**About Need-Finding: Why It’s Important**

Looking for needs rather than specific solutions keeps all possible solutions open for consideration and avoids prematurely limiting possibilities. Need-finding researchers state needs independently of ways those needs might be served.

For example, a store clerk might need to get some boxes from a high shelf. Instead of stating that the clerk needs a ladder, a need-finding researcher would record that he needs access to boxes on the top shelf. The goal is to state needs in terms of a verb rather than a noun. The need leaves open possible solutions that range from using a forklift to rearranging the boxes to coming up with an entirely novel technology. Users often express their needs by describing a solution they hope might be implemented, precluding other solutions that they may not exist yet. Therefore, always state the need independently of how that need might be served.

Need-finding researchers are often designers trained in research methods or researchers taught how to conceptualize designs. In either case, these researchers are involved in both studying people and conceptualizing new products. This approach allows for a seamless transition between research and design. The research is guided by the information necessary for product development, *and the* *design work is conducted with a tacit understanding that could only be acquired by carrying out the research*. Translation between the research and design stages of a project is greatly reduced, and both phases of the project are more effective, knowing the requirements of the other phase.

Researchers obtain the richest information on people’s needs by observing and interviewing users first-hand. The researchers can then directly see many small but important details about the user’s activities and the context in which they occur—details that wouldn’t be available outside that context. By directly observing users’ activities, need-finding avoids reliance on users’ memory, descriptive ability, or awareness of a need. In addition, the user’s environment facilitates communication between the researcher and the user by allowing them both to refer to and use objects in the environment during the discussion.

LOOK BEYOND THE IMMEDIATELY SOLVABLE PROBLEM.

Researchers—especially designers conducting research—often don’t see beyond problems that they can immediately solve. This impediment unnecessarily limits the information gathered. To gain the full value of conducting research, need-finding asks researchers to record and analyze issues that may seem far beyond the scope of the immediate project. Recognizing and dissecting these deeper problems allows a company to plan for issues that should be fixed down the road, even when those problems aren’t currently solvable. A scooter manufacturer, for instance, discovered that customers were annoyed by how dirty their clothes got as they rode to work. Although this couldn’t be helped in their new scooter design, they still marked the problem as an issue that could provide opportunities for long-term innovation.

LET THE USER SET THE AGENDA.

Although researchers may go to the user’s environment knowing what kind of information is desired, it’s important to give the user leeway to guide activities and discussions. In need-finding research, customers control the proceedings—at least to the extent that their activities and discussions relate to the research topic. This prevents researchers from prompting the customer on what to do next, and keeps the study open to serendipitous insights.

COLLECT ECLECTIC FORMS OF DATA.

Information about people comes in many forms. A facial expression might express a person’s emotions better than her words. Keepsakes found in an office might reveal information about a person’s relationship with his work. Need-finding researchers record all these forms of data for later study away from the site, as analyzing data in the customer’s environment distracts the researcher from collecting it. *Researchers often pay special attention to contradictions between different sources of data, as these contradictions often mark unrecognized or unarticulated needs.*

MAKE FINDINGS TANGIBLE AND PRESCRIPTIVE.

Written descriptions alone often don’t make the customer’s needs real to those who haven’t been involved in the research. To make decisions based on the research, the findings must be presented in a vivid and actionable form. The needs are better understood when supplemented with drawings, photos, audio recordings, and/or video. Because need-finding leads to design, researchers also recommend what might be done to satisfy the customer’s requirements. Providing the results in a prescriptive, tangible form allows for a smoother transition between studying people’s needs and creating new ways to meet them.

ITERATE TO REFINE THE FINDINGS.

Need-finding uses many quick passes to study people, rather than one long research effort. This approach allows design work to proceed in parallel with the research. After each pass, the researchers offer a draft of the findings, outlining their current understanding of users’ needs and contexts. Preliminary design work can then begin, based on this early hypothesis. When more information is needed to complete a design, researchers return to the field to test their solution prototypes. As the researcher-designers gain a better understanding of people’s needs, they also refine the products created to serve those needs.

**What Is the Need-finding Process?**

These principles manifest themselves as an iterative 4-step process for studying people. They determine the approach used by researchers at every step of that process. The goals of each stage are described in general terms below, followed by descriptions of a few specific methods recommended to achieve them.

**1.) FRAME & PREPARE**

At this stage, determine the research goals, the user group being researched, and the specific sites to visit. These decisions focus the research and define a manageable scope for researchers to cover. Preparation before going to the customer’s environment helps researchers to know what questions to ask and what information to look for.

