Daily life, not markets: customer-centered design

Vijay Kumar and Patrick Whitney

Vijay Kumar is Associate Professor and Patrick Whitney Steelcase/Robert C. Pew Professor and Director, both at the Institute of Design, Illinois Institute of Technology, Chicago, Illinois, USA.

The illusion of being ''customer-oriented''

''Customer-centered,'' ''user experience,'' ''delighting customers,'' and ''user-friendly'' have become mantras for many businesses in recent years. They describe important goals that, if achieved, can lead to competitive success. But the goals are rarely realized and these phrases are acquiring an unintended irony, or worse, the empty ring of a marketing slogan representing no tangible benefit to users at all.

Why has it been so difficult for companies to actually achieve great customer experiences that lead to above-average growth in market share, profit margin and customer loyalty? If it is so obvious that paying attention to customers is important, why are there not more examples of success?

Our contention is that ''customer-centered'' strategies normally fall short because marketing and development teams miss what is fundamentally important to their consumers. They make the mistake of thinking they can achieve customer delight simply by refining research on markets. Companies do market research using as a starting point their current offerings, which are defined by product, distribution, promotion and price. The problem is that the first three are all company-centered, not customer-centered. This leaves price as the only factor that both the company and the customer care about. Companies who do not want to compete on price alone need to find factors that are important to consumers.

Discovering these factors will enable companies to create true innovations that fulfill needs and desires before they are expressed by customers. The central focus of this type of research is not the product a company makes, but what activities the customer is trying to accomplish with the product. This is directly related to the argument made by Theodore Levitt in 1975:

> (Good companies) have succeeded not primarily because of their products or research orientation but because they have been thoroughly customer-oriented also. It is constant watchfulness for opportunities to apply their technical know-how to the creation of customer-satisfying uses which accounts for their prodigious output of successful new products (Levitt, 1975).

How companies acted on Levitt's idea three decades ago no longer works because of a tectonic power shift in the relationship between companies and consumers. New methods of being ''customer-oriented'' are needed now.

The power shift

There has been a power shift from producers to customers caused by decreases in production costs and increases in customer choice. In decades past, production capability was a key strategic advantage. Creating efficient factories making large numbers of similar products was the way for a company to win. During the period, investments in more powerful

See http://www.id.iit.edu/ideas/gclm.html for additional information.

 | VOL. 28 NO. 4 2007, pp. 46-58, © Emerald Group Publishing Limited, ISSN 0275-6668 DOI 10.1108/02756660710760944

and exotic production processes were the ones that paid off. With an emerging middle class delighted by the abundance of new and affordable products, the way for a company to create value was to produce new things at reasonable prices; do this and people would buy. In the early stages of that era, the kings of production could say, as Henry Ford did, ''Give them any color they want as long as it's black'' and it would work. As the market grew and basic needs were fulfilled, Alfred Sloane's strategy of creating a portfolio of products that offered a car for every need and income replaced Ford's imperial approach. Still, production innovation was the key to success as GM developed product platforms permitting product variation with the efficiency of mass production.

As the middle class grew, marketing, advertising, public relations and other new fields were invented to promote the things companies made. In this ''push'' model, marketing theory and methods became powerful means to help companies sell. Models that focused on ''product, distribution, promotion and price'' were refined and grew because they worked. Demographic factors such as gender, age, income, zip code, education and others were added to the equation to make ever more sophisticated segmentation models.

Every day there are more examples demonstrating the tectonic shift in power from producers to consumers. Today's iconic phrase is not from a kingpin industrialist but from the anonymous consumer, saying ''Give me what I want, when I want it, through the channel I want, and, I want it at a lower price than I paid before.'' Consumers are in control because they have unprecedented choice. Ironically, the growth in choice has come about because producers built sophisticated and flexible manufacturing processes that increase variations in a production line and the out-sourcing business models directing manufacturing to high-quality, inexpensive factories in other countries.

Consumers have so much choice that they have developed ways of shopping, managing family life, working, traveling, keeping healthy, and other modes of living that are almost impossible to predict. In the age of mass production and mass markets, consumers' choices could be predicted in part because they had so few. We have moved from a scarcity in production ability and adequate information about consumers to the polar opposite: now we possess a deep knowledge of how to make things and an inadequate understanding of how people are living their lives. This leaves corporate leaders knowing how to make anything but not knowing what it is they should make (see Figure 1).

