

DESIGNERLY RESEARCH AND PROBLEM DEFINITION: INSPIRATION VERSUS INFORMATION

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ABSTRACT

Given the terminological difficulty surrounding conceptions of “research,” this paper articulates a primary methodological division to create a space for valuable and unabashedly non-scientific modes of inquiry within the field of design. First, this paper will more firmly establish the designerly category of research-for-inspiration as differentiated from the more traditionally scientific research-for-information. Emerging from the authors’ experiences advising design students’ independent-study projects, this approach is specifically linked to issues of innovation that exist during the problem/opportunity definition stages of the product development process. Secondly, the paper will offer four general methodological categories of user-research to help define the range of research-for-inspiration. It is believed that this initial effort toward understanding designerly research is capable of alleviating deleterious misunderstanding and evincing the value and efficacy of such an approach within, at least, the “fuzzy front-end” of the design process.

Keywords: design research, inspiration, problem/opportunity definition, innovation

1 DESIGN RESEARCH (AS SCIENCE?)

The benefits of the emerging discipline of design research are also accompanied by certain problems. One such challenge affecting industrial design practitioners, educators, and students extends from the most basic issue of terminology—there is different language and understanding surrounding “research.” Confusion not only occurs within the discipline, but also is compounded as design engages with others. The various perspectives from engineering, marketing, anthropology, ergonomics, psychology, etc., create difficulties during collaborative product development processes, while lack of mutual understanding also becomes problematic when funding for design research is sought from traditional, scientifically-grounded agencies.

The great divide that seems to exist between design and the rest of the world is that research in more established disciplines generally extends from a scientific model with the demanding tenets of validity and reliability. Validity is understood as the degree to which a test measures what it is supposed, or purports, to measure [1], and reliability (a necessary condition of validity) is concerned with the consistency of measurement over repeated tests of the same subject under the uniform conditions.

While there is certainly work being conducted beneath the rubric of design research that is valid and reliable, this certainly does not account for all research within design, and it is not *necessarily* relevant for what might be understood as the most distinctive aspect of design itself. Here, the descriptive/prescriptive dichotomy proves useful. Scientific research and types of scientific design research are concerned with describing natural and human phenomena, which then can be extrapolated toward future circumstances, if desired. Design, instead, is prescriptive. It is not primarily concerned with accounting for the world as it was or is (though understanding that extends from description is often essential to its success), but with what could be. Design puts forth propositions for current and future conditions—this is what makes design distinctive and especially agentic. Sherry (2002) expresses the difference in that social scientific “[e]thnography lays bare the cultural erotics that consumers employ to animate the world of goods, and renders those principles accessible to creatives (designers, advertisers, and other visionaries) whose job it is to translate them into artifacts and relationships” [2]. How could visionary propositions ever be (upon instantiation) scientifically valid and reliable? Certainly they can emerge from valid and reliable information, but prescription defies these terms—they are simply not appropriate. Understanding this is the primary hurdle in imagining and articulating other forms of design research activity.

Approaching alternative notions of design research, the authors rely upon an important categorization recently discussed by Sanders (2005) [3]: research for *information* versus research for *inspiration*. The scientific approach discussed above is what may be considered design research for information (or “research that informs design development process”). Industry’s recent penchant for inviting social scientists, especially anthropologists, to perform applied ethnography is an example of this. By incorporating “valid” and “reliable” information about products, production processes, users, and acquisition and use contexts, industry hopes to mitigate risk of product failure and increase the possibility of a market success of future product designs. Indeed this approach is critical, especially in complex and competitive markets.

While often scientific researchers outside of design, or design researchers borrowing scientific method, are frequently the ones doing this research-for-information, designers are the ones most often working with research-for-inspiration. This work, Sanders states, is based upon tenets such as “relevance, generativity, and evocativeness,” and “is built through ambiguity and surprise, and draws primarily from the future and the unknown, using imagination as the basis for expression” [3]. With this distinction it is again important to stress that this type of research is not scientifically valid or reliable—but this certainly does not mean that it is not valuable, methodological, or rigorous. Indeed it is a critical part of the design process and one that designers are particularly suited for and also one that is woefully under-problematized. In distinguishing this research-for-inspiration from other types of design research or research employed by design, the authors denote such non-scientific research as “designerly research”—research that is most special and akin to prescriptive, future-oriented propositions (and which extend out from and compliment conventional notions of design activity).

