The Problem of Defining Values: A Lack of Common Ground Between Industry & Academia?

Amanda Rotondo
Rensselaer Polytechnic Institute
110 8th Street
Troy, NY 12180
rotona2@rpi.edu

Dr. Nathan Freier
Rensselaer Polytechnic Institute
110 8th Street
Troy, NY 12180
freien@rpi.edu

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Abstract
The HCI community recognizes the importance of value-centric design methodologies as reflected in the number of publications on the topic in recent years. However, the adoption of these methodologies by industry has been slower than desirable. This paper seeks to uncover potential reasons behind this slow adoption by investigating the concept of "values" among individuals working as designers in various industries. Based on a survey of these design industry professionals, this paper reports that design professionals believe they do consider values in their design and hence may not see a need for a specific value-sensitive methodology. While design professionals clearly consider personal, social, and economic values in their work, there may be a lack of consideration of moral values. Implications and further findings are discussed.

ACM Classification Keywords
A.O General

General Terms
Design, Human Factors

Introduction

Several methodologies exist that provide tools by which designers can explicitly account for human values throughout the design process. However, though these approaches have gained popularity amongst academics within the HCI field, there is little evidence to suggest that such methods are being effectively adopted into industry settings. In this paper, we present the results of a study investigating the professional designers' conceptions of values, and whether or not they believe they are addressing value concerns in their design work.

Motivation

Value-centric design methodologies such as Value-Sensitive Design [15] and Values in Design [14] have shown themselves to be successful through various case studies in both academic and business contexts [7, 25]. These successes have been exciting and hope-inspiring for researchers working to make value-aware products and services more pervasive within daily life. Adoption of these methodologies within industry, however, seems relatively slow. This preliminary research employs a questionnaire designed to probe industry designers on their thoughts on "values" from their varied perspectives as a designer, an employee, and as a consumer in hopes of uncovering how prevalent value sensitive design practices are, and how those practices are conceived of by practitioners.

A Foundation of User-Centered Design

Value-centric design methodologies cannot be considered without first considering design as a user-centered practice. User-centered design as a field has been active since the 1980's, when Donald Norman exposed the ways in which design can go vastly awry when designers don't think about their users [15]. He underscored the need for designers to consider the actual humans who will be using their designs, and to create products that will work for those individuals. This approach differed from the popular notion at the time that "designers know best" by asserting that designs need to fit with the way people actually live, not the way designers believe they *should* live [15]. Moving into the Internet era, Jakob Nielsen proposed ten heuristics for user-centered design online. These heuristics are guidelines to keep digital designers accountable to their end users. In using the heuristics, designers are encouraged to privilege user experience over what might be easiest for them to create technically, or what might be considered the most "cool" [13]. Norman's 2004 follow-up book reiterates the importance of user-centered design and turns to look more closely at end user values (though without explicitly using the VSD terminology). In *Emotional Design*, he offers a three-level design paradigm intended to help create designs that users are proud to own, feel good about owning and using, and feel really work with their own self-image.

Differentiating Moral and Non-Moral Values

A substantial debate exists over how we differentiate moral from non-moral values, and to what extent, if at all, we privilege moral interests over others. Though there is an abundance of work that explores morality from both philosophical and psychological perspectives, for the purposes of this paper we