

Design as Change Agent.

Carlos Teixeira

New School University

The goal of this study is to discuss the roles and responsibilities of designers in the process of envisioning and promoting change in people's every day lives.

According to Heskett (2002), "design is one of the basic characteristics of what it is to be human, and an essential determinant of the quality of human life. It affects everyone in every detail of every aspect of what they do throughout each day. As such, it matters profoundly. Very few aspects of the material environment are incapable of improvement in some significant way by greater attention being paid to their design."

This discussion is also highlighted by the ideas of Herbert Simon (1996), who describes design as a human capacity to envision and promote change. According to Simon, design is concerned with how things ought to be, and developing tools with which to attain goals. This involves specific cognitive and technical capabilities necessary to move from an existing situation to a desired new situation.

This definition suggests understanding design activity as a catalyst for change that can be differentiated as either a bundle of technical skills, or as a thought process. When design is envisioned as a thought process with unique technical skills capable of creating desirable future situations, designers can strategically contribute to their claimed responsibility of enhancing people's quality of life through the development of useful and meaningful products.

Therefore, this paper presents two case studies to illustrate Simon's definition about design, and to provide examples to reinforce Heskett's discussion about designers' importance in contemporary and emerging circumstances. It investigates these cases as a way to illustrate who is designing what for whom, and the implications of this process (of promoting change) in people's every day lives.

The two case studies presented in this paper are part of a larger developing research initiative applying case study methodology to investigate contemporary manifestations of design skills and process. These case studies do not focus on the outcome of design processes, but rather advocate the idea that once products are created, people pragmatically adopt and customize them as 'tools' or 'mechanisms' to enhance their capacity to perform a combination of actions in order to accomplish some desired goal or achieve a desired state. Therefore, this investigation focuses on the end result as the interplay between designers' intentions and users' needs and perceptions.

The findings and ideas presented in this paper are the result of an investigation developed by a group of faculty, graduate and undergraduate students at Parsons School of Design. Multiple sources of evidence, such as secondary data – newspaper and magazine articles, books – and primary data collected through interviews with developers, experts, and users are employed to produce these case studies. The findings are a combination of multiple collaborations, which are almost impossible to trace to their originators. Indeed, this paper should be seen as the result of a collective process of thinking and sharing similar as well as different interpretations from collected evidence.

Future Ground
International Conference 2004
17th-21st November 2004

Raising the Bar

By whom and for whom?

Introduction

The goal of this study is to discuss the roles and responsibilities of designers in the process of envisioning and promoting change in people's every day lives.

According to Heskett (2002), "design is one of the basic characteristics of what it is to be human, and an essential determinant of the quality of human life. It affects everyone in every detail of every aspect of what they do throughout each day. As such, it matters profoundly. Very few aspects of the material environment are incapable of improvement in some significant way by greater attention being paid to their design."

This discussion is also highlighted by the ideas of Herbert Simon (1996), who describes design as a human capacity to envision and promote change. According to Simon, design is concerned with how things ought to be, and developing tools with which to attain goals. This involves specific cognitive and technical capabilities necessary to move from an existing situation to a desired new situation.

This definition suggests understanding design activity as a catalyst for change that can be differentiated as either a bundle of technical skills, or as a thought process. When design is envisioned as a thought process with unique technical skills capable of creating desirable future situations, designers can strategically contribute to their claimed responsibility of enhancing people's quality of life through the development of useful and meaningful products.

Therefore, this paper presents two case studies to illustrate Simon's definition about design, and to provide examples to reinforce Heskett's discussion about designers' importance in contemporary and emerging circumstances. It investigates these cases as a way to illustrate **who is designing what for whom**, and the implications of this process (of promoting change) in people's every day lives.

The two case studies presented in this paper are part of a larger developing research initiative applying case study methodology to investigate contemporary manifestations of design skills and process. These case studies do not focus on the outcome of design processes, but rather advocate the idea that once products are created, people pragmatically adopt and customize them as “tools” or “mechanisms” to enhance their capacity to perform a combination of actions in order to accomplish some desired goal or achieve a desired state. Therefore, this investigation focuses on the end result as the interplay between designers’ intentions and users’ needs and perceptions.

The findings and ideas presented in this paper are the result of an investigation developed by a group of faculty, graduate and undergraduate students at Parsons School of Design. Multiple sources of evidence, such as secondary data – newspaper and magazine articles, books – and primary data collected through interviews with developers, experts, and users are employed to produce these case studies. The findings are a combination of multiple collaborations, which are almost impossible to trace to their originators. Indeed, this paper should be seen as the result of a collective process of thinking and sharing similar as well as different interpretations from collected evidence.

