Design for Experiencing: New Tools

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Abstract
We propose that designers consider a mindset that allows them to derive inspiration for ideation from empathy for the emotional experiences of the people who will live with their design. We believe that end-users can and should be the most important players in the design process.

Background

The integration of design with the applied social sciences is relatively new. Design firms began experimenting with the social sciences in the early 1980s. The experiment was design-driven, with social scientists being brought in to serve the design process.

The evolution of influence that the social sciences have had on the design process mirrors changes seen over time in the social sciences. For example, behaviorists believed that only observable behaviors could be studied scientifically. Ethnographic approaches to design research in practice today seem to have their roots in the behaviorist tradition. Later, the cognitive revolution of 1960s and 1970s moved the focus from behavior to the information-processing model of the mind. Much of the usability research within human computer interface design borrowed its theoretical framework from cognitive psychology. The social sciences were slower to suggest methodologies and tools that could help designers access the emotional experience of users in a manner that would support their ideation process (Dandavate, Sanders and Stuart, 1996). The emerging participatory design approach acknowledges that it is possible to gain access to the experiencer's world only through his/her participation in expressing that experience.

So we can see now, at the end of 1999, that there is a common ground, a new territory being formed by the reciprocal respect between designers and social scientists. It is clear that social science still has much to offer design, just as design has much to offer the social sciences.

Design for Experiencing

Today we are beginning to hear about "Experience Design," whose aim is to design users' experiences of things, events and places. This influence on design can be attributed to a significant literature being written in the social sciences that has begun to acknowledge the role of emotions in human experience (see Jensen, 1999 for example).

But we can never really "design experience." Experiencing is a constructive activity. That is, a user's experience (with communication, for example) is constructed of two equal parts: what the communicator provides, and what the communicatee brings to the interaction. Where the two parts overlap is where the actual communication occurs. Knowing about users' experiences, then, becomes vital to the process of designing the communication. If we have access to both what is being communicated and what experiences are influencing the receipt of communication, *then* we can design for experiencing.

In **Proceedings of the First International Conference on Design and Emotion**, C.J. Overbeeke and P. Hekkert (Eds.), TU Delft, 1999.

In fact, if we can learn to access people's experiences (past, current and potential), then we can make user experience the source of inspiration and ideation for design. And by making user experience the source of inspiration, we are better able to design for experiencing.

How Do We Access Experience?

There are many ways we can learn from people about their memories, their current experiences and their ideal experiences:
We can listen to what people say.
We can interpret what people express, and make inferences about what they think.
We can watch what people do.
We can observe what people use.
We can uncover what people know.
We can reach toward understanding what people feel.
We can appreciate what people dream.

Each route to experience reveals a different story or picture. Listening to what people say tells us what they are able to express in words (i.e., *explicit* knowledge). But it only gives us what they want us to hear. Watching what people do and seeing what they use provides us with *observable* information (or observed experience). But knowing what people say/think, do and use is not enough (Sanders, 1992).

Discovering what people think and know provides us with their perceptions of experience. Understanding how people feel gives us the ability to empathize with them. This way of knowing provides *tacit knowledge*, i.e., knowledge that can't readily be expressed in words (Polanyi, 1983). Seeing and appreciating what people dream shows us how their future could change for the better. It is another form of tacit knowledge that can reveal *latent needs*, i.e., needs not recognizable until the future. For example, the Internet has been revealing many previously latent communication needs.

The ability to not just know, but also to empathize with the user comes only at the deepest levels of their expression. By accessing people's feelings, dreams and imaginations, we can establish resonance with them. Special tools are needed to access the deeper levels of user expression.

Accessing Experience: What People Do, Say and Make

The different ways of accessing experience have evolved over time. Traditional design research methods were focused primarily on observational research (i.e., looking at what people do and use). Traditional market research methods, on the other hand, have been focused more on what people say and think (through focus groups, interviews, and questionnaires). The new tools are focused on what people make, i.e., what they create from the toolkits we provide for them to use in expressing their thoughts, feelings and dreams. Many of these tools are based on non-verbal modes of expression.

When all three perspectives (what people do, what they say, and what they make) are explored simultaneously, one can more readily understand and establish empathy with the people who use products and information systems.

The Make Tools

The Make Tools are the most recent development in design research. Because they are primarily visual, the Make Tools serve as a common ground for connecting the thoughts and ideas of people from different disciplines and perspectives. The Make Tools are becoming a new language for co-design. They have been found to facilitate exchange between the people who experience products, interfaces, systems and spaces and the people who design for experiencing. The Make Tools are a "design language" for users, not just for designers; a design language built upon an aesthetics of experience rather than an aesthetics of form.

Because they are projective, the Make Tools are particularly good in the generative phase of the design development process. Generative research occurs very early in the design development process. Its purpose is to discover as-yet unknown, undefined, and/or unanticipated user or consumer needs. It is in the generative phase that we are looking for ideas and opportunities to fill unmet user needs. Ideas and opportunities generated by users are usually quite relevant and powerful when acted upon and brought to market.

