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The Use of the Delphi Method to Determine the Benefits of the Personas Method – An Approach to Systems Design

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ABSTRACT

A persona represents a group of target users that share common behavioral characteristics. The personas method, an approach to systems design, has been receiving significant attention from practitioners. However, only anecdotal evidence currently exists for the effectiveness of personas. This research-in-progress, a Delphi study of personas experts, attempts to reach consensus on the benefits of incorporating personas into design projects. This study also lays the foundation for future research by identifying variables of interest, and building construct validity through the definitions of items given by the experts. Experimental studies will validate if groups of subjects that are provided with personas design more usable systems than groups that are given data on the target users in a non-persona form. Also, planned case studies will concentrate on studying the use of and effectiveness of personas in the organizational setting.

Keywords

Personas, System Design, Usability, User-Centered Design, Empathy

INTRODUCTION

The usability of computer technology has been a subject of criticism since the early 1980's (Heckel 1982). Authors such as Landauer (1995) have pointed out that most computer technology does not incorporate the goals of the end users into its interaction design. User-centered design (UCD), a design approach where input from future users is incorporated during multiple stages of the design and development process, has been widely employed during the last decade and is viewed as leading to more usable and useful products (Vredenburg et al. 2002). Usability experts such as Nielsen (2000) believe that the involvement of users through the user testing activities of UCD leads to more usable computer systems.

However, authors have pointed out several problems with the traditional UCD approaches. Grudin and Pruitt (2002) state that UCD allows designers and users to have less than full engagement. Norman (2005) claims that too much attention to the needs of the end users can lead to a lack of cohesion and increased complexity of the resulting design. Norman (2005) also believes that a concern with

UCD is that too much of a focus on individuals might improve things for some people while making it worse for other individuals. Furthermore, Cooper (1999) claims that UCD is prone to capturing the individual quirks of users during the user testing activities, and the usability issues that are uncovered might not be generalizable to the broader user population.

Additionally, many websites, computer systems, and modern electronics are still plagued by usability issues, which give further anecdotal evidence that fundamental issues exist within the current design approaches. Nielsen and Norman (2000) report that 50 percent of users cannot perform even simple tasks on web sites. A Temkin and Hult (2005) Forrester Research report found that only 15 percent of financial service websites passed a usability evaluation. Kalin (1999) reports on a User Interface Engineering Inc. finding that 60 percent of users are unable to find the information that they are looking for on a web site. Even though the studies all point to the poor usability of web sites, usability issues also plague many common electronics. Bylund (2006) reports on a thesis by Elke Den Ouden of the Technical University of Eindhoven, which found that 50 percent of all electronics are returned because customers cannot use the device.

This research-in-progress focuses on the personas method, an approach to UCD that was developed by Cooper (1999), with potential to lead to decreasing the amount and severity of the usability issues that are still prevalent today. Pruitt and Adlin (2006, p. 11) define personas as, "fictitious, specific, concrete, representations of the target users". A persona represents a group of individuals that share common behavioral characteristics. Persona descriptions contain attributes such as names, occupations, families, friends, life stories, goals, tasks, and the environment (Grudin and Pruitt 2002). The persona descriptions are based on data gathered from the target user population during the pre-design phase. Once personas are created, design decisions are made using personas with minimal involvement from real users.

Even though the personas method has been receiving increasing attention from practitioners (Eisenberg 2005; Sinha 2003), the benefits of using personas have never been validated. Authors such as Cooper and Reimann (2003) and Grudin and Pruitt (2002) have proposed

diverse benefits of personas from their experiences with personas during design projects. This research-in-progress intends to gain consensus on the benefits of personas by using the Delphi research methodology. This study will be the first to survey the interaction design field and determine why the personas method has become an increasingly popular approach to interaction design. Also, this Delphi study will aid in developing future studies that test whether the use of personas leads to greater usability.

The rest of the paper is organized as follows. The following section presents a review of the literature on the personas method. After the literature review, the research question, and the details of the Delphi study are discussed. Finally, the last section of this paper elaborates on the significance of this Delphi study and how it is related to future research efforts on the personas method.