A major terminological problem is that “research” has become so strongly associated with the scientific method. Non-scientific research is commonly thought to lack methodology and rigor and is therefore de-valued. As mentioned above, scientific

method has such high standards because it largely seeks a notion of “truth” toward which valid and reliable research will lead. While scientific research has many strengths, the standards of validity and reliability also introduce hindrances. So often scientific research, in trying to account for all the necessary variables in search of the truth and objectivity, focuses narrowly and creates a research condition in a laboratory that is false in the sense that it does not reflect the inherent complexity of the real world. The more realistic scenario reflected in an ethnographic investigation of, say, consumers’ homes introduces influential factors that cannot be controlled over the subjects being studied. One approach produces more objective information about a “false” scenario and the other provides subjective information about a “true” scenario. The more objective and scientific “truth” is approached, the less representative of real world conditions it is. The advantage of more subjective forms of research has to do with issues of relevance or translation of results to design directions. Often, the authors have seen in transdisciplinary product development teams, where researchers have produced valid and reliable research findings that the designers have great difficulty in translating into product directions.

So while subjective research is “bad” as related to scientific notions of validity and reliability, it still can be relevant and valuable, and perhaps even more so than objective results. This is true of inspiration, where the designer is the one who makes the final decision on the relevance and value of the inspired idea to the design solution. Questions regarding inspirational research resulting in successful outcomes are similar to those about informational research results—neither provides a guarantee. Nor are they exclusive research processes; ideally the product development process incorporates different forms of research best suited to the problem, context, and stage in the process. As Sanders notes, research for inspiration is best suited for the front-end of the design process. This is where perhaps the problem/opportunity is not yet defined or when the problem/opportunity directions are still broad. However, as research in the design process is recursive (cf. Laurel [4]), such research can (and probably should) occur throughout development.

While Sanders identifies research for inspiration as an important category, the question of methodologies demands further problematization. She mentions, “research practitioners in Europe tend to be more focused on research for inspiration,” where “practitioners from the US seem to be focused primarily on research for information” [3] (p.8). She cites cultural probes, “empathy probes,” “sketchy tools,” and “inspirational interfaces” such as video collage, meant to “evoke a sense of ‘presence’ in an inspiring design environment.” These are some of the relatively new methodologies, but certainly is not all of them; the question about categorizing the range of methodologies remains. The remainder of this paper attempts to sketch out a preliminary territory for this important form of research.

Sanders raises (but does not answer) the question of whether research for inspiration is actually research or just part of the design process. Here, it is posited that while inspiration may be inherent in the design process, specific research methodologies are distinct from the notion and can be incorporated into an overall protocol toward greater inspirational effect.

Here there is a challenge to notion that inspiration, similar to creativity, cannot be taught or enhanced. Certainly as designers move through the world or begin to work on a design problem they may (passively) become inspired or (actively) seek inspiration. Just as with creativity, some might have more inherent talent, but this does not mean that others cannot learn or that creative abilities cannot be improved by technique. Indeed the science of creativity supports this [5]. Here, the authors aim towards outlining approaches that foster inspiration in a way that moves beyond passive, “it will come to you” approaches or simplistic ones like “look to nature for the solution.”

The authors’ interest and experience in this topic extend from academic advising of dozens of graduate and undergraduate design students on independent-study projects, where students expressed a desire to work within a specific area or along a specific theme, but had not identified a design problem or opportunity. In some cases students would know that they wanted to deal with, for example, extending the functionality of cell phones within disaster situations, or address and integrate issues of immigration, acculturation, and furniture; but, they do not know what to do beyond this basic interest. This is the fuzzy front-end where research for inspiration is particularly suited to problem/opportunity definition as well as the initial phase of solving/development. Sanders notes the evolution of research in the design development process moving from generative research to evaluative research to experiential research, which is similar to the well-established “three research platforms” of Discovery, Definition, and Evaluation [6]. The argument, here, is while the fuzzy front-end of problem definition is closely associated with the early stages where discovery and generative research occur, this does not mean that the research methods associated with the other stages are not applicable. Issues of intentionality (inspiration or information) are the critical drivers rather than specific methodological processes.

2 RESEARCH FOR INFORMATION: METHODOLOGICAL CATEGORIZATION

In sketching out the (user) research-for-inspiration territory, there are four basic realms. The first is a *Knowledge Review*, which is closely akin to a literature review (critical to any scientific research project). Here, however, the notion of literature is broadened to include any form of media. The designer relies on secondary research as a means of inspiration. This method is perhaps the oldest and most obvious. Indeed as early as 1926 in defining the creative process, Wallas posits a four stage process: preparation, incubation, illumination, and verification, where preparation “includes clarifying and defining the problem, gathering relevant information, and becoming acquainted with innuendo, implications, and perhaps unsuccessful solutions...‘making the strange familiar’” [7]. With this, the creative process is seen to first include a form of research; here, this paper is problematizing Wallas’ preparation stage.

