

Getting to know the user*

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The relation of products to users has become a central theme of design discourse, though users still remain little understood by designers. A key term in this new discourse is experience and its presence in discussions of how users relate to products is essential to our grasp of who a user is. To better conceive this essential relation between designers, products and users, we need to encourage large-scale research on product use. We also need to develop better ways of broadening participation in the design process itself. © 1997 Elsevier Science Ltd.

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The relation of products to users has become a central theme of design discourse. The addition of user concerns to the list of factors that a designer must consider in developing a product has now made product design a much more difficult and demanding task than it once was. What contributes to this situation is the fact that users, for the most part, still remain little understood by designers, who make products for them and by manufacturers who try to win them as customers.

Product success is often a hit or miss affair. Some of the major product innovations, e.g. the Sony Walkman, which has sold in the millions, or even the Frisbee, have been based on intuitive hunches rather than an informed understanding of why the products might be successful.¹ It is also true that only a small percentage of products are truly innovative while most are redesigns of older products or copies of new ones that were marketed first by competitors. Consider the large volume of PC clones that almost brought IBM to its knees or the cheap versions of Bauhaus furniture that circulate throughout the world. In fact, it would probably be safe to argue that only a narrow range of the products made in the world today are either innovative, original or of high quality. One can, for example, go into a dry goods store in almost any country and find stacks of cheap plastic baskets, toilet brushes, inexpensive metal kitchen utensils, or tea kettles. Consider the large outlet stores in the US, e.g. K-Mart, Wal-Mart

¹ Morita, A. *Made in Japan: Akio Morita and Sony* New American Library, New York (1986)

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or Venture. The primary appeal of merchandise in these huge emporia is its low price.

In an earlier essay, I introduced the term 'product milieu' to represent the array of objects, activities, services and environments that fills the lifeworld². I consider all these categories of material and immaterial things to be products. There is value in a common term, because it brings everything back to designing, which is the activity of conception and planning. When we talk about the way a product affects an individual, we can find similarities between a material object, e.g. an automobile and an immaterial one, e.g. the code of income tax regulations. Each involves issues of use as manifested in complexity, access, interpretation, previous experience, learning time and relation to human well-being. Each has an interface that we can describe broadly as the aggregate of characteristics that the user initially engages with in order to make use of the product. We employ the automobile for the physical purpose of movement from one place to another, while we use the tax code to determine how much income tax a person has to pay each year. Both are functional objects that we can describe and critique with a common vocabulary.

If professional designers are going to increase the scope of their influence, they need to enrich their understanding of the product milieu. They need to acknowledge its vastness, as well as the complexity of how products come to be and are then incorporated into users' activities. Designers also need to explore in greater depth the interactive relation between how people develop their individual and collective activities, and the ways that new products influence and are influenced by this process.

1 The role of experience

A key term that has not been given sufficient attention in design discourse is experience. The incorporation of experience into a discussion of how users relate to products is one way to fill out our understanding of who a user is³. In our thinking about the product-user relation, we have moved from the idea of function to that of action. The discourse of functionality had to do primarily with the mechanical identity of the product while that of action refers to its use. Despite its long history, the discourse on functionality never opened up the richness and fullness of human action of which product function forms a part. Product function is an operational concern while product use adds a social dimension that is missing in the more restrictive definition of function. The idea of product experience contributes an internal emphasis to the idea of use and helps to fill out the relation of product to user.

2 Margolin, V. 'The product milieu and social action' in R. Buchanan and V. Margolin (eds), *Discovering design: explorations in design studies* University of Chicago Press, Chicago (1995) pp 121-145

3 Margolin, V. 'The experience of products', P. Tahkokallio and S. Vihma (eds), *Design—pleasure or responsibility?* University of Art and Design Helsinki, Helsinki, 1995, pp 54-65

First of all, experience broadens the discussion of function. It moves us from a focus on the product's mechanical operation to the way it fits in to a user's activities. The product does not exist in a vacuum. It becomes meaningful only in relation to a user. The designer Bernhard Bürdek has stated this distinction between function and experience well:

The telephone set in my office has 30 push buttons, the system is so intelligent that I can use just some two or three basic functions. I don't want to remember all [the] other[s] and I really don't want to read the user instruction during a telephone call.⁴