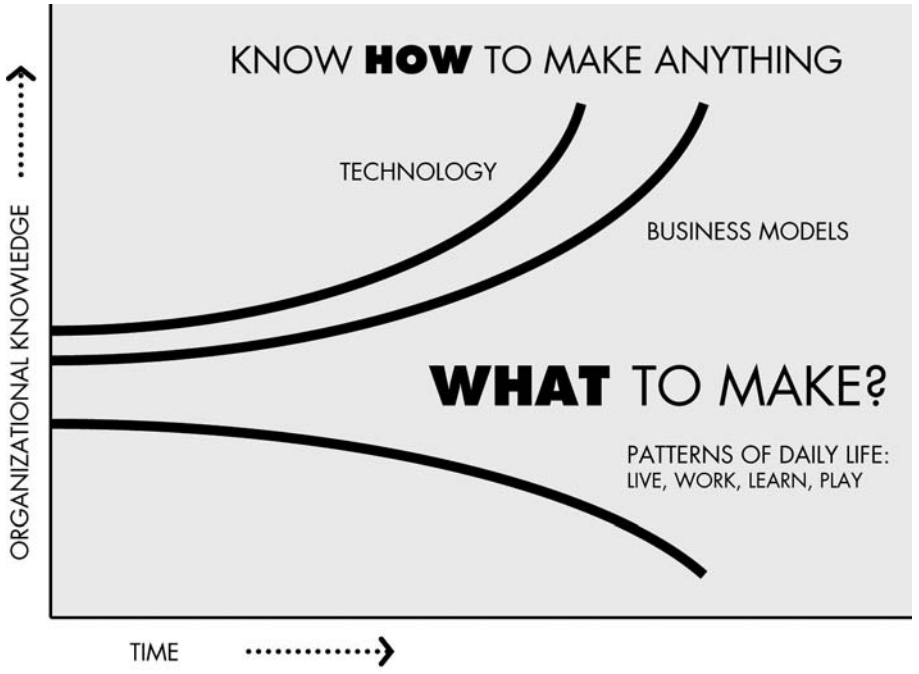
The patterns of how people live, work, learn, and play, along with most other activities central to daily life, are becoming increasingly complex. This is partially due to the growth in the number of choices they have for products, services and information that are available.

Two major forces cause this variety of options. New technologies are more flexible, both at the manufacturing stage and in the internal functioning of products, which enables customers to buy things that more closely match their individual needs. Second, companies have an increasing number of business models, ranging from global alliances to using the service associated with a product as the main driver of differentiation. Increased knowledge about technology and management gives business leaders the knowledge of how to make almost any innovation they can imagine.

However, because consumers are less predictable in how they are living their lives, organizations have decreased knowledge.

"Why has it been so difficult for companies to actually achieve great customer experiences that lead to above-average growth in market share, profit margin and customer loyalty?"

Figure 1 Innovation gap



Note: The patterns of how people live, work, learn, and play, along with most other activities central to daily life, are becoming increasingly complex. This is partially due to the growth in the number of choices they have for products, services and information that are available. Two major forces cause this variety of options. New technologies are more flexible, both at the manufacturing stage and in the internal functioning of products, which enables customers to buy things that more closely match their individual needs. Secondly, companies have an increasing number of business models, ranging from global alliances to using the service associated with a product as the main driver of differentiation. Increased knowledge about technology and management gives business leaders the knowledge of how to make almost any innovation they can imagine.
However, because consumers are less predictable in how they are living their lives, organizations have decreased knowledge

Trying to get closer to customers

Sophisticated companies know they need to understand how consumers decide to purchase a product and how they feel about using that product. To do this, companies usually focus on consumers' reactions to the product. This product-focused research typically uses surveys, focus groups, interviews, home visits, and usability tests to quiz customers about existing or prototypical products, asking about the way they are distributed, promoted and priced. Researchers will ask questions like: ''What other products did you consider?,'' ''What would make it better?,'' ''What was your buying experience like?,'' ''What else did you buy with it?,'' ''Did it fulfill the promise in the advertisements and packaging?,'' and ''What improvement would cause you to pay more?''

This type of research leads to specific insights about current offerings that will enable the company to make specific improvements. In the case of a prototype or a new offering, such questions can show whether consumers have a problem with the product. The trouble with this research is that it almost never leads to insights that could translate into surprising improvements or entirely new products. In the 1970s Sony showed consumers a prototype of a new category of wearable product that would let individuals listen to music privately. Consumers said they thought the idea was weird and they all said they would not buy it. In 1996 Toyota bet a billion dollars on research on hybrid engines even though all market

research showed consumers wanted big cars and did not put high value on fuel efficiency. In the same year GM listened to consumers and spent a billion dollars to buy Hummer.

Because product-focused research usually does not help a company discover big opportunities, they often turn to culture-focused research in order to look at broader forces and trends gathered from demographic data on general patterns of daily life, including value systems, new social structures and relationships among friends and relatives. This sort of research can lead to surprising discoveries about a culture. A company can learn, for example, that over the last few years in the USA the number of single person households has surpassed the number of two- and three-person households to become the largest category; that we are putting more value on the privacy of their personal information; or that the average household income in Guangzhou is $8,000 per year. This research can give insights into behaviors, beliefs, and goals, which can in turn be used to think, in a general way, about the products a company is planning to launch.

