Border Crossing

The role of design research in international product development

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At a time when theorists write of "globalization" as a global and local process, businesses can little afford to make assumptions about customers, even in traditional markets. This paper addresses the importance of applied design research, in the context of globalism, to the initial stages of product development. Products are understood here to include three-dimensional objects like appliances and furniture as well as communication products like software. Current debates about cultural identity in the context of widespread travel and global media are outlined. The possibility for research to identify the criteria of cultural appropriateness and acceptance of products is explored, and an argument for applied research as imperative for product design in today's international business arena is advanced. The essay concludes with an appendix outlining an array of relevant research methods. *(1)*

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As with other forms of cultural production, products of industry do not carry the same meanings from place to place. While a food processor in Massachusetts may be considered a time saving device for housewives–to be stored in a high cupboard–the same appliance in France may sit on a kitchen counter and provide indispensable service to a professional chef. The same appliance may remain boxed in an Indian dining room showcase as a sign of affluence while a family servant grinds food on a stone so as not to consume expensive electricity. It is these culturally idiosyncratic considerations–not just those of aesthetics, engineering or marketing–that precisely describe the success and failure of artistically rendered and cleverly engineered artifacts all over the world.

Since product standardization does not guarantee the standardization of its use, it is imperative that a product–interface, package or other design artifact–make meaningful connections to the people encountering it. By undertaking exploratory cultural research that feeds directly into design ideation and concept development, a company can gain significant advantage over its competitors. The proprietary knowledge of specific people and their lifestyles that it acquires can become a valuable resource in and of itself, providing a rational basis for strategic design decisions. Over time, discoveries derived from research can be internalized, built upon and transformed into conventional ways of doing things.

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A Need for design research

Research in design is nothing new. Apprenticeship, personal association, life experience, customer specifications and feedback, market performance and competing products have supplied the information from which products have been designed to order and by which they have evolved over time. With the introduction of new technologies, such research has been unavoidable. Even so, applied research for design as a tool of business *is* essentially a new idea if only because it attempts to explicitly bridge the gap between the analytical bias

of business and the synthetic approach of design. Accordingly, design research is challenged to characterize present-day situations in a way that gives equal consideration to both design possibilities and the realities of business.

Design research begins with the assumption that products succeed when they resonate with people's values and behaviors, even if they result in changes to those same values and behaviors. In other words, when a product appeals to an individual, it does so relative to that individual's cultural framework, worldview and experience of daily life. The individual falls in love with products that seem designed to order. But to accomplish such fit on a large scale is difficult. Too often the business planner speaks in statistical aggregates and designers are confronted with the task of designing for almost everyone–or namely, for no one. When design research is omitted, the design team resorts to imagining people and their experiences by using familiar design tools such as brainstorming and collage.

Constructing user profiles through media images can be a risky business. Consider the example of a user profile developed by a major American web design firm that named its prototypical user "Joyce." A collage generated by the design team characterized Joyce by combining images of the television sitcom character Mrs. Cunningham from "Happy Days," the late British Princess Diana, a Lexus automobile and a bottle of Neutrogena lotion. Their Joyce was clearly a woman over 30 with enough money for name-brand cosmetics and a really nice car. But then what? How does one reconcile a British, globe-trotting, Dodi-dating, royal divorced-mother-of-two Diana with a contented wife, mother, suburban American household manager Mrs. C? It cannot be done. Better to design for Diana alone, since she at least was a complicated, real-life person about whom most of us know something. Marion Cunningham was a fictional character to begin with, a stereotype. Stereotypes are built from generalities, while reality is in the details. And to find the details, you have to search.

Notes

(1) This article is an abridged version of a longer essay written by Melody Roberts while she was a graduate student at the Institute of Design at the Illinois Institute of Technology. Professors Sharon Poggenpohl, John Heskett and doctoral candidate Jay Melican, advised the writing of this essay.

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The Cultural Factor

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With the global dissemination of products and software now a given, designers must factor cultural considerations into their work: the subtle, hard-to-describe but critical issues surrounding the identity and behavior of any particular group. Cultural factors describe the essential differences in daily life, but not necessarily the obvious ones.