Experience becomes relevant here in several senses. First, in the sense of experience as knowledge, the capabilities of the telephone have outstripped the user's experience, and he must then either ignore these added functions or make an effort to learn them, something he is reluctant to undertake. The action that results from his relation to the telephone system is thus limited to his experience as knowledge. However, there is another sense in which experience comes into play in relation to the telephone system and that is the sense of experience as satisfaction. The user has the intellectual capacity to learn more functions, but this does not promise him any satisfaction so he refuses. As a consequence he uses the telephone system in a limited way and would do just as well with one that has fewer functions. The designers of the telephone system had an understanding of mechanical function, as well as its relation to possible actions. However, they did not recognize the importance of experience when they anticipated the user's relation to the system.

By locating the accumulation of experience in the past, we can acknowledge the importance of history as a factor in the relation of users to products. First of all, we must recognize that the product milieu is a historical phenomenon. It has a collective past, present and future. The millions of products in it each have their own histories, as well. Products have life spans of different lengths and transformations take place at varying rates in differing product fields. Products change faster in the software field, for example than in the sphere of domestic furniture. We therefore have a situation in which we simultaneously engage with products developed at different historical moments in the past. They embody different degrees of operational simplicity or complexity, as well as the potential for different kinds of satisfaction.

Just as the product milieu is a historical phenomenon, so is the individual's own trajectory of action. Individuals gain experience as they draw on products in the milieu in order to act in time and space. John Dewey, the American philosopher, used the term 'interaction' to describe the relation between the individual and environment. For Dewey, the environment is

4 Bürdek, B. E. 'Design and miniaturization: some consequences for designers' unpublished work (1994)

a set of external conditions with which the individual engages to produce an experience. This interaction takes place in a 'situation'.

Bürdek's experience with the telephone system signals the importance of the relationship between the designer and user, which has now become a central theme for design practice. Why is this so? I want to suggest several reasons which I will relate to four dimensions of the relationship.

1.1 The social dimension

As we increase our understanding of how some products contribute to the social and environmental problems of the world, the question of what users do with products becomes more important. In the US, e.g., many people are concerned about the misuse of firearms, which has resulted in the highest murder rate in the world. We also recognize the ecological damage from products that emit dangerous radiation or chemical substances. Therefore, one way to think about products and action is to consider the kinds of actions that product availability makes possible and to question the value of products that enable unhealthy or destructive behaviour. Such considerations should lead to legislation that bans undesirable products.

1.2 The inventive dimension

As many designers have been trained as problem solvers rather than problem definers, the role of invention in design practice has been underplayed.⁵ Inventors are generally considered as a separate category of product developers, and operate both inside and outside the mainstream manufacturing culture.⁶ Inventors, however, pride themselves on discovering new reasons to create products. While some inventors add elements to existing products, many create entirely new ones. They envision product possibilities based on a perception of what people need or find useful. Designers may also be inventors and their inventive dimension refers to their ability to conceive new products that will be of value to users.

1.3 The operational dimension

Many products are too difficult or confusing for users to operate, a problem that Norman has documented.⁷ As Norman and others define this problem, the designer does not understand well enough how users learn to operate devices, e.g. cameras or computers. This situation is now widely recognized and many manufacturers are addressing it. Hence, the call for products that are simpler to operate.

1.4 The aesthetic dimension

Traditionally designers concerned themselves more with the form and appearance of a product than with other aspects. In American industry the

5 Jonas, W., Design as problem-solving? or: here is the solution — what was the problem?. *Design Studies*, 1993, **14**(2), 157–170.

6 Whalley, P., The social practice of independent inventing. *Science, Technology, and Human Values*, 1991, **16**(2), 208–232.