The findings from this type of research, however, are seldom specific enough to help a development team improve the offering they are trying to create. Because this research is time consuming, while development time for companies only gets shorter, it is difficult to use efficiently.

It is easy to see the dilemma here. Which type of research is more useful: the one that is more practical but often does not lead to new insights, or the one that leads to major new insights that are nevertheless too general to apply?

Activity-focused research and discovering new opportunities

Focusing consumer research on the activity that they are trying to accomplish with the product can lead to surprising innovations that are grounded in their daily lives. For example, a food manufacture could look at ''eating and drinking at home,'' a maker of laundry products could look at ''taking care of clothes'', or a maker of cosmetic products could look at ''improving personal appearance.'' Looking at activities that surround the product, rather than getting reactions to the product (and related distribution, promotion and price) leads to breakthrough ideas that are grounded in how people are living. The research described below reflects this approach (see Figure 2).

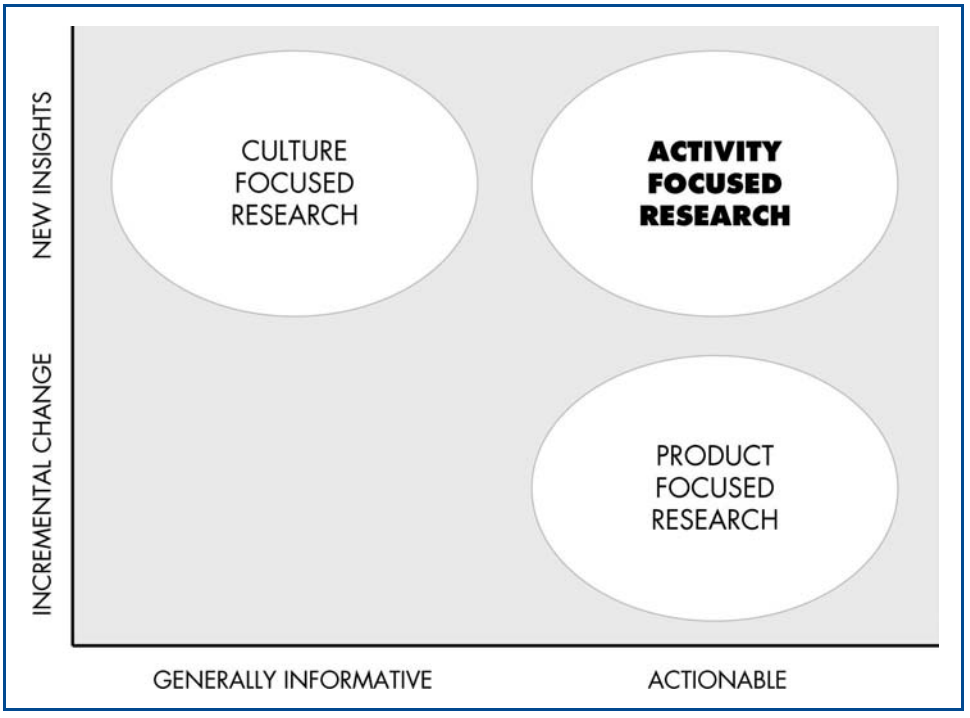
Hong Kong Telecom, Gold Peak Industries and Motorola supported a research team from the Illinois Institute of Technology's Institute of Design to develop innovations related to interactive homes. The executives and our team knew there would be opportunities for new products and services in the areas of home control, entertainment and security.

However, we knew if we were investigating existing products related to these three areas we would only develop ideas related to the known opportunities. And we knew that if we researched cultural and demographic trends taking place in Hong Kong we would find it difficult to tie this general information to areas of business the companies cared about.

We focused on people's daily activities related to life in Hong Kong homes. Thousands of photographs and hours of video were taken of people cooking, talking on the telephone, helping children with homework after school, blending work life into the home and many other activities of daily life.

As is always the case with ethnographic data, it first seemed completely chaotic. However, the analysis soon showed that in addition to the three predicted areas ripe for innovation, there were six additional areas the companies were not even considering. Of these, the three that interested the executives the most were families staying in touch with each other, buying fresh food, and parents helping kids with homework. The executives were shocked to find that in six weeks a research team unfamiliar with life in Hong Kong could identify wholly new potential markets. Of course, market sizing was still necessary, but the executives would never even have considered these markets if it were not for the research that revealed unarticulated consumer needs. What is more, the six new markets were still free of competition, while the three predicted markets were already dense with contestants.