Beyond ordinary images – Alexander Tsiaras

Contributing to this case study were Kristelle M. Devieux, Dilge E.Kutluoglu, and Jill Rowett.

Images of life stirring in the womb – such as that of a 17-week-old fetus no bigger than a newborn kitten – are at the forefront of a biomedical revolution that is rapidly transforming the way we think about the prenatal world.

These extraordinary images are the result of manipulating layers of data gathered by CT scans, micro magnetic resonance imaging (MRI’s) and other visualization techniques. Development can now be viewed through a wide variety of prisms, using different forms of energy to illuminate different aspects of the fetus. These two-dimensional layers of information are assembled, using sophisticated computer software, into a three-dimensional whole.

This is all thanks to the work of Alexander Tsiaras and his colleagues. Tsiaras, who was trained as a painter and sculptor and was self-taught in math, physics, and business, is a prominent photojournalist with over twenty years of experience in photography, design and technology. He has received numerous press awards including the World Press Photo Award. Over the course of his career he has accumulated technical expertise on manipulating colors, forms, and shapes. The manifestation of this expertise is a series of digital, three-dimensional images and animations of the human body. Eyes, toes, teeth, muscles, organs, scar tissue and more are presented in ways never before seen, in varying scales, down to the molecular level. These images are part of a sequence of remarkable advances in MRI's, sonograms and other imaging technologies that allow us to peer into the development process at virtually every stage – from the fusion of sperm and egg to the emergence, some 40 weeks later, of a miniature human being.

Alexander Tsiaras is one of the leaders in making this revolution unfold. Tsiaras' images tend to stare the viewer in the face and force the viewer to think about something that is seemingly familiar from a different perspective. What is still to be discovered is how people's knowledge and aesthetic in terms of how they view the human body will change after viewing these images.

Medical scientific knowledge has been highly influenced by Tsiaras' images. Through these images we now know, for example, that most important developmental steps – including laying the foundation for such major organs as the heart, lungs and brain – occur before the end of the first three months of gestation. We also know that, long before a child is born, its genes engage the environment of the womb in an elaborate conversation, a two-way dialogue that involves not only the air its mother breathes and the water she drinks but also what drugs she takes, what diseases she contracts and what hardships she suffers.

This new knowledge is an important milestone for the development of new drugs and treatments. Pfizer is an example of a drug company that is using these images to simulate and demonstrate how new drugs are working at the molecular level. These images are also changing our understanding about pregnancy. Antiabortion activists, for example, may interpret them as evidence that a fetus is a viable human being earlier than generally believed, while pro-choice advocates may argue that the new technology allows doctors to detect serious fetal defects at a stage when abortion is a reasonable option.

Medical knowledge and the abortion debate are not the only areas that are changing because of Tsiaras' images. The medical illustration business and media industry also demonstrate Tsiaras' impact. Tsiaras is the founder of Anatomic Travelogue, a cutting edge medical/scientific media company that was created in 1998 based on the belief that people would pay for images that are both beautiful and accurate. Located in Manhattan's trendy Tribeca neighborhood, AT owns the world's largest library of high-resolution, real 3D images, now compiled in more than 10,000 volumes of raw, anatomical and biological data.

During CBS's national coverage of the 2001 Super Bowl, AT showed viewers the inside of professional football players' bodies in action for the first time ever. Viewers were able to see the biomechanics of extraordinary athletes at the height of their careers.

AT produced similarly stunning visual images for a two-hour Nova/PBS television special on the human genome. This special was covered by ABC Nightline, which highlighted possible future development in proteome and structural genomics. Currently, AT is in negotiations with several network news divisions to illustrate a variety of diseases and medical conditions for their news programs.

Nike, for example, hired AT to produce animated spots revealing the anatomy of a golfer's swing. This is an example in which AT images show the physiology and biomechanics that make up the multitude of movements used in different sports.

The extraordinary performances of great athletes, as well as those of non-athletes, are easier to understand through the use of these innovative images.

As we can see, Tsiaras' faith that people would pay for images that are both beautiful and accurate is being rewarded. A book of Tsiaras' images of fetal development, "From Conception to Birth," has sold 150,000 copies. Moreover, in recent years AT has tripled sales to about \$10 million. This is the result of many different applications and uses of Tsiaras' images, which are promoting change in several aspects of contemporary daily life, such as health, pregnancy, entertainment, media aesthetics, and the medical illustration industry.