7 Norman D. *The psychology of everyday things*. Basic Books, New York (1988). [Republished in paperback as *The design of everyday things*]

early industrial designers were known as stylists. Now this social perception of the designer is changing from an emphasis on form to a focus on use. However, product appearance is still a central concern for most designers; hence the centrality of rendering, CAD and other representational techniques in much design education. However, aesthetics is one realm where designers have been most reluctant to gain more knowledge of user values and this realm is the one where there is, perhaps, the least communication between designers and users. Designers frequently consider their aesthetic judgment to be independent of user taste.⁸ The aesthetic dimension is also the one that has been most prescriptive. The legacy of the Modern Movement is that designers believe they have the capacity to bring people to a higher level of formal awareness. While vanguard architects and designers like Theo van Doesburg and Mies van der Rohe thought that they could provide a vocabulary of forms that might become universal, we now know how unrealistic that was. At the same time, postmodern irony has not been successful either, representing as it does, an equally vanguard interpretation of aesthetic value. Gert Selle has been one of the few critics to celebrate the aesthetic judgment of ordinary people as he did in his exhibition 'Genial Design of the '80s' at the Internationales Design Zentrum, Berlin in 1983.⁹

2 *The knowledge of users*

As we explore this theme of designer–user relations further, I would argue for an expansion of design knowledge from a knowledge of technique, which has been the traditional emphasis of design training, to a knowledge of user experience. Designers must, of course, know how to design, but they must also know for whom they design and why.

How then do designers gain more knowledge of users? Firstly, designers are users themselves and can draw on their own satisfaction or frustration with products to create new ones for others. They usually do this intuitively rather than as a result of design training.

Secondly, designers and users sometimes form close communities that we recognize as subcultures. Two examples are the subcultures of software development and cycling. In both cases, designers and users share a great deal of experience as knowledge and experience as satisfaction. They have an understanding that enables extensive feedback from users to modify and debug new products quickly. Software developers recognize the value of this shared interest by creating electronic bulletin boards where users can convey their experiences with new products. In the bicycle subculture, some of the outstanding designers of new bicycles and cycling equipment are themselves enthusiasts who draw consciously from their own user

8 Jones, P. L. *Taste today: the role of appreciation in consumerism and design* Pergamon Press, Oxford (1991)

9 Selle, G. 'There is no kitsch, there is only design!' in V. Margolin (ed) *Design discourse; history theory criticism* University of Chicago Press, Chicago (1989) pp 55–66

experience to create new products, e.g. the titanium bicycle produced by Merlin Metalworks in Boston.

Thirdly, designers employ market research about user motives and behaviour. This ranges from surveys and focus groups, which produce responses according to prescribed patterns of questioning, to new kinds of ethnographic methods that make use of video and other techniques to generate data on how people relate to products. While the development of new research techniques has certainly been useful in improving product quality, it is a different kind of knowledge than that derived from direct experience. We can see this difference, e.g. in Sturt's book, where Sturt describes the community of craftsmen who made farm wagons in England earlier in this century and at the end of the last century. These craftsmen, as Sturt describes them, did not have clearly articulated methods. Their expertise came directly from experience and was never codified. This experience not only included the craft of making wagons, but also a knowledge of how to satisfy their customers' needs for wagons that functioned on specific terrains.¹⁰

The profession of product design developed through a focus on method as the primary knowledge of the designer. Method is transmitted through codified techniques that designers learn and apply. As methods are clearly the province of professionals who have been initiated into them, we tend to view those outside the professional culture as being consigned to the roles of consumers or users.¹¹ What becomes obscured by this focus on method is the value of experience in originating new products.

I am suggesting here that product development is a combination of method and experience rather than method alone. One of the important challenges then, as we continue to talk about designer–user relations, is how to recognize the value of user experience for the development of new products, not only products designed by those within the socially constructed professional design culture, but by others as well. In order to explore this theme further, we can return to the topic of action and bring it back into relation with experience.

10 Sturt, G. *The wheelwright's shop* Cambridge University Press, Cambridge (1993)

11 Morello, A. "Discovering design' means [re-] discovering users and projects' in R. Buchanan and V. Margolin (eds) *Discovering design: explorations in design studies* University of Chicago Press, Chicago (1995) pp 69–76.

I have already proposed that users are social actors who do not come to the product in a vacuum, but instead consider it in relation to their own plans and activities. Many people prefer to maintain established patterns of product use while others continually seek the latest devices and fashions. These differences in life style have been well documented by market researchers. At the same time, everyone accumulates experience that is available for the evaluation of existing products and invention of new ones.

The late product designer George Nelson, in a 1986 lecture, acknowledged the potential of individuals outside the design community to contribute to the product culture:

All I am saying is that the world seems to be moving in a direction where more and more things have to be designed by somebody, and my guess is that these somebodies, very few of whom think of themselves as designers, are the people who are really changing the world.¹²

Although Nelson was referring to scientists and technologists as future designers rather than the lay public, his recognition that designing occurs in many places under different names is important.