Figure 2 Results from activity-focused research lead to innovations that are both practical and based on new insights



How does activity-focused research work?

Ethnographic research methods commonly practiced in the social sciences and anthropology can be valuable for companies to conduct activity-focused research. It can be most beneficially done through observing what people are doing rather than asking people about what they are doing.

There are many ethnographic methods available for doing observational research, such as video ethnography, disposable camera studies, day-in-the-life studies, shadowing, and others. Some of these methods have a clear advantage of being able to capture user activities in a non-intrusive and casual way so that the results of the research are less researcher-biased and more consumer-initiated. For activity-focused research, this is important because we need to learn about consumer activities as they naturally happen in daily life to be able to elicit the most useful insights.

Observing people's activities through techniques like video ethnography has become very popular among researchers in companies. But the problem is that researchers or their video camera presence in the consumer's environment can be intrusive. Continuous video shooting in the background can make it somewhat less intrusive, but will require much effort and time to extract useful insights from long hours of recordings.

One effective and efficient way to address this issue is to empower the consumers to capture their activities themselves. Disposable or digital cameras provided to the consumers, allowing them to capture their activities, can be an effective method for non-intrusive consumer-initiated research. A structured ethnography method using disposable or digital cameras for doing activity-focused research is elaborated in the following discussion. It has some key steps during the research process.

Define the topic for research

Even if the intent for innovation is to develop a new offering (product, service, message, environment), in activity-focused research the focus is not primarily on the offering, but on

the general activities that surround the use of the offering. For example, consider a situation in which the innovation intent is to develop a new hair care product. In activity-focused research, the focus is not on the offering – a shampoo or conditioner. The focus is on a set of activities, or the overall experience that surrounds the use of the product; for example, ''putting on a party,'' ''preparing to dine out'' or ''looking good.'' Defining the topic for research will need a thoughtful exploration of the overall experiences people care about; use of a specific hair care product is only a part of that overall experience.

Select research subjects

Once the set of activities or the overall experience for research is defined, the next step is to find candidates to study. Here a determination of what types of consumers will be good as subjects will need to be made. To ensure a good coverage of activities by different consumer profiles, several screening criteria ought to be used for selecting subjects for study. For example, for the topic of hair care products, the screening criteria could be frequency and extent of use of hair care products, family size, family composition, income level, geographic location, cultural and ethnic background, and other similar filters of interest for the research team.

Brief research subjects

Once the subjects for research are selected, the next step is to provide them with disposable or digital cameras and instruct them to take as many pictures as possible about their activities surrounding the topic of enquiry. The subjects are requested to take photos of those activities that they think are most important about the topic from their perspective. It is beneficial to suggest to them that they cover many aspects of their activities for a comprehensive picture. For this, we find the use of a framework called POEMS very valuable (Figure 3). We request that the subjects include in their pictures people, objects, environments, messages, and services. As an example, for research on ''cooking at home,'' the subjects are requested to pay attention to the following:

- *People*. Who is involved in the activity? (Mother, daughter, TV personality.)
- *Objects*. What things are used in the activity? (Utensils, sink, bottle.)

Figure 3 POEMS framework is used to gather and organize user observations

- *Environment*. What is the setting where the activity happens? (Store, kitchen.)
- *Messages*. How is the information transferred? (Store front, food package.)
- *Services*. What systems or people enable the activity? (Cleaning, delivery.)

Organize photos and prepare to describe them

Photos taken by the subjects are actually ''observations'' about their activities from their perspective. These observations are collected and assembled into manageable segments that are helpful for recording useful information about them and sharing them with members of the innovation team. In this regard, organizing and describing the observations using common frameworks is valuable for consistency and coverage.

