



Innovation research: Stay centered with these three principles

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Often marketing and research and development don't speak to or understand each other, but there are three principles of innovation research that both sides can work on together to develop products that consumers want and understand. All three principles rely on consumer observation and interviews, and all help ensure that innovations develop in terms of consumer needs; consumer attitudes and experiences; and consumer purchase criteria.

1: The milkshake principle - Understand the functional and emotional task/s involved, not just the desired attributes or improvements.

2: The persona principle - Design for archetypes synthesized from observing and interviewing users rather than for the broadest common denominator.

3: The usability principle - Develop interface and industrial design prototypes through rigorous usability testing.

The three principles typically inform different stages of innovation research.

First, find opportunities for innovation. Identifying the tasks that consumers need a product to do, as determined by observation and follow-up interviews, provides opportunities for innovation. The innovation would serve to do the tasks successfully, competing with products that do the jobs badly or incompletely.

Second, design the innovation for consumers. Once the innovation is conceptualized, the innovation developers design for personas synthesized from user observation and interviews;

personas embody archetypal user personalities, attitudes, goals and circumstances around product or service usage.

Third, consider validation and refinement. Usability specialists return to actual users to validate and refine the ease of use, ergonomics and aesthetics of the innovation design, as determined through research.

The milkshake principle

In *The Innovator's Solution*, Clayton Christensen, professor, Harvard Business School, writes, "Companies that target their products at the circumstances in which customers find themselves, rather than at the customers themselves, are those that can launch predictably successful products."

Christensen discusses a milkshake innovation as an example of this successful approach. A quick-service restaurant chain wanted to improve milkshake sales and profits and created customer psychobehavioral profiles in order to define the target milkshake customers. Then the restaurant team assembled panels of people with these attributes to test whether making the milkshakes thicker, cheaper, chunkier, etc., would satisfy them better. The chain received clear input on customer preferences, but none of these product improvements led to significantly improved sales or profits.

Then a new set of researchers focused on understanding the circumstances of milkshake purchases. After an 18-hour weekday of on-site observation, they realized that nearly half of all milkshakes were bought in the early morning, typically as the only purchase, and were rarely consumed in the restaurant.

Follow-up interviews revealed that weekday morning

purchasers faced a long, boring commute and wanted something to make the commute more interesting. Although they weren't hungry, they knew they would be by mid-morning without eating something satisfying en route to work. They also wanted something that wouldn't get their work clothes soiled or greasy and that they could manipulate easily while driving with one hand.

Compared with alternative products the customers occasionally bought - bagels, fruit and breakfast sandwiches - the milkshake did the aforementioned jobs best of all. Customers acknowledged that the milkshake wasn't healthy, but the health factor was relatively inconsequential because that wasn't the reason they bought the product.

The researchers also observed that, at other times of the day, it was often parents who bought milkshakes, along with a complete meal, for their children. Follow-up interviews revealed that parents were tired of saying no to their kids all day and bought the milkshakes as an innocuous way to placate their children. A problem, however, was that the parents waited impatiently after they finished their own meals while the children struggled to suck the thick milkshakes through the straw. Often the parents threw the milkshakes out, saying that time had run out.

Clearly, Christensen writes, "The same busy father who needs a viscous, time-consuming milkshake in the morning needs something very different later in the day for his child." Knowing which tasks a product is chosen to do - including which tasks products do badly or incompletely - can give innovators the roadmap for successful product development. To make the boring commute even less boring, the chain could add flavorful chunks of fruit; make the shakes even thicker to last longer; or set up self-service machines that customers could operate to get in and out fast. As to the evening job, the chain could develop kid versions of milkshakes with jumbo straws and smaller - but entertainingly-designed - containers to both enhance the indulgence and enable kids to finish them faster.

One could argue that the original researchers would also have identified the preferences of the commuters for thick, fruity milkshakes and, assuming they did, that the original milkshake improvements did not significantly improve sales. But the advantage of Christensen's approach can be summarized as follows:

Segments are identified by the jobs they need the product to do, as determined by observation and follow-up interviews. As a result, the product can be designed to do those jobs as successfully as possible - as opposed to creating an array of improvements, some of which may help accomplish the jobs and others less or not at all. The product can then be positioned to each segment as being specifically, even uniquely, designed to do the job successfully that the segment needs done. For example, here's a product that makes your commute more interesting, won't leave you hungry by mid-morning and won't get your work clothes spoiled or greasy while you drive. Even the milkshake commuters who never thought about the problem will certainly recognize the successful solution.