3 *Broadening design participation*

I want to suggest here the need for a new theoretical model that can help us use the power of our collective experience to create a product milieu that can better represent our desires for a satisfying world. The development of such a model is no easy task because it requires a great deal more information about people and products than we have already. Unfortunately, social scientists have given little attention to the product milieu. Sociologists and anthropologists have concerned themselves more with issues of consumption than with issues of use. We have no theory of social action that incorporates a relation to products, nor do we have many studies of how people acquire and organize the aggregates of products with which they live their lives.* When we consider how thoroughly documented other types of activity, e.g. political or sexual behaviour are, we can recognize how invisible the subject of product use has been. Likewise, philosophers have examined themes of human happiness, e.g. the love of beauty, justice, or goodness without linking these to the world of material and immaterial products. John Dewey is an exception. In his short book, he strongly emphasized the contribution of material things to the construction of experience.¹³

We understand particular aspects of human culture because they have been heavily researched, debated and recognized as being important to our collective self-knowledge. Social policies in education, health care, and now environmental concerns are based on thousands of research studies that are essential to create the profile of a problem and suggest solutions. Comparable research has, however, not been carried out on product use and consequently designers do not have enough to go on when developing new products.† Exceptions, of course, are the market research done by large companies, e.g. Sony and Philips, but we have no public community that shares an understanding of what a user is, and how he or she relates to products.

12 Nelson, G. 'Who designs?' *STA Design Journal* (1986) p 55

13 Dewey, J. *Experience and education* Collier Books, New York (1963)

*One such a study is **M. Csikszentmihalyi** and **E. Rochberg-Halton** *The meaning of things* Cambridge University Press, Cambridge (1981), although this study focuses on the symbolic use of products for the construction of identity rather than on their role in the user's realm of action.

†A good example of research on a particular class of products is **Orel T** 'Designing self-diagnostic, self-cure, self-enhancing, and self-fashioning devices,' in **R. Buchanan** and **V. Margolin** (eds), *Discovering design: explorations in design studies* pp 77–104.

The lack of such research has a number of significant consequences.

- (1) We don't know enough about the relation between products and how people construct ideals of human happiness. Technological innovation and market forces drive much new product development, while advertising offers models of the good life. All of these activities are moving at such a pace that they outstrip our capacity to assess their social, psychological and spiritual value before the next wave of innovation occurs.
- (2) Poorly researched products that fail in the market place waste valuable financial resources, frequently acquired from lending institutions and investors who might have put their money into something more productive and socially useful.
- (3) We have too few studies of technology innovation on which to base proposals for social policies or legislation that would link human well-being to the presence or absence of particular products. One value that has been extensively researched is that of safety and various kinds of legislation have been passed to prevent unsafe products from reaching the market place. We can think here of the requirements for automobile seat belts, and in some places airbags, or the modest and still insufficient laws to limit the public sale of handguns and assault weapons.
- (4) We have no systematic way of developing a social needs inventory to stimulate the invention of beneficial new products.
- (5) We have no pool of studies that can be used by cultural researchers in related fields to better understand the role of products in human society.

One obvious task then, if we seek to understand better this essential relation between designers, products and users, is to encourage large-scale research on the subject of product use. This would be a multi-year effort and would involve researchers in all parts of the world. We also have to encourage and stimulate lay people to participate more actively in creating the product milieu. One way to do this is through open competitions for new products on set themes. Product invention could become much more of a public activity and could generate a public debate about how products contribute to human happiness. Such activities could be organized by design centres, municipalities and museums. A more widespread involvement in product design could also generate new opportunities for small businesses.*

*A useful precedent can be found in the scientific disciplines where hundreds of science fairs for junior high and high school students provide encouragement for future scientists. Similar fairs might be held for future designers.