However, key to the *Knowledge Review*, and a divergence from Wallas, is that the intention is not to “know” but instead to be inspired by the information. While the material reviewed does provide a source of knowledge about a topic, which can be helpful for informational and inspirational ends, it is also helpful to review “paratopical” sources and sources beyond the designer’s knowledge base. An example would be a designer delving into academic journals from the social sciences, like a psychological article on possessiveness. Here the designer will encounter ideas and

concepts that she does not understand and discipline-specific language that is unfamiliar. Despite this, since the material is somehow related to the designer's area of interest, connections can be made, and new ideas can emerge. The distance and "noise" between the material and the designer's topic give rise to different perceptions. This process might be considered one of apperception, where sense is made out of an idea by assimilating it into her own body of knowledge. In this way the scientific method of literature review is appropriated for alternative ends.

The second category is *User Discourse*, which involves forms of deliberate interaction and exchange between users and the designer. Most prominent beneath this rubric lie many of the common types of focus groups, interviews, and surveys. While these are often associated with gathering information, without a specific problem/opportunity definition they can become more inspirational. Open-ended questions allow for more engagement with users and a more ambiguous or uncertain result, which is suitable for inspirational work. This is usually employed during early phases of generation and discovery when more specific issues are not fully apparent. Specific questions, however, may also be asked within such an interview, even though they are not formulated in a way to support the testing of a hypothesis. As most designers are not educated in the rigors of interviewing or survey/questionnaire construction, there is little concern that their methods lack a more scientific quality. (This of course does not mean that they should not be aware of the ethical issues involved with human subjects research.) *User Discourse* also includes many of the newer research methods such as cultural probes, camera journals, experience drawings, and collages.

The third category, *User Observation*, is also akin to current ethnographic methodology. Here the user, the user's artifacts, and the physical context are the object of inquiry. This observation may occur without interaction from the user, as is often the case with time-lapse video ethnography, shadowing, and fly-on-the-wall techniques, or may occur simultaneously as with immersive techniques as is common with participant observation. While *User Discourse* methods often are employed to reach deeper intangible issues, like uncovering values and motivations, visible artifacts are another helpful data source. While in a more comprehensive and informational research process, user discourse is augmented with user observation, or vice versa, as a form of data validation, with research for inspiration the additional costs associated with this are not necessary.

A final category is *Empathic Self-Assessment*. This is when the designer qua researcher gains insight into some aspect of the user or the use experience. These can include active scenarios where the designer encounters situations and experiences akin to users, or they may engage in more mental, imaginative scenarios. Common empathy tools for universal design include wearing dark sunglasses, thick gloves, and heavy clothing, or similar impediments to more adept use. Role-playing and more performative research methods, like bodystorming, fall into this category. These forms of research, because they are so highly subjective and the researcher becomes the instrument of "measurement", are less often confused with scientific and informative outcomes. Similarly, the emotional quality that is more likely with this of this form of research provides different type of data that fuels the cognitive inspirational design process.

3 CONCLUDING REMARKS

In approaching (user) research-for-inspiration and research for problem definition, the “results” often become detritus, and not necessarily or particularly useful later on with further design development. A great advantage of research-for- inspiration is that it can often be completed more quickly because scientific standards do not have to be met, e.g., researching user groups across the entire country in hopes of achieving a representative sample is not critical. The design as well as the implementation of the research protocol can occur much more quickly as well. And in fact, a research protocol does not even have to be completed to be successful—it can end when a valuable inspiration has occurred and the problem/opportunity can be defined. The biggest caution when conducting research-for-inspiration, especially when borrowing scientific methods, is that the designer should not interpret the research findings as “true” in the sense that what is uncovered is valid, reliable, and therefore generalizable. Research-for-inspiration is particularly suited for designers because it is lay research by scientific standards and does not require years of particular education. Designers are not only qualified, but their prescriptive goals are perfectly suited for this method of inquiry, which is not always the case with designers performing informative, scientific research that demands objective description.

Through this argument for the value of a particularly non-scientific research process and the rough categorization of methods that it might employ, research-for-inspiration is hoped to become a more rigorous field, and though augmented by creativity science, will become the particular domain of the design profession.

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