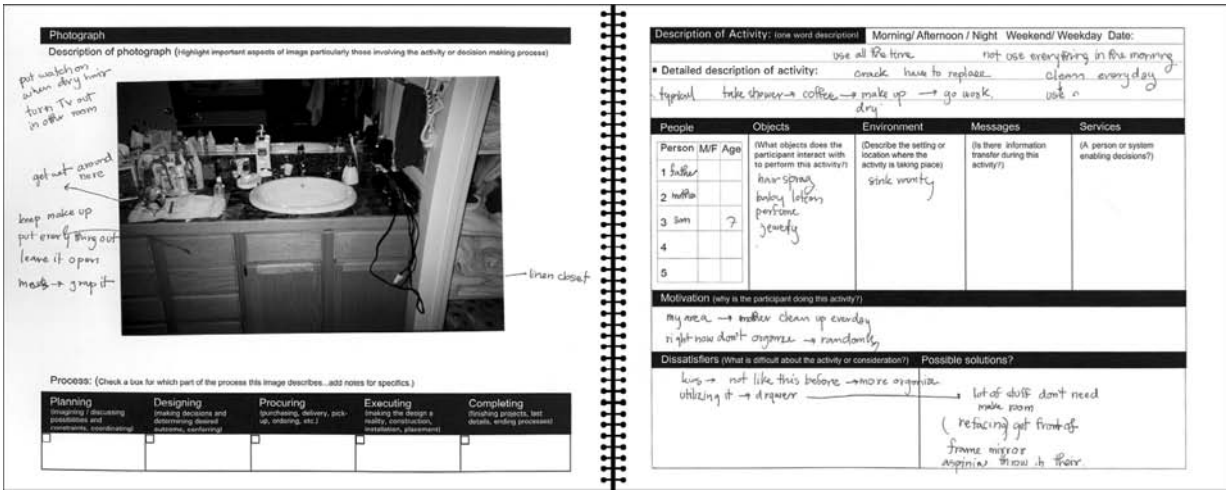
There are four frameworks that we find valuable for this purpose. One of them is the POEMS framework discussed earlier. The second is the ''User Experience'' framework, which relates to five human factors – physical, cognitive, social, cultural, and emotional. If the observations show problems associated with any of these human factors, these are described and recorded. The goal is mainly to capture the human values subjects associate with the observations. The third framework is ''Modes and Activities''. Here, each of the observations is described as belonging to a defined mode of activity, for example, eating and drinking, shopping, entertaining, traveling, and learning. The fourth useful framework is ''Motivations''. This is intended to capture the reasons that prompt people to do the activities shown in the observations. Some of the components of the motivations framework are to be in control, to be safe, to serve others, and to distinguish oneself.

The photos taken by the subjects are organized in field notebooks to capture additional information about them. These field notebooks include the various frameworks discussed above. They also include space to capture other information about observations, such as descriptions, comments from subjects, insights gained, and needs recognized (Figure 4).

Interview subjects and fill-in field notebooks

Interviews with subjects complement the observational research done through subjects taking photos. From interviewing the subjects about the photos they took, researchers can find out a lot about their activities, preferences, needs, habits, difficulties, work-arounds and other important aspects about their daily life. During these interviews, the focus is on the stories subject tell about the photos, why they took these specific photos, and why those

Figure 4 Two pages from the field notebook showing how structured notes are taken during the interview with subjects about photos they have taken



> **"Every day there are more examples demonstrating the tectonic shift in power from producers to consumers."**

things shown in the photos are important about the topic from their perspective. Capturing these stories in a disciplined way is a great way to gain surprising insights that researchers would have missed if they have not engaged the subjects in a conversation.

It is important that the interview be treated as an informal conversation rather than a question and answer session. In this conversation, the researchers need to have the mind-set of a student, and the subject must be considered as a teacher. To learn about people's lives as told through their stories, the interviewer needs to be a great listener more than a prudent questioner. Interviewers should listen intensely to the stories subjects tell and learn the most they can about their daily life activities in the limited time available.

The most common questions the interviewer may ask are ''Why did you take this picture?'' and ''Tell me more.'' Leading questions, including questions about specific opinions, attitudes, and views, ought to be avoided. In this way the conversation remains unbiased and valuable insights can naturally evolve. While the initial parts of the interview session are characterized by the subjects telling stories about the photos they took, as the conversation reaches a conclusive stage in which most of the learning has already happened, it is appropriate to ask more focused and detailed questions.

It is beneficial to conduct the interviews in the subject's environment/home since it is likely to make them feel comfortable while they talk about the photos they took. It even allows them to point to actual things in their surroundings in reference to the photos while they tell their stories.

Usually two researchers participate in an interview session; one person who asks questions and facilitates the conversation while the other person captures the conversation. The information pertinent to the research is captured both as structured notes under the frameworks in the field notebook, and as free-form notes. It is also good practice if the interviews are videotaped for later reference and detailed study. For later reference, video cameras should be pointed at the photos and the audio should pick up the conversations.

During conversations, and even at other stages of the research process, it is common that product or other concepts pop up. Capturing such concepts as they emerge is a good idea. These early concepts can be a source of inspiration during the later more organized concept generation stage of the design process (Figure 5).

Enter gathered information into a database

For teams doing activity research, it is common practice to use databases to organize their findings. Considering the ease with which valuable analysis can be done once the data are organized in these databases, innovation projects benefit substantially from them, despite the extra initial effort needed to create them.