To see these factors in play, consider the design of a coffee maker. The "latest and greatest" coffee makers in the United States are electric models that incorporate such features as automatic brewing, morning alarms, built-in grinders and maker-to-table carafes. These are highly specific products, reflecting a number of typically American coffee drinking concerns: the need for a morning pick-me-up drug; the tendency to prepare and consume foods in a hurry; a willingness to consume foods long after preparation; and the routinization and scheduling of the day in general. There are many examples of how such a product fits into American life and why coffee makers of this type have been envisioned. But America is also filled with people for whom coffee-drinking belongs more clearly in the realm of social interaction. For these Americans, the ritual of preparation takes on its own significance. A product that eliminates this ritual fails these people utterly, while a long-handled half-liter pot designed to be held over a direct flame works quite well. Extrapolate this example to a global scale, and the need for a wide range of coffee making solutions becomes obvious. This single example illustrates how an empirically clever design is appropriate to one cultural context but not another. The critical cultural factor is not ***who*** is preparing coffee, but ***how*** and ***why*** they are doing it.

Designers must work with knowledge derived from their experiences of the world around them. These experiences shape their conception of normalcy, their perception of environment and their inspirations. At a social level, designers interpret their experiences as they compare to societal mores. And, at the least conscious level, designers express deeply assumed values and perceptions specific to their own cultures. Unfortunately, even theorists have difficulty defining, separating and explaining cultural factors. In anthropology, for example, the very meaning of "culture" is heavily contested. In ***Modernity at Large***, scholar Arjun Appadurai writes "culture is not usefully regarded as a substance but is better regarded as a dimension of phenomena, a dimension that attends to situated and embodied difference. Stressing the dimensionality of culture rather than its substantiality permits our thinking of culture less as a property of individuals and groups and more as a heuristic device that we can use to talk about difference."(1) Appadurai's point indicates an important change in thinking about culture and the cultural. It enables us to unlink culture from countries and their inhabitants–an increasingly important thing to be able to do in the context of transnational habitation and emergence of international communities.

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—Arjun Appadurai in *Modernity at Large*

Cultural factors in design are often taken-for-granted or even viewed as being "uncontestable." A designer's own assumptions are rarely articulated or identified as cultural. Unfamiliar assumptions can be even more difficult to identify and nearly impossible to interpret. For example, it is difficult to fully

appreciate how socially specific and artificial our structuring and experience of time is. But while different Americans experience time differently (e.g., white-collar workers versus stay-at-home parents versus retirees), they still use the same words to describe time and the same numbers to measure it. Go to a region of the world where time passes without numeric measure but is experienced with respect to daily routines—or only by the daily traversal of the sun—and one can "feel" the difference.

Because they can represent entire ways of thinking and living, cultural constructs place general parameters around design ideas, indicating ways in which products will be positioned within value systems and identifying how and how quickly customers' worldviews may need to change in order for new products and new forms of communication to be accepted. Cultural constructs are deeply ingrained, but they are also constantly changing. As a result, products or communications that openly conflict with cultural values may either secure a strong countercultural market or no market at all.

Relevant design

Looking at examples of how cultural issues inform product design and use, three important issues can be identified: 1) variable meanings of common products, 2) culturally idiosyncratic design constraints and 3) the question of product fit in a cultural context.

1. Variable meanings

The previous example of food processor design illustrates the assignment of meaning to a product. Saving time (American working woman), performing routine tasks (French chef) and expressing affluence (Indian housewife) are utterly different functional objectives. A single food processor design could be sold, but would it optimize sales potential? Probably not. Ideally, the Indian version would feature an attractive package for display, the French model would include a more durable motor, while the American model would be easy to clean and store. Aesthetics of the product would embody these properties (valuable appliance, durable equipment or handy device). A single design could attempt to incorporate all these elements, but would ultimately result in a compromise for all concerned.

2. Idiosyncratic constraints

Nonglobal, culturally idiosyncratic design constraints are illustrated well by the previous example of the coffee maker. A single design could never meet the task of preparing coffee properly around the globe. Moreover, given the extreme variation of appropriate models, no one manufacturer could easily produce them all. Interestingly, coffee makers can be both culture-specific and occasion-specific. I personally own several types and use them all, but I use them in different ways. Some coffees taste better with different preparations. At varying times I match the preparation of coffee to the occasion, the companionship, the time available, or the mood that I am in. The fact that no single maker fits my lifestyle is a direct result of my having traveled abroad and having grown up in a multicultural society.