The persona principle

Think now of designing an innovation or creating an innovative design. Think, for example, of smartphones, Web sites and TVs loaded with appealing apps that are impossible to figure out, and contrast those with sites like Amazon where we buy them. Amazon is so accessible and feels so customized to our individual needs that it has revolutionized online purchasing. Researchers for successful designs like Amazon's do more than quantify the common denominator: They capture our differences by depicting individualized characters moving step by step through the purchase process. Web developers then design different options and navigation routes for the different personalities, motivations, needs and behavior of each character or persona.

The use of personas for prototype design was popularized by Alan Cooper in his 1999 book *The Inmates are Running the Asylum*, "If you want to create a product that satisfies a broad audience of users, logic will tell you to make it as broad in its functionality as possible to accommodate the most people. Logic is wrong. You will have far greater success by designing for a single person."

Personas are not actual people, Cooper explains, they are archetypes of actual and potential users. Persona researchers synthesize data from one-on-one user observation and interviews into user archetypes defined by their behavior patterns, goals, skills, attitudes and environment, even assigning characteristic names and personalities to make them realistic characters. Each persona represents a different user type. Instead of a one-size-fits-all approach, the developer designs for these narrowly-defined target users.

Personas are used across industrial design innovations. Decisions about features, processes, interactions and visual design are guided by the goals, desires and limitations of the users. Although more than one persona is usually created for each product, they are prioritized, and the persona representing the key or primary user becomes the primary focus for the design.

By designing for a particular persona, the stakeholders - from designers and engineers to managers and marketers - avoid generating user stereotypes and stay centered on actual users' reality. As Cooper suggests, personas also give stakeholders a realistic character to share as a common example to help focus discussions: "As the design work becomes more detailed, scenarios become more and more effective. We play our personas through these scenarios, like actors reading a script, to test the validity of our design and our assumptions. ... Knowing that Betsy is trying to create a Web site for an insurance company, for example, we can more easily inhabit her character."

Researchers portray personas moving through usage scenarios. There are daily-use scenarios, which are the main actions that the user performs with the greatest frequency, and necessary-use scenarios, which are all the actions that the user may have to perform infrequently. Scenarios include the personas' goals, expectations, motivations, actions and reactions while performing both the daily-use and necessary-use scenarios.

The usability principle

Knowing the jobs that need to be done and the archetypal users involved helps guide usability specialists when they turn to actual users for validation of ease of use, ergonomics and aesthetics in the innovation. Companies save hundreds of thousands of dollars when they develop a prototype through rigorous usability testing; the design gets modified to optimize satisfaction of customers' needs, desired benefits and other purchase criteria. Exact measurement standards and procedures in one-on-one observation and follow-up interviews ensure reliable testing.

At the Xerox Human Interface and Industrial Design group (IDHI), the basic approach includes the following two steps:

Define the goals. Two frequent goals are to identify problems (typical of new-product development) and to benchmark (e.g., how our new product delivery compares to a competitive product or to our legacy product).

Identify the tasks or scenarios. Tasks in usability are the activities performed by representative respondents to achieve their product or service goals. For example, in testing a new software application aimed at improving the success rate of calls to customer service, the user would perform the task of getting a problem solved in a troubleshooting session.

The specialist would observe which of the steps involved are convenient, intuitive and helpful and which are difficult, misunderstood or overlooked (e.g., find the contact information for customer service, make contact with a service rep, provide the required information, etc).

Xerox IDHI evaluates success by relying on the specialist's observations, the user's comments during the test and the user's comments in the follow-up interview after the test. The point is to determine why something is important and what is or is not a satisfactory solution. Success is also measured by the users' responses on a nine-point scale regarding ease and acceptability of use. User responses are soft metrics in the early stages of usability testing but become hard metrics in the final testing stages as the questions become increasingly refined to reflect user needs, desired benefits and other purchase criteria.

Keep the process centered

Not all innovation development requires the application of all three principles. But each of these principles helps keep the innovation process centered, at any stage of innovation development, on actual users' reality. The result is that research and development, managers and marketers share a common focus on clearly-defined consumer needs and end up with products and services that consumers want and understand. | Q