Spreading waves of knowledge – Trevor Baylis

Contributing to this case study were Marney Chalmers, Margaret Platt, John Targon, and Davinia Wang.

In 1991, while watching a BBC program about the spread of AIDS in Africa, inventor Trevor G. Baylis grew extremely concerned as he learned that the radio was the only means of communication in third world countries. Baylis was also troubled to hear that the spread of AIDS was increasing in remote regions because people had no way of powering their radios. They therefore had no way of being educated about worldly affairs, and so had limited knowledge of the AIDS epidemic. In response, Baylis devised a way for people in these environments to power a radio self-sufficiently without having to incur additional costs.

Fully aware of the scarcity of electricity and batteries in these regions, Baylis was compelled to create a communicational device that would not require these components. What he came up with was a radio that could be powered by winding its internal clockwork generator. After just 30 seconds of winding, the radio can play for 35 minutes. Once fully wound, the radio provides hours of education on life-threatening diseases, landmines, violence, politics, civil education, agriculture, and ways of dealing with refugees. One farmer in Africa that adopted the radio as a source of information states: "I do not depend on the

rain that falls on my head, but on streams running from the hills when it floods. So just tell me when it will rain in that distant land and I will know what to do...”

The product's potential was recognized by corporate finance expert Christopher Staines and South African entrepreneur Rory Stear, who together acquired funding and set up BayGen Power Industries in Cape Town, employing disabled workers to manufacture the Freeplay windup radio.

AIDS/HIV education was the initial reason why the windup radio was developed and adopted in many African countries. It was reported, for example, that people living in remote communities in Ethiopia's Harbor Province were tuning in to a radio serial aimed at creating awareness and prevention of AIDS/HIV. The serial is also intended to educate people about other life threatening diseases, landmines, and violence in a way that effectively captures audiences' attention by incorporating entertainment with worldly issues.

Dr. J. Shuty, MD, who has worked with patients contaminated with AIDS/HIV for eleven years and spent six months in various regions of Africa working with AIDS/HIV patients, stated in an interview that people in Africa who are HIV positive “do not understand the severity of their illness and without being educated about the disease, the contaminated patients can easily spread it to others.” In Dr. Shuty's opinion, the Freeplay radio is an extremely important device in helping stop the spread of AIDS in Africa. Through educating people about AIDS, it will prevent the disease from spreading and taking more lives.

The Freeplay radio has also united communities. Some stations aired programs that discussed the importance of cross-ethnic understanding and cooperation in order to sustain peace within and throughout the region. For this and other reasons, The Red Cross, CARE, War Child, the United Nations and the European Union also support the wind-up radio. Americans have shown their support by giving hundreds of the radios to Afghan communities, while the Democratic Republic of Congo has shown its concern for refugees by distributing 1,000 radios for those stranded by war in the remote forests.

Environmentally, the radio is ecologically friendly as it helps preserve natural resources by using manual power as opposed to electricity or non recyclable batteries. Once batteries are used, they turn into poisonous pieces of detritus, which are globally the largest source of mercury pollution. The use of self-sufficient energy not only creates a cleaner environment, but also it helps preserve the world's natural surroundings.

The radio's success has inspired a change in technology as some industries are turning towards self-sufficient energy to power their electric goods. Recently, Freeplay Energy Group, the leading developer of self-sufficient energy technology, has teamed up with the phone manufacturer Motorola to create a wind-up mobile phone charger called FreeCharge. The design of the cell-phone charger is similar to the design of the radio in the sense that it is not portrayed as sleek and sophisticated, but rather as a sturdy and durable device that can be depended on no matter when or where you use it. Within the charger, rather than storing the energy in a spring as in the windup radio, the energy will directly filter into the phone's battery. After just one minute of winding by hand, a cell-phone user will be able to talk for approximately five to six minutes. The more winding that is applied, the more charged the phone will be. Freeplay Energy Group's CEO Rory Stear states, "Freeplay self-sufficient energy technology is a source of freedom for mobile phone users. FreeCharge will empower travelers, consumers, and the business community with the independence and flexibility to always have a charged phone in the palm of their hand." Another device currently in the making is the windup laptop. Baylis' windup radio is being produced worldwide, and has been awarded the BBC Design Award for Best Product and Best Design. Obviously, self-sufficient energy devices are becoming increasingly popular, especially for those regions in the world that do not have access to electricity. More importantly though, Baylis' design fulfills its ultimate purpose and is improving lifestyles and saving lives.