3. Contextual fit

The design of mobile phones best illustrates my remaining point, that of contextual product fit. The market for mobile phones has changed dramatically in the past few years. Not only are they becoming standard issue for working

professionals in America, they are also popular among such diverse groups as American teenagers, children in Hong Kong and farmers in Argentina. Even though the mobile phone was a marketed as a personal accessory from the beginning, designs were slow to make reference to the other kinds of things people take along with them wherever they go: clothing, jewelry, accessories, key chains, wallets and bags. Overall, the product–in terms of both design and technology–has yet to find an ideal portable form and aesthetic. Further, it has not yet begun to address the incredible variety of people who will use it and the activities for which they will find it useful.

Conclusion

Culture has come to have a great many popular meanings. It has been used to describe not only values and beliefs but also sets of behaviors and artifacts. Culture has also been understood as an over-arching category that includes slow-changing, deep-seated and often unacknowledged characteristics of geographically related people. Nations and other politically united regions, are easier to understand than cultures. Nations have literal borders, ruling bodies, unique names, dated histories and so on. But given the existence of transnational identities (not to mention multinational corporations), the notion of viewing the world as being organized by national boundaries alone becomes dangerously simplistic.

This essay argues for the importance of applied cultural research in enabling product and communication developers to better understand–and better design for–their intended customers. While the argument is compelling for almost any product development, its relevance to global projects is even more considerable. Regardless of research method, the primary objective is to develop an understanding of people's values and behaviors that can be translated into viable, powerful visual design, information architecture and engineering ideas. Given the rapid changes in international trade and e-commerce, product developers need to anticipate increasingly diverse customer bases and know 1) that messages and embodiments mean different things to different people and 2) just what those differences are and for whom they are significant. In short, designers need to understand their professional role in global terms.

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Notes

(1) Appadurai, A., ***Modernity at Large: Cultural Dimensions of Globalization*** (Minneapolis: University of Minnesota Press, 1995).

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Framing Investigations

In this section, I take a cursory look at the specific methods I have lumped together under the term “design research.” These methods include ethnography, observation and interviewing, documentary photography and videotape, surveys, moderated group discussions and the subsequent analysis of data collected in these ways. This research is then linked to more traditional design practices like ideation, scenario construction, prototype development, behavior simulation and experience prototyping.

While the methods themselves may not be new, their full and explicit incorporation into product development processes is still exploratory for many American consultancies and corporate design groups. As a result, many questions of implementation remain: i.e., how to best integrate applied research activities into development schedules, assign professional responsibilities, communicate findings across disciplines and so on. I will not attempt to answer these questions definitively. I will, however, outline how applied research methods are being formally incorporated into design process. (It should be noted that in the forthcoming discussion I have imagined a scenario in which research is conducted by a multidisciplinary group of product development professionals, all acting in this instance as researchers.)

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Background research

Background research requires seeing the world as it has been interpreted, learning about the past and present and taking advantage of work done by others. It usually includes gathering information on technology benchmarks, competitor products, analogous designs, and historical perspectives about how various people have handled a particular set of problems in the past. Background research can also become another form of self-evaluation: it shows researchers that their concepts of what’s normal and possible, and are likely to be delimited by their own lifetimes and experiences.

Ethnographic fieldwork

The most powerful methods of design research enable researchers 1) to get to know other people firsthand in their own environments and in the midst of their real-life activities and 2) to experience, where possible, the same experiences they will be describing, interpreting and changing through design. I characterize the methods employed in getting to know other people as various documentary strategies that further relationship building. Basically, to learn about what others value and how they behave, one needs to get to know them. It is indeed true that, to a certain extent, people lie in interviews, photographs misrepresent situations and being videotaped influences how people behave. However, much inaccuracy or misrepresentation falls away as people begin to trust the researchers, become accustomed to their physical presence and get interested in the overall project. (The importance of trust underscores the need for ethical research practices, in which collaborators are well respected and promises of confidentiality are kept.) The remaining requirement for valid data collection rests

on the researcher's ability to interpret what is said and seen and to understand it in context.

Sociological ethnography lends itself well to the study of small communities of people who share certain traits. The traits vary from project to project as do the people studied. What remains consistent is scale. Ethnographies can be written from small case studies of people within a representative group of some kind.: the studies can have as few as two people though it is preferable to have more than that. Since the studies are small, they permit detailed learning and one-on-one communication. Through observation of real world activity, discussions with people, interviews, interactions with prototypes and personal experience of whatever is at hand, the researchers develop enough understanding and empathy to inform subsequent product development. The challenge then becomes twofold: 1) to frame the new-found understanding in ways that allow it to be generalized and communicated to others; and 2) to design well because of that understanding.