When Make Tools are used in the generative phase of the design development process, user-generated artifacts result. We have discovered that there are many different types of Make Toolkits that facilitate the expression of a wide range of artifacts and/or models. With "emotional toolkits," people make artifacts such as collages or diaries that show or tell stories and dreams. Every artifact tells a story and so we typically ask the creator of the artifact to tell us that story. The stories associated with the artifacts from the emotional toolkits tell of feelings, dreams, fears, and aspirations. With "cognitive toolkits," people make artifacts such as maps, mappings, 3-D models

of functionality, diagrams of relationships, flowcharts of processes and cognitive models. The stories associated with the artifacts from the cognitive toolkits tell us how people understand and misunderstand things, events and places. The cognitive toolkits can also reveal the intuitive relationships between system components

By knowing how to access people's feelings and ideas, we are able to establish resonance between a company and its customers. Resonating, or being in synch with one's customers, means being able to quickly respond to their changing needs and aspirations. Resonance can be achieved by inviting users to play a role in the design development process.

Collective Generativity

We have found that the new tools are effective in accessing end-users' and other people's unspoken feelings and ideas. The ideas they generate tend to be experience-based, not object-based. The tools are projective in nature, allowing users to project their own needs and desires onto their imagined experiences.

The new tools can, in fact, harness the collective and infinitely expanding set of ideas and opportunities that emerge when the people who have a stake in the process are invited to "play the game." Generative methods are a new language that enables all the stakeholders to contribute directly to the development of products, goods and services. This new language relies on visual literacy and begins to bring it into balance with verbal literacy.

Participatory Culture

Today it's not *"business as usual"* anymore. The rules have changed and continue to change. The new rules are the rules of networks, not hierarchies. People are cynical about the methods and goals of consumerism. The users of products, interfaces, systems, and spaces are realizing that through networking they have an enormous amount of collective influence. They are beginning to use their influence to get what they want, when they want it and how they want it. The new rules call for new tools. People want to express themselves and to participate directly and proactively in the design development process.

Design is Changing

How does the emergence of the new tools change the nature of design education? Designers need to be trained to go beyond the individualized expression of visual communication. They need to learn how to become involved in the creation and construction of the new tools. Designers and social scientists will need to work together in this regard. Social scientists bring frameworks for the understanding of user experience to the table, while designers know how to synthesize and embody ideas and opportunities.

How does the emergence of the new tools change the role of the designer? The roles of designer and design researcher are becoming mutually interdependent. The roles are converging to the point where they are blurring. Designers will participate in the creation of the tools and in the expansion of the design language for users. Designers will observe first-hand the experiences the tools afford for creative expression by the users and other stakeholders. Designers will be part of teams responsible for the analysis and interpretation of the "data": the user-generated artifacts and models. Finally, designers can use the ideas generated by the users as sources of design inspiration and innovation.

References and Related Readings

Adams, E. and Sanders, E.B.-N. (1995). An evaluation of the fun factor for the Microsoft Easy Ball Mouse. *Proceedings of the Human Factors and Ergonomics Society*, 39th Annual Meeting

Barlow, J.P. (1994) "The Economy of Ideas." *Wired*, March, 85.

Dandavate, U., Sanders, E.B.-N. and Stuart, S. (1996). "Emotions Matter: User Empathy in the Product Development Process." *Proceedings of the Human Factors and Ergonomics Society*, 40th Annual Meeting.

Jensen, R. (1999) *The Dream Society: How the Coming Shift from Information to Imagination will Transform your Business*. New York: McGraw-Hill.

Kelly, K. (1998) *New Rules for the New Economy.* New York: Viking.

Krippendorff, K. (1996) "A Trajectory of Artificiality and New Principles of Design." Unpublished manuscript.

Leinbach, C.O. (1999) "About Cake and the Top Ten Things (more or less) Dorothy Must Have Been Thinking When She Said, "Toto, I've a Feeling We're Not Industrial Anymore." Unpublished manuscript.

Pine, B.J. and Gilmore, J.H. (1999) *The Experience Economy: Work is Theatre and Every Business a Stage.* Boston: Harvard Business School Press.

Polanyi, M. (1983) *The Tacit Dimension.* Gloucester, MA: Peter Smith.

Sanders, E.B.-N. (1992) "Converging Perspectives: Product Development Research for the 1990s." *Design Management Journal*, Fall.

Sanders, E.B.-N. (1994). "But Is It Useful? Testing Beyond Usability." *Innovation*, Spring.

Sanders, L., Dandavate, U. and Stuart, S. (1996) "User Empathy in the Product Development Process." *Proceedings of IDSA Conference on Alternate Realities*, (on CD-ROM), IDSA, 1996.

Sanders, L. (1997) *Cognition and Emotion Bibliography*. A project of the Graphic Design Education Association. American Center for Design, Chicago, Illinois.