LITERATURE REVIEW

Origins of Personas

The development of personas is attributed to Cooper (1999). User profiles that were suggested by Hackos and Redish (1998), and user roles that were studied by Beyer and Holtzblatt (1998) are approaches that share many similarities of personas. Cooper and Reimann (2003) argue that personas overcome the central problems of user profiles and user roles by offering a more holistic model of users and their contexts. In the field of marketing, market segmentation is a process that incorporates personas. Cooper and Reimann (2003) point out that the main difference between marketing personas and design personas is that personas in the marketing field are primarily based on demographics of the target users, whereas personas in the design profession focus on the user behaviors and goals. Furthermore, the central goal of marketing personas is to understand how to create mass appeal for a product, while design personas help to define the actual product that will be designed.

Approaches to Creating Personas

Personas are based on data collected from the target users of a product during the pre-design phase of a project. However, opinions differ on what type of data and how much data should be used. Norman (2004) suggests that personas need to be created quickly with very little background information. Cooper and Reimann (2003) and Goodwin (2002) suggest that personas should be based on qualitative data, which is gathered from interviews and observations. On the other hand, Grudin and Pruitt (2002) suggest using a combination of quantitative and qualitative data, which may include data collected for other purposes such as marketing. Furthermore, Sinha (2003) suggests gathering quantitative data and then uses principal component analysis (PCA) to identify personas.

Even though there is a lack of consensus on the types of data that personas should be based on, the processes used to identify personas share many similarities. Data is always gathered from the target users during the pre-design phase, and this data is used to identify groups of target users that become the basis for the personas. For an example approach, see the process suggested by Goodwin (2002).

Proposed Benefits of Personas

Authors have proposed diverse benefits of incorporating the personas method into design projects. Cooper and Reimann (2003) propose five primary benefits of personas. Foremost, Cooper and Reimann (2003, p. 56) claim that personas determine “what a product should do and how it should behave.” Also, the authors argue that personas are a communication tool that can be used to discuss design decisions with stakeholders, developers, and other designers. Cooper and Reimann (2003) also suggest that personas build commitment and consensus for the design by providing a simple way of talking about user behavior. Furthermore, the authors believe that personas can be used as a tool to measure the design’s effectiveness because design decisions can be tested by using the personas and their associated scenarios. Finally, the authors claim that personas can aid other product-related efforts such as the development of sales plans. Cooper and Reimann (2003) report that some companies have used personas throughout the organization for informing activities such as marketing campaigns.

Grudin and Pruitt (2002) also have proposed a set of benefits of incorporating personas into design projects with some similarities to the series of benefits offered by Cooper and Reimann (2003). Foremost, Grudin and Pruitt (2002) argue that one of the primary benefits of personas is that they increase the general focus on the users and awareness of their work contexts. Also, the authors state that personas allow for extrapolating from partial knowledge about the target users into new settings and situations. Furthermore, Grudin and Pruitt (2002) believe that personas can be an effective decision-making tool because they make explicit the assumptions about the target audience. Also, the authors agree with Cooper and Reimann (2003) that personas serve as a means of communication. In addition to offering a common language for discussing the target users’ behaviors, Grudin and Pruitt (2002) add that personas enhance the retention and readability of information about the target users. Finally, the authors believe that personas increase attention for a specific target audience, and consequently identify the users *not* being designed for.

Validation of the Effectiveness of Personas

Practitioners such as Grudin and Pruitt (2002) and Cooper and Reimann (2003) have incorporated personas into their companies’ design processes and have found personas to be very beneficial. However, we are not aware of any studies that have validated the benefits of personas, and if

the use of personas does lead to the design of more usable systems.

RESEARCH QUESTION

The primary objectives of this research is to reach consensus on the benefits of personas, and to gain a more complete understanding of why personas could lead to greater usability through the determined benefits. Even though authors such as Cooper and Reimann (2003) and Grudin and Pruitt (2002) have proposed numerous benefits for the personas method, their opinions are solely based on using personas as part of their companies' design processes. Specifically, this research-in-progress investigates the following research question:

- What are the benefits of incorporating personas into design projects?