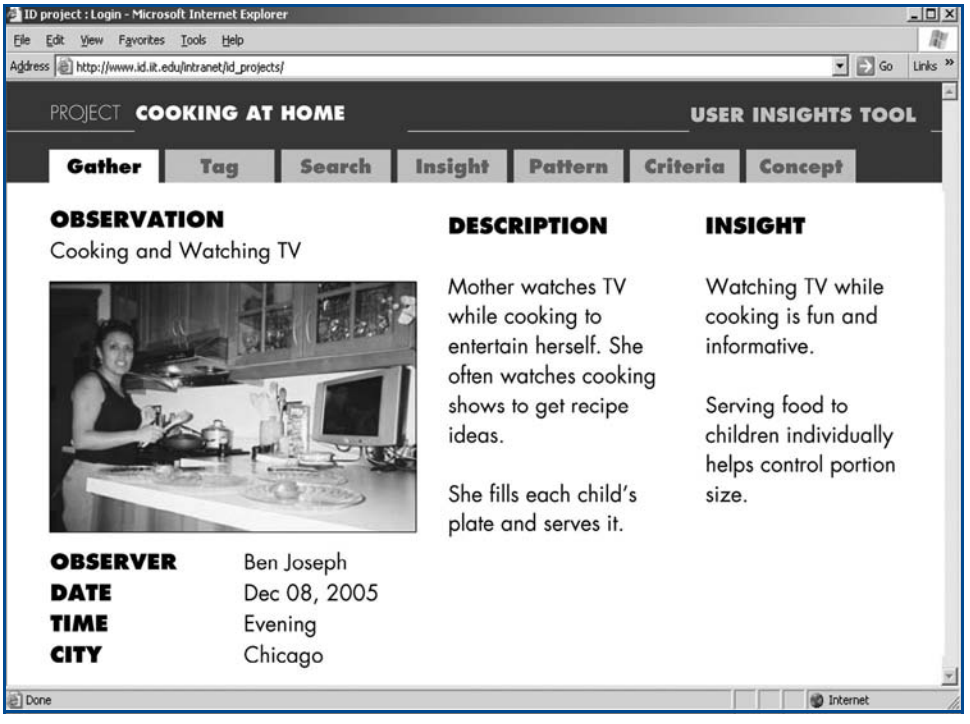
The photos and the data captured from the interviews are uploaded into a database tool, such as one we are developing called ''User Insights Tools''. Reference information, such as researcher's identity, subject's identity, time, date, and place are entered for each observation.

A short title for the observation, a description, and even quotations or comments from the subject about the observation are also entered in a structured way. More than these, the key field to be filled at this stage is the ''insights'' field. Based on what the researcher learned from the subject about a particular observation, the researcher's interpretation of what they learned is entered as an insight statement. An insight statement is usually a short phrase that

Figure 5 Researchers interview subjects in their homes

Note: The conversation is focused on the photos subjects have taken. Copious notes are taken in a structured way using field notebooks

Figure 6 User Insights Tool screenshot shows how observations about people's activities are gathered and organized in a structured way – this is taken from a project ''Cooking at Home''



captures the learning as concisely as possible. Any of these fields of data can later be searched, accessed and analyzed by all users of the database tool (Figure 6).

Tag observations to frameworks

Each of the four frameworks – POEMS, User Experience, Modes and Activities, and Motivations – has specific keywords associated with them. These keywords are used as tags for qualifying observations. For example, POEMS tags for an observation about ''cooking at home'' that shows a woman cooking might be woman, oven, kitchen, recipe, and delivery service. The benefit of tagging observations with keywords is that the database can be easily searched, larger activity patterns found, and more valuable insights gained.