Analysis

Without careful analysis, no collected documentation can be usefully thought about or shared with others. Of course, analysis methods vary according to data collection methods. The key characteristics of any analysis, regardless of type, include parsing large quantities of information; finding patterns; showing interconnectedness of information; linking actual examples, quotes and images to specific insights; making sure generalizations hold for multiple examples, and building interpretive models of the analysis that communicate findings to non-researchers. Here an important difference exists between academia and design. In academia, interpretation of research is often the goal, and publication is the final step. In design, interpretation of research merely provides the foundation for the rest of the project. The final form of the interpretation will be an actual artifact or interaction experience, linked to the interpretation not literally–as with a published article–but conceptually and even mysteriously, evident only to its creators. Ironically then, accurate, disciplined interpretation of research may be more important to design than to scholarly pursuits. In academia, experimentation and theory flourish. But in design, millions of dollars may hang in the balance of an interpretation from which a design is conceived and on which a business decision is based.

Story telling

Story telling allows for the construction and communication of interpretation of data to design teams, clients, colleagues and even customers. Stories rely on narrative and framing and can be told in any expressive medium, including prose, photographs, illustrations, diagrams and the spoken word. The process of constructing a story forces researchers to synthesize data, to develop opinions and to reduce complex and ambiguous information down to a neat description. Such reduction permits comprehension, which is a necessary step toward agreement. If the research is to have any effect, the story that summarizes it must be clear, credible, and persuasive. While story telling serves to outline issues, relate context and provide a holistic understanding of design issues, its greatest value is in aligning a group of people around new, but shared understandings. When stories are shared, through telling, a common understanding or even worldview can result. Story-telling is the researcher's chief means of communication.

Naming

The final step in using research for design involves naming insights then naming linked design ideas. Naming is a word-form of designing. And so naming is also another tool for consensus building and idea refinement. The power of wordsmithing is well recognized in marketing and in information design. It is no less useful in product and system design and should be integrated with sketching, model-making and concept development. Naming presents an opportunity to connect design developments back to important research findings.

Cross-cultural Approaches

In today's global context, it becomes important to address the "default values" we all adopt when thinking about other people, be they next-door neighbors or remote exotics. Consider this basic human assumption: "What I think and the way I think, is normal." By default, one's own way of thinking is generally held to be a universal. People with differing values and ways of thinking can only be described in terms familiar to the describers, resulting in recognized stereotypes. Under conditions of global commerce, cooperation and travel, it becomes imperative to assign a new default value to thinking about other people–one of ignorance. To understand someone else, one must learn first what they think what they do and why. The humility that results enables one to explore both new ways to think, and effective ways to communicate with others.

Mental models

At the root of design research in a global context lies the need to recognize and reach beyond mental models, first those of researchers and designers, and then those of future design users. Cultural and social issues become especially important to designers when they develop product characteristics, functionality, interaction and form, especially for an unfamiliar customer group. But recognizing these issues in the first place is a basic problem. Cultural issues can be so innate, so assumed, that even when they are articulated, one may fail to grasp their uniqueness. So any attempt to design for another set of cultural assumptions and values needs to begin with self-evaluation.

Self-evaluation becomes the first step of the research process for a couple reasons. One can never leave behind their own worldview, language skills, expectations and opinions. The researcher has to always admit their own point of view. But admitting a point of view does not take one quite far enough. One needs to articulate one's own point of view in order to recognize and control its influence in the design process. There are several ways a researcher can attempt such self examination. They include taking self-authored surveys and interviews before distributing them, attempting to understand the customer through role playing and simply mapping oneself relative to the customer according to whatever criteria apply. These exercises, if done conscientiously, allow one to prevent personal point of view from unintentionally overriding priorities set for a product's ultimate user.

Objectives and methods

Another important aspect of doing research is to clearly recognize the difference between objectives and methods. Methods are employed in the service of objectives. And, since every research project features new problems and new circumstances, different approaches are required. Thus the researcher is challenged to resist depending on a narrow set of methods and to

use methods flexibly and creatively. Meeting that challenge almost guarantees that one's research remains relevant and goal-oriented, providing useful inspiration and knowledge for design activities.

Scope and scale

The last point I want to make about structuring research has to do with adjusting methods, time frame and expectations to fit the scope and scale of the project. Since research can be addictive, time can and will be wasted if scope is not clear at the outset. In fact, no prescriptions can be made because every project is different. The point is to consider project scale and scope in advance. On global projects this may be even more important, because it helps one determine how finely to draw the lines of difference that ultimately describe market groups and determine research subject samplings.