RESEARCH METHOD AND DATA ANALYSIS

Ranking-Type Delphi Method

The Delphi method is a group process used to seek and aggregate the opinions of a number of appropriate individuals (Millar 1984). The Delphi method first incorporates an open-ended questionnaire to gather opinions of the participants, and then through successive questionnaires asks for further information from the participants (Brancheau and Wetherbe 1987). The process stops when either consensus has been reached among the participants or when sufficient information has been gathered (Delbecq et al. 1975).

The ranking-type approach to the Delphi method that was proposed by Schmidt (1997) is being used for this research-in-progress because it overcomes many of the criticisms of the Delphi method such as not having a valid statistical measure of consensus. The ranking-type approach is composed of three phases: brainstorming, narrowing down, and ranking. Consensus among the rankings of the participants will be measured by using the Kendall's W nonparametric statistic, and Schmidt (1997) proposes that a Kendall's W value of 0.7 indicates sufficient consensus among the experts.

This Delphi study is being conducted electronically by using a custom developed web site, which allows the participants to submit their responses online. Traditional, paper-based Delphi studies suffered from long turnaround times and issues in mailing multiple surveys back and forth.

Expert Selecting Procedure

This research-in-progress used the procedure proposed by Delbecq et al. (1975) for a non-biased selection of the most qualified experts. The five steps in the expert selecting process such as the population of the knowledge resource nomination worksheet (KRNW) with names and the ranking of experts were followed closely to insure the selection of the most qualified personas experts.

RESULTS

The preliminary results of this Delphi study will be discussed in the presentation.

DISCUSSION

This research-in-progress not only takes the first step to empirically validating the personas method, but also lays the foundation for research that follows. Foremost, this Delphi study will aid in bringing about consensus on why the personas method has been gaining popularity in the interaction design field. The benefits of personas that are identified through this study will provide insight into why personas are being increasingly used by professionals.

The proposed research also will have a direct effect on future experimental design studies that measure if the use of personas leads to greater usability. Okoli and Pawloski (2004) propose that the results of Delphi studies help researchers identify the variables of interest, build construct validity through the definitions of items given by the experts, and increase the likelihood that the research that is based on the Delphi findings will be generalizable to different context and settings. The results of this Delphi study will be used to generate a series of constructs. One possible construct that has been suggested by authors such as Norman (2004) and Eisenberg (2005) is empathy. In the context of systems design, empathy means the identification with and understanding of the thoughts, feelings, and goals of the target users of a system. Through the creation of believable and lifelike personas, authors such as Norman (2004) believe that greater empathy for the target users is achieved than with traditional UCD approaches that do not incorporate personas. This Delphi study will help validate if the empathy-creating qualities of personas are truly a construct that needs to be considered in future research. Furthermore, the results of the Delphi study will also aid in identifying theoretical foundations that help to explain why personas could bring about greater usability.

Once the constructs and theoretical foundations are identified, future research will use the instrument validation procedures described by Straub (1989) to design experiments that measure if the use of personas leads to greater usability. The experimental studies will test if groups of subjects that are given personas will design more usable systems than groups that are given data on the target users in a non-persona form. The usability of the system will be measured with the ISO (1998) measurement of usability, which is composed of measures of effectiveness, efficiency, and satisfaction.

Future research will also concentrate on studying the use of personas in the organizational setting. Grudin and Pruitt (2002) suggest that the use of personas by high-level management and other key team members is essential to their effectiveness, and "grass roots" efforts that constrain personas to the design team have a smaller impact. Also, Cooper (1999) believes that a contribution

of personas is that they are a communications tool for discussing design decisions between programmers, marketers, managers, and programmers. The authors suggest that personas cannot be confined to the design team to fulfill their full benefits, but also need to infuse themselves into the communication and decision-making of all levels of a project team. Future studies will investigate the organization influences on the effectiveness of and use of the personas method. Through the extensive interaction with persona experts that will occur during the iterations of this Delphi study, it is anticipated that access to possible research sites will be gained.

CONCLUSION

Personas are a unique and promising design method, and researchers should not neglect the promising anecdotal evidence that currently exists. This research-in-progress will capture and gain consensus on the benefits of personas as experienced by personas experts. Future research studies will validate if the use of personas leads to the design of more usable computer systems and will study the organization influences on the effectiveness and the use of personas. This stream of research on the personas method will provide usability professionals with results that will either agree or disagree with the promising anecdotal evidence that currently exists.

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