

Chicken? Egg?

integrating research and design in the real world

by Christian Rohrer

In the world of product design and development, research without design has no point, for there would be no product without design. The issue at hand is how closely linked are research and design in the product development process: Are they interlocked or at arm's length? If research is too disconnected from design, the findings are often just "thrown over the wall"—an act that greatly reduces their application because it strips away what is most valuable in the partnership: continual interaction and communication about knowing and solving.

Some designers claim they perform their craft without aid of research. But at some level, they utilize insights to provide direction. Whether this is the result of formal research or merely a collection of keen observations, the point is that design simply does not occur in a knowledge vacuum. The best way to fill such a void is through quality research yielding ideas, direction, and evaluation.



Chicken or Egg?

You might wonder whether research should precede design, or vice versa. If you accept the complementary turn-taking approach advocated here, it really does not matter. If design begins first, it is a means of expressing *one* possibility for a business opportunity or product idea, which begs for research to indicate whether the concept will fly or how it needs to be changed. If the starting point is research, then it is likely to be discovering and articulating an unmet user need or problem that needs solving: Enter design to the rescue.

Inspire, Inform, Assess, Iterate

There are basically three classes of research used in the design process, and they can be described succinctly by what they *do* for design, namely: *inspire*, *inform*, and *assess*. In terms of inspiring design, the role of research is to provide designers with a deep understanding of the problems that need solving, with the results structured in a way that fuels innovative ideas. Research that informs is conducted during the most active part of the design process, where ideas are tested out and the focus is on understanding *why* different

designs work or don't work, with the goal of improving them. When the role of research shifts to the assess phase, the goal is to measure the design or product (usually quantitatively) against itself over time or against competitors, as a way of looking back on progress or to make important design decisions that cannot be readily discerned qualitatively.

Inspiring Design: One Yahoo! 's idea

Ethnographic field research is one of the best methods for the *inspire* stage, though the findings need to be delivered in a way that is useful to designers, especially if we are designing an interactive product, where behavior needs to be understood. (For the more aesthetic aspects of design, an attitudinally focused method might be more useful.)

In 2004, Michael Kronthal, a design researcher and ethnographer at Yahoo!, set out to understand a particular segment of online personals users: those seeking a lifelong partner with a similar level of commitment. At the same time, the market research department's was engaging focus groups and conducting a survey, but they were not yielding the inspirational insights that

designers needed to take the product to a level beyond the competition. A mere 11 days and \$1200 later, Kronthal was able to deliver just what the team needed: key insights, design ideas, sequence models, cultural models, and uses of physical artifacts—all represented physically in a dedicated room, with ideas posted and continually updated, showing a consolidated view of the insights. The room allowed the design and product teams to literally see through the eyes of their customer in a way that they could never do through a written report or presentation. It was the basis for the development of personas, and ultimately, of a completely new product concept that was far different than what was originally conceived.

Informing Design: The RITE Stuff

In the *inform* stage, research serves as a mechanism to provide ongoing feedback about early design ideas—with a focus on understanding *why* the users of the design react the way they do. It is “formative” research, rather than “summative,” which is a stand alone assessment of the design.

In 2002, researchers from Microsoft presented a paper on what they

called the Rapid Iterative Testing and Evaluation (RITE) method, which made two very important contributions to the field. First, it argued that the whole point of conducting formative usability studies is to fix problems, not to find the universe of problems. Second, it provided a process for doing so that blends design and research processes so tightly that they become one activity. Essentially this is done by taking early, highly mutable designs into a study, scheduling research on day one with one to three participants), redesigning on day two, research again on day three, redesigning on day four, and so on. Rather than finding value from a study based on solely on the number of problems found, the RITE method emphasizes the number of problems fixed divided by the number of problems found (called the impact ratio).

EBay designer Heather Winkle and researcher Jeralyn Reese recently used the RITE method to develop a new user interface for researching listings on their site. They started with hand-drawn sketches of the design, produced solely with paper and pen. Early feedback gave them lots of new ideas and things to change—some of which were altered with Liquid Paper®

and re-tested with new participants the next day. As they solidified the information architecture and navigation structure, they designed wireframes on the computer, leaving room for content. They photocopied the wireframe page and drew the content in by hand, again, making corrections and changes on alternate days. Finally, they made the commitment to a more high-fidelity prototype, and tested it on the computer. By approaching the problem through rapid iterations and alternations between design and research, they were able to explore many more ideas together. Aside from being effective,

this type of collaboration also ends up being much more gratifying than throwing a design, or research results, over the wall.

Assessing Design: On the Fly

Sometimes, there's nothing better than big numbers to validate a design decision that may seem trivial. As eBay was moving into certain Asian countries, there was resistance to changing the layout of the registration page form elements and associated instructions to match the vertical orientation found in eBay's global platform (see illustration).

Instead, the local team preferred



Should eBay change its registration page for the Asian market?

a horizontal orientation that put the labels and instructions to the left of the form element. There were no data to back up either position, as this was a new culture and language, so the matter was resolved simply by running a live test, where a portion of the people actually registering for with eBay were randomly assigned one of the two test conditions. Registration completion rates were chosen as the best measure of success. The differences were both statistically and practically significant, giving teams on both sides of the ocean a strong sense that they had made the right choice.

So what?

“What is good design?” The question comes up so often, and yet the answers vary with the personal views of the one answering. The answer to this partly depends on what is meant by “design”: i.e., the process or the product.

In terms of a well-designed *product*, my own view is that a good design is essentially defined by how well the

product works for its users. When you unpack what that means, it boils down to three things:

1. Whether it has the ability to meet their needs (conscious or unconscious);
2. Whether they are able to figure out how use it effectively (usability);
3. Whether they like it (the aesthetic aspect of its use).

Researchers can inform designers and assess their designs in these three ways by looking closely at the use of designs and examining both attitudes (what people say) and behaviors (what people do), as they interact with the product. Sometimes attitudes carry more weight, as with the aesthetic aspect. But behaviors matter more for other designs, as when assessing design usability.

In terms of good design process, a key ingredient is the blending of research and design activities together, at various stages of the process. Without these two arms of user centered activity working together, it can be a bit like driving a stick-shift with one arm in

a sling: difficult to move forward and easy to veer off course.

Ambidexterity

Consider one definition of *ambidextrous*: able to use both hands with equal facility. If you look at your two hands, you find that they are symmetrical but not identical. They fit into each other, fingers interlaced, in a way that two hands of the same kind simply would not.

So it is with research and design: They both seek to lead us to a better solution (or a better world) but through complementary alternating phases of very different activities—left-brained analysis and right-brained creativity. The question of whether a firm should start ideas with research or with design belies the strength of using both processes together, to inspire, inform and asses better products. 