Conclusion

Based on research findings from the case studies, it is possible to demonstrate that design can promote change in many different aspects of people's lives. The results from this research indicate that change depends on the willingness of people to nurture, develop, master and apply their capacity to shape their environment. In this context, design education plays a major role in preparing not only designers, but any human being to be capable of shaping their material environment according to their values, behaviors and future goals.

Moreover, the findings demonstrate that as circumstances change over time, new challenges, opportunities, and problems arise, which then require skills to deal with these new challenges. Therefore, "transferable skills" – skills that are flexible and can be adapted to confront familiar situations or new, unfamiliar circumstances – become fundamental if design is to evolve and contribute to raising the bar regarding people's quality of life.

According to Heskett (2002), "changes are part of a repetitive historical pattern. The evolution of a new stage in design does not entirely replace what has gone before, but instead, is layered over the old. This has been a recurrent pattern throughout the history of design. It not only helps explain why there is such a diversity of concepts and practices about what constitutes design in contemporary society, but also raises a question about the extent to which similar changes will confront us in the future. Exactly what will transpire is uncertain, but the signs are unmistakable – new technologies, new markets, new forms of business organization are fundamentally altering our world, and, without doubt, new design ideas and practices will be required to meet new circumstances. The greatest degree of uncertainty, however, revolves around the question: whose interests will they serve?"

Therefore, the discussion regarding **who is designing what for whom** and the implications of this process (of promoting change) in people's everyday lives exemplify the idea that design can serve many diverse interests that co-exist in

the same context. The aforementioned examples demonstrate that this diversity has a direct relation to the willingness of individuals to consciously apply design thought process to shaping our material environment, but even more importantly, this diversity depends on the capacity of individuals and organizations to envision new improvement opportunities and develop high quality design(s) that are meaningful and useful (relevant) for as many individuals and groups as possible.

Acknowledgements

The findings and ideas presented in this paper are a partial result of an ongoing investigation by a group of faculty, graduate and undergraduate students at Parsons School of Design. I want to thank the dedication of the students involved in this research and congratulate their critical and innovative thinking. The findings are a combination of multiple collaborations, which are almost impossible to trace to their originators. Indeed, it should be seen as the result of a collective process of thinking and sharing similar as well as different interpretations from collected evidence. The group of students who worked on investigating Alexander Tsiaras' work includes: Kristelle M. Devieux, Dilge E.Kutluoglu, and Jill Rowett. The students who worked on investigating Trevor Baylis' wind-up radio are: Marney Chalmers, Margaret Platt, John Targon, and Davinia Wang.

Bibliography

- British Council. *Trevor Baylis: Inventor of the Clockwork Radio*. British Council. www.britishcouncil.org. December 4, 2003.
- Chalmers, Marney. *Case Study Course Project: Wind-Up Radio*. New York: Parsons School of Design, New School University, 2004.
- Devieux, Kristelle M. *Case Study Course Project: Alexander Tsiaras*. New York: Parsons School of Design, New School University, 2004.
- Heskett, John. *Toothpicks & Logos: Design in Everyday Life*. Oxford: Oxford University Press, 2002.

- Kutluoglu, Dilge E. *Case Study Course Project: Alexander Tsiaras*. New York: Parsons School of Design, New School University, 2004.
- Margolin, Victor. *The Politics of the Artificial: Essays on Design and Design Studies*. Chicago: The University of Chicago Press, 2002.
- Nash, J. Madeline. *Inside the Womb*. Time Magazine. 11 Nov. 2002: 70-78
- Platt, Margaret. *Case Study Course Project: Wind-Up Radio*. New York: Parsons School of Design, New School University, 2004.
- Rowett, Jill. *Case Study Course Project: Alexander Tsiaras*. New York: Parsons School of Design, New School University, 2004.
- Shutty, Dr. J. Interview via email. New York, March 2004.
- Simon, Herbert. *The Sciences of the Artificial*. Massachusetts: The MIT Press, 3rd ed., 1996.
- Targon, John. *Case Study Course Project: Wind-Up Radio*. New York: Parsons School of Design, New School University, 2004.
- Wang, Davinia. *Case Study Course Project: Wind-Up Radio*. New York: Parsons School of Design, New School University, 2004.
- Yin, Robert K. *Case Study Research: Design and Methods*. California: Sage Publications, Applied Social Research Methods Series, Volume 5, 2003.