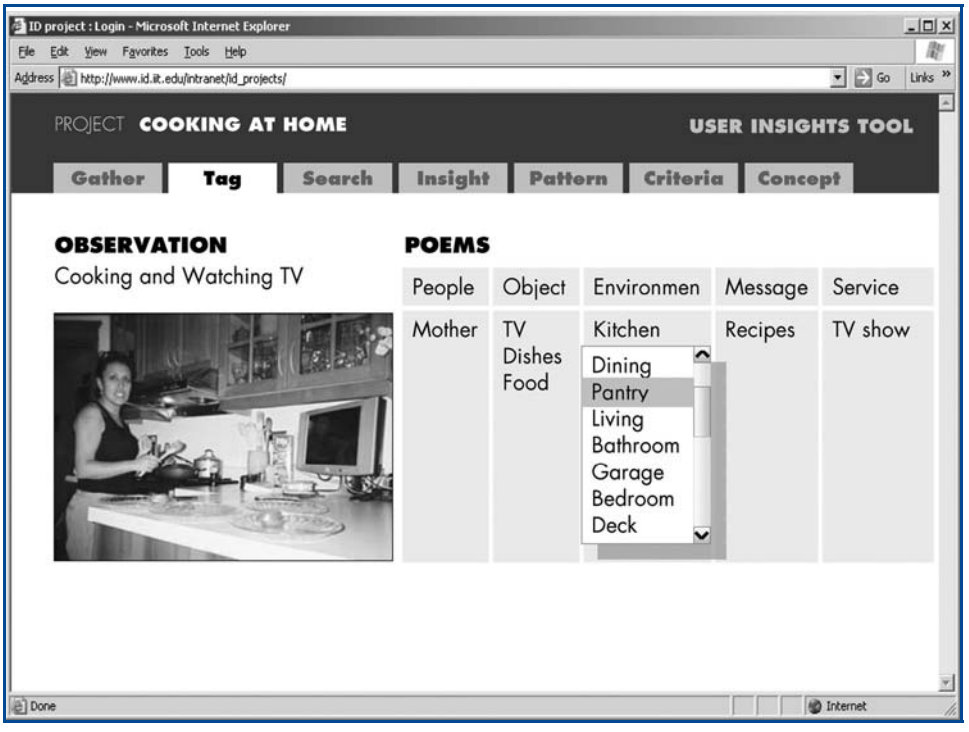
Two kinds of keywords can be tagged to observations: global and local. Global keywords are selected from a pre-existing list for tagging. This pre-existing list contains keywords that are commonly understood, standard, and general in nature and is applicable to multiple projects. Global keywords need to be regularly refined and updated as we learn more from research projects that use the User Insights Tool. Local keywords are very specific to an observation or a project. For example, a local keyword for ''People'' in the POEMS framework for a specific observation might be ''temporary cooking instructor.''

Global keywords can be searched on observations across multiple projects, whereas the local keywords are used only within the context of a particular project (Figure 7).

Analyze and find patterns through querying

Once the database is populated with observations we can move to the analysis mode to find patterns in people's daily activities and gain insights. Since the observations are tagged and organized under the four frameworks, searches can be done by sending tailored queries to the database. For example, a useful search query might be ''show me all the observations that have women cooking in the kitchen watching television and referring to recipes.'' Here the words woman, kitchen, television, and recipes are all tags from the POEMS framework.

Figure 7 User Insights Tool screenshot shows how keywords from frameworks like POEMS are tagged to observations for later search and analysis



An analysis of the resultant subset of observations might reveal activity patterns in which recipes and televisions are used in interesting and surprising ways for cooking. A query-based analysis like this can reveal interesting and useful insights about people's daily life. It is also possible to save these query results as collections of observations for later referencing and sharing among project team members (Figure 8).

Analyze through clustering insights

Another powerful way to analyze the observations is by clustering the insights. All the insight statements for a project are first normalized to make sure that they use a consistent language style. For example, insight statements might be expressed as short phrases such as ''cooking is a time to spend time with kids'' or ''families often spend quality time together after dinner.''

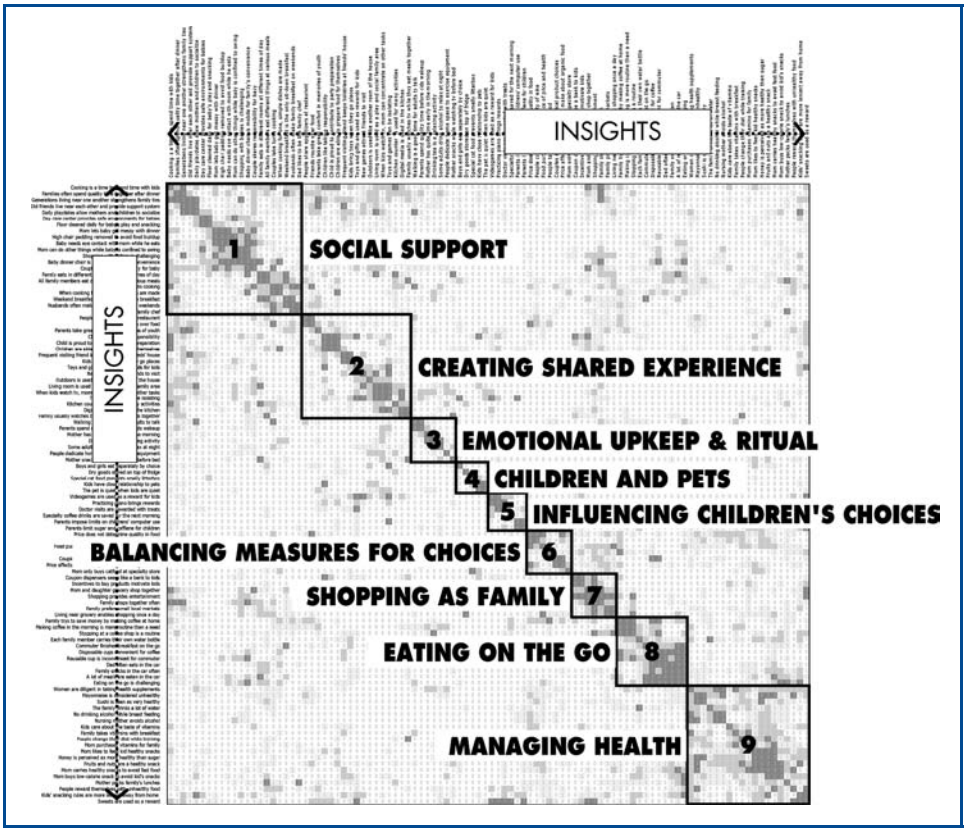
The next step in this analysis is the creation of an interaction matrix in which each insight statement in the list is scored against each of the others – high score if the insight statements are similar and low score if they are not. Then this scored matrix can be sorted to reveal clusters of related insights. We try to discuss in teams why these clusters of insights are formed and try to understand a common logic that connects them. We also name these clusters with a short descriptive title. These clusters and the common logic behind them reveal higher level patterns of people's daily life. The collection of insight clusters can be used as a framework to help think about concepts.

