

Assessing quality of unmet user needs: Effects of need statement characteristics



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We demonstrate a front-end, user-centered method to prioritize unmet needs previously generated from large groups. Several hypotheses were tested: (1) Needs submitted first will be less likely to be high quality than needs submitted after a sustained period of time; (2) Semantically similar need statements will be rated as equivalent in quality; (3) Need statements will be rated as higher quality if a detailed description of the need context was available. Over 20 000 ratings for 1697 statements across three common product areas were analyzed. The results showed needs that first come to mind are not lower quality than needs that come to mind later and can inform early design phases to balance in-depth research and size of user groups.

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Developing successful products and services is unpredictable, but the process is aided by a thorough understanding of the needs of target users. The needs of any group can be a complex combination of technical, personal, and emotional content, and this is especially evident for large, diverse groups. Common needfinding methods often rely on in-depth or immersive interactions (e.g. interviews or observations) with a small sample of users, and often users are experts. In environments such as health care, where immersive study is particularly challenging, this approach remains commonly used in spite of limitations for reflecting the diversity of the user group (Martin & Barnett, 2012; Money et al., 2011). While soliciting needs from large groups might better reflect user diversity, one disadvantage is the subsequent steps to review and prioritize long lists of candidate needs.

This paper summarizes a web-based process to rapidly screen for high-quality needs out of a data set from previous web-based user needs collection. The high-quality needs from this screening may be candidates for further refinement during the project definition phase of the design process. A series of analyses measure the effects of need statement characteristics on quality ratings. Understanding what characteristics might facilitate capturing high-quality needs (directly articulated by users) will be valuable guidance for needfinding methods

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and may ultimately reduce uncertainty in the project definition. However, little quantitative evidence exists for this process. The quality-rating studies included participants discussing common topics of cooking, cleaning, and travel. The analyses herein test new hypotheses to fill existing gaps pertaining to need statement characteristics and the results validate novel, web-based methods as a means to implement early-stage needfinding or user research phases.

1 Background

1.1 Overview of needfinding

Needfinding is a process of capturing input for unmet needs of product and service users. The needs input can inform early development phases and subsequently be translated into requirements for features (Bayus, 2008; Patnaik, 2014; Patnaik & Becker, 1999; Ulrich & Eppinger, 2004). This early phase of design is described in many varying terms, partly dependent on the discipline of origin. Generally this can be described as the ‘establishing a need’ phase (Howard, Culley, & Dekoninck, 2008). There is not consensus on terms and bounds of each phase, so ‘needfinding’ is used here and elements of this process are described below.

In order to minimize bias originating from the design team, needfinding should go straight to the group of users itself. Product failures can often be traced to a faulty over-reliance on input from the design team or company managers rather than information directly validated with users (Kelley & Littman, 2001). Validating these assumptions often requires prolonged engagement to develop a deep understanding of the users’ actual behavior, because actions can differ from what is said. While validating user statements and needs can rely on qualitative observational data, additional quantitative methods have been evaluated to contribute to the early needs assessment and prioritization (Schaffhausen & Kowalewski, 2015a; Ulwick, 2002, Ulwick, 2005). The objective of needfinding is to be purposefully agnostic of solutions. A need statement can be more beneficial if it does not include embedded solutions. In this case, an embedded solution might be an invention, but this invention might be one of many alternatives to solve an underlying unmet need. Describing a solution too early can short-circuit the process of carefully defining a problem and thoroughly evaluating potential solutions (Patnaik & Becker, 1999; Zenios et al., 2010).

Any engagement with users also facilitates empathy for users, and empathy is critical for recognizing the needs and differing perspectives of users (Alkaya, Visser, & De Lille, 2012; Herriott & Jensen, 2013; Johnson et al., 2014; Kelley & Littman, 2001; Kouprie & Visser, 2009). Direct observation can have a particularly lasting influence on empathy in the observer (Patnaik, 2009), yet information on user needs can come from many sources. Direct

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