FRAME THE RESEARCH QUESTIONS

Before beginning any research, explicitly decide on the goals of the study. Determine the three questions, for example, that the research should answer. These questions may concentrate on topics such as how objects are used in the environment, how environmental conditions affect people’s behavior, how people within the environment interact with each other, or how different types of users might be classified. The search for answers to these questions then guides the researchers in gathering data.

DEFINE THE “NEEDER GROUP”

Needer groups, the groups of people being studied, generally have a mainstream core, along with sub-groups of extreme users. For example, eating is about as ubiquitous an activity as one can find in humans; yet within the topic of food, there are people whose needs are fairly typical and others with rather extreme needs. School lunch providers, survivalist campers, and astronauts have needs that are unique or more pronounced than those of the mass population. Studying extreme users can highlight needs that might not be noticed from studying only the mainstream group. Yet when a solution for these extreme needs is developed, it’s often adopted by the larger group. For example, “Tang” was originally created as an orange juice substitute for astronauts, but parents adopted it as a breakfast drink for their children. Another example is how Sam Farber noticed his wife was having trouble comfortably holding her vegetable peeler due to her arthritis. He wondered why ordinary kitchen tools hurt people’s hands. He decided to build a vegetable peeler that his wife could use. This mission turned into the renowned OXO kitchen products company. Studying only extreme user groups can result in overbuilt product specifications, so the general populace should also be researched to get a sense of mainstream needs. In the case of OXO, the mainstream needs (improving ergonomics in kitchen tools) were the same as people who have disabilities.

STUDY ESTABLISHED DATA FOR GROUNDING IN THE SUBJECT

There’s no sense in expending resources to rediscover information that has already been published. Study publications, expert interviews, and other established sources to grasp the current level of understanding on the topic. Go to the field only when secondary sources are well understood. As well as decreasing the cost of field research, studying secondary sources also imparts a basic knowledge of the user’s situation that helps demonstrate credibility to the needer group in later stages of need-finding.

**2.) WATCH & RECORD**

People are often so accustomed to certain problems in their lives that they become oblivious to them. When asked about the situations in which these latent problems occur, they frequently fail to recognize that the problems exist at all. Imagine a person asking a fish, “how’s the water?” The fish would reply “what water?” Directly observe people’s behavior in their own environments to gain a clearer understanding of their situations.

IMMERSE ONESELF IN THE NEEDER GROUP

Becoming a member of the group and immersing oneself in that group’s context gives designers an especially rich understanding of the group’s needs. That’s why many designs, such as bifocals, the Band-Aid, and the Post-it Note, originate from designers making products for themselves. With an intimate knowledge of the problem, the designer can make more-informed decisions about how to meet the needs he or she is trying to serve. Avoid intrusions to keep the behavior natural. Studying people’s activities inherently changes their behavior. Interruptions can change people’s workflow, and questions can make them reconsider their actions. In addition, people alter their behavior when they know they’re being observed, because they want make a good impression. To minimize these effects and keep users’ behavior as natural as possible, limit intrusions into their environment and actions. Wear clothing and speak in a way that’s appropriate for the subject’s environment. Refrain from inquiring about the activities being observed until after those activities have been completed. Use appropriate recording media. It’s often difficult to describe something using words alone—especially when trying to record large amounts of data in a short time. Use additional recording media to capture the richness of information in the customer’s environment so that it can be further studied later. Video, audio, photos, and drawings each offer different advantages. Decide what kinds of information will be important to the study, reasonably easy to capture in the customer’s environment, and minimally intrusive to the customer’s activities. Then proceed accordingly. Video allows one to later review real-time processes in detail. Audio recording captures environmental sounds and exact wordings more inconspicuously than video. Photographs portray images of reality that can be easily categorized and sorted for comparisons. Drawings can capture details invisible to the eye, such as obscured features and object cross sections. Drawing, in fact, be the only way a designer can record in a medical environment. Drawing is an important skill that should be cultivated by the designer. The activity of drawing removes oneself from the analytical mind and places her in a more intuitive mind-space. Through drawing we are calling on our nervous system to react to, and capture what we see. Often the energy in a room, the expression on one’s face, the awkwardness of a tool or work-flow may be captured more accurately through a drawing than a photograph. Drawing is essentially “learning to see.”

Record even the obvious or the seemingly unimportant. What’s obvious to one researcher might offer insight to another. Seemingly unimportant details sometimes turn out to be the key to a person’s needs. Don’t just wait for the “great” observations. Record complex issues that are beyond the scope of the immediate project or the team’s current abilities. Recognizing and dissecting these deeper problems allows us (or the companies you might be working for) to plan for the issues that should be fixed down the road, even when they are not currently solvable.

**3.) ASK & RECORD**

Observation alone can’t tell researchers everything they want to know. Observation may offer occasional indirect indications, but generally doesn’t give clear access to people’s reasoning and emotions. To better understand these motivating factors, interview people after the observed activities have been completed to understand the context in which those activities just occurred. Answers to questions and further discussions can give researchers insight into why a person acted in a certain way and what he or she felt during the observed situation. This is crucial information for determining people’s needs.

INTERVIEW IN THE USER’S ENVIRONMENT

Conduct need-finding interviews in context, while the issues are still fresh in the person’s mind. In these types of interviews, users can walk through the process under study a second time, explaining emotions and reasoning as they go. Also, both the researcher and the user can use relevant props in the surroundings to illustrate their points. These references to objects in the environment often trigger the user to recognize previously latent needs.

RECORD INFORMATION IN THE USER’S TERMS

When documenting a discussion with a user, record the person’s statements in his or her own words as much as possible. That person’s choice of words can carry meaning that would be lost if the researcher were to translate them. That said, though, the user may make statements that are too general to guide design work. In such cases, use follow-up questions to get to the desired level of detail, still recording the subsequent answers in the user’s words. Open-ended questions are especially useful for this purpose, as they give users an opportunity to describe situations in their own words. In addition, it is often useful to have users interpret video recordings of their own activities, explaining the motivation for their actions in their own words (we will be doing this during the debriefs of the medical simulations).

**4.) INTERPRET & REFRAME**

Once data is collected, the final stage of the need-finding process is to interpret the findings and revise the research questions. Information collected in the user’s environment helps refine one’s understanding and prepares the team for another iteration of research. Product development can then continue in parallel to the ongoing need-finding activity. Because need-finding is about studying people, as well as developing products, always frame interpretations in terms of what problems need to be solved to improve the user’s situation.

CREATE NEED POINT OF VIEW (POV) STATEMENTS *(user + need + insight)*

Translate the information collected into statements describing a user’s needs. Although some of the information will unavoidably remain as tacit knowledge in the researchers’ heads, as much of the data as possible should be paraphrased as written need statements. The better the user’s needs are understood and documented, the better the product developers will be able to make informed decisions in their design work. An example of a POV statement might be:

“Dr. Yamada (user) needs a way to improve her success of placing an intubation tube (need) because the current solution does not offer enough tactile sensory feedback to assure the tube has been placed properly which leads to anxiety and errors.”(insight) We might follow an insight statement with a “How Might We” (HMW) statement once we are moving into the solution phase. An example of a HMW statement could be “How might we create a system for intubation that augments a physician’s tactile and visual senses, reduces physician anxiety and improves outcomes?” (We will not be focused on HMW statements in this workshop, however, I still wanted to explain what the next step would be if we were to move into brainstorming solutions.)

CLASSIFY AND PRIORITIZE NEEDS

After the research data has been expressed as need (POV) statements, classify them by level of generality and place them into a formal hierarchy of importance. This hierarchy later guides decision making during the product development process, when tradeoffs can be made according to options that serve the more

important needs.

REFRAME THE RESEARCH

After observing and talking with a few users, one is likely to find that the research questions should change and the needer group might be redefined. For example, after beginning a study of how touring motorcyclists use and obtain the things they need on a ride, one might find that the needer group should be subdivided into bikers whose travel is generally limited to day trips, and those who enjoy longer journeys. Object use may differ greatly between the two groups. At the same time, new questions may emerge from the ongoing design work. The designers may find unanticipated issues that must be answered to advance the design.

CONCLUSION

Each of these four stages should be repeated to provide an increasing level of focus and detail. The process is analogous to developing a pencil sketch from a marker rendering into a solid-body model and finally a physical form. For each iteration, the activities are similar. Yet each revision increases the designer’s sense of certainty as he or she moves from ambiguity to clarification. Need-finding offers product developers a different dynamic for understanding users or “customers.” The methodology outlined here is a general overview of how those involved in product development can preemptively discover opportunities for competitive advantage. Need-finding is not the exclusive territory of any one discipline. The ability to discover important insights (needs) may suggest areas of innovation for designers, as well as new markets that await development. The result of practicing need-finding techniques can be applied to the recognition and refining of user work-arounds, all the way to inventing innovative new solutions that leap past incremental change.

References:

1) <http://www.jumpassociates.com/learning-posts/needfinding-uncovering-peoples-needs/>

2) <https://www.oxo.com/our-roots>