Besides the development of such opportunities, we also need better ways to promote struggling designers with unusual ideas who work on a small scale. Design culture needs to open itself up to recognize the value of such

efforts. I can offer one example here. In the summer of 1994, I travelled through Finland and Norway with my wife and daughter. When we were in Lapland we wanted to meet Sami or Lapp people and learn something about their culture. In Karasjok, Norway, the site of the Norwegian Sami Parliament and a centre of Sami culture, we found a small shop run by a woman named Marit Kemi Solumsmoen. She is a self-taught designer who makes an interesting variety of hiking, camping and hunting equipment, as well as winter garments that draw on Sami motifs. She has used her experience of Sami culture and her skill at making things to develop her own line of products. They are highly competitive with larger manufacturers in terms of inventiveness, quality of materials, price and use value. One of her hunting knapsacks, e.g. has a fold-out seat and fold-in bullet cartridges, while another backpack can be converted into a camp stool. These are modest inventions, but in their small way they improve the quality of hunting and camping gear. Such enterprises, if better supported, could bring in additional revenue to this tourist area, employ more people and serve as an example to other Sami people of how they might convert their unique cultural knowledge into products for the market. Yet, despite these possibilities, Marit Solumsmoen was struggling along with no public recognition or easy access to resources for expansion.

Another example, though one that has resulted in greater success, is the invention of the mountain bicycle more than 20 years ago. It was devised by a California bicycle racer named Gary Fisher who got the idea while biking with some friends in the hills outside San Francisco. His friends were pushing old fat-tired one-speed bicycles up the hills and then riding them down at high speed. Dissatisfied with the effort of pushing the bike up the hill instead of riding it, Fisher patched together parts from various bicycles to combine the ruggedness of the fat-tired bike with the slick gears of the racing bike. The mountain bike that resulted from his effort was only the first step in a subsequent series of refinements that have since involved the major bicycle companies. Today mountain bikes account for 60-70% of all bicycles sold in the US and interest in them has spawned a host of new manufacturers such as Trek, Giant and Specialized.* The invention of this new product has not only created a mini-industry with hundreds of new jobs, it has also helped to promote mountain biking as a sport, and serves as a good example of how the initial experience of a bicycle racer was converted through invention and marketing into a new product. Around this product has developed an entire subculture of races, rallies and excursions, including the introduction of mountain biking as a competitive sport for the first time at the 1996 Olympic Games in Atlanta, Georgia (USA). The mountain bike has also been the impetus for the devel-

*On the invention of the mountain bike: 'Pedaling new ideas: innovators are taking bicycles down unexplored paths', *Chicago Tribune*, 4 July 1993. The impact of the mountain bike on the bicycle market is discussed in 'Pump, pump, pump at Schwinn', *Business Week*, 23 August 1993, p 79

opment of related equipment, e.g. special helmets and shoes, and has made its impact on tourism in mountainous regions, e.g. Colorado.

Unemployment has become a major problem worldwide and design could become an instrument to create jobs. I have often thought about the tragedy of highly skilled workers in the American auto-industry who were laid off a few years ago. These workers might have adapted their mechanical skills to the design of new products in metal and other materials of which they were knowledgeable. Instead, many have remained unemployed, some have retrained for technical jobs in other industries such as computers, and others have had to work at low-level service jobs.

What is lacking, at least as I see it in the US, is a knowledge of how to help people use their own experience as a source of valuable new products. Little is known, as well, about how to provide them with sufficient skills and marketing support to introduce these products to the public. As the product milieu is so vast and so much of it is of dubious quality, there are always interstices where satisfying new products can be offered to the public. We see this particularly in the food industry where upstart companies have gained large market shares with new ice creams, yogurts and condiments. The food industry is teeming with small entrepreneurs whose inventions have greatly enriched our global culinary culture. Foods, however, are only one kind of product that carries cultural value. We can also consider music, clothing, tools and other cultural artifacts. Experience with the products of a different culture is an excellent way to appreciate the people of that culture and there are numerous possibilities for the international distribution of goods that increase our awareness of this multicultural planet.

One of the ways that we cultivate our lives is through the discovery of new products that make life easier, more efficient, more comfortable, or more fun. The product milieu can thus be vastly enriched by the greater involvement of more people in the product development process. When we strip away such opportunities in the name of a postindustrial service economy we deprive large numbers of people of the chance to transform their experience into valuable products for themselves and others.

The product milieu is the field in which the battle for the quality of life is being fought. It is the site of intense debates about the use of resources, the distribution of wealth and the creation of a healthy ecosystem. The more we understand this milieu, the better we can devise product development strategies that contribute to the satisfaction and happiness of large numbers of people.