In Figure 9 insights gained from the user observations are listed, normalized, scored against each other, and sorted to reveal clustering patterns as dark-colored patches. A matrix diagram is used to visualize this. The clusters are named, defined, and described to form an activity-focused model for generating innovations. The model that emerged from the project on ''Cooking at Home'' is shown here.

Figure 8 This screenshot shows a comparison between results from two searches using tagged keywords

Note: Comparison of "insights" related to the observations reveals more insights

Figure 9 Insights gained from the user observations



Create criteria and develop concepts

The clusters of insights are also used as a basis for generating criteria. Criteria are forward-looking statements that link insights to innovations. They are short statements with a brief explanation that describes what a possible innovation should do. Here is an example: empower children – innovations should help kids share responsibility with food preparations. It is through these criteria that we can move from the descriptive part of the process to the prescriptive part, from analysis to synthesis.

Now we can move on to the next stages of the design process in which concepts are explored, systemized, prototyped, and implemented.

What we gain from activity-focused research – observations about people's daily activities, insights, insight patterns, and the criteria – becomes a reliable human-centered basis for developing concepts for the future. With this basis, innovation conception becomes practical, novel, and reliable.

Scale and reuse advantage

It is common practice for companies doing ''activity-focused research'' to use databases. That way they can amass findings from the field in one place for comprehensive analysis. Innovation projects benefit substantially from these databases despite the added effort needed to create them.

A study of the current practices in using such databases has revealed several problems. For example, researchers working on a specific project use project-specific categories and frameworks to organize the data. Because of this, these databases can seldom be used for a second project, even if the project is similar in nature. Even different teams working on the same project tend to use their own team-specific frameworks and languages. This makes it

difficult to share the data easily among teams. This problem is more pronounced when the teams are from different parts of the world.

The four frameworks that we discussed earlier that organize and describe the observations in a structured way are an effective solution to make the database scalable and reusable. This is because these frameworks are designed to be generic enough to address diverse consumer situations. They are broad, comprehensive, and consistent enough to be applied to many types of activity-focused research projects. Because of these common frameworks, growing the database project after project using the same organizing structure is easy. Companies can use valuable information from their previous projects for their new innovation initiatives. Such databases for activity-focused research evolve over time and have the tremendous advantage of scalability and reusability.

Keywords:
Design,
User studies,
Ethnography,
Customers,
Innovation

Reference

Levitt, T. (1975), ''Marketing myopia'', *Harvard Business Review*, Vol. 53, September-October, pp. 26-44, 173-81.

Further reading

Kumar, V. (2004), ''User insights tool: a sharable database for global research'', *Proceedings of the 6th International Workshop on Internationalization of Products and Systems, Vancouver, Canada, 2004*, pp. 115-27, available at: www.id.iit.edu/papers/kumar_iwips2004.pdf

Kumar, V. and Whitney, P. (2003), ''Faster, cheaper, deeper user research'', *Design Management Journal*, Spring, pp. 50-7, available at: www.id.iit.edu/ideas/papers.html

About the authors

Vijay Kumar is the Head of the Design Planning Program at the Institute of Design, Illinois Institute of Technology and consults with organizations around the world for planning innovations. Vijay Kumar is the corresponding author and can be contacted at: vijay@id.iit.edu

Patrick Whitney is the Director of the Institute of Design and a Professor of Design. He focuses on the link between design and business strategy, designing for emerging markets, and methods of understanding user experience.

To purchase reprints of this article please e-mail: reprints@emeraldinsight.com
Or visit our web site for further details: www.emeraldinsight.com/reprints