyoftechnology.org/fiftieth.html	18-20 Jun. Paris DD4D – Data Designed for Decisions VisionPlus : joint IIID, OECD conference http://www.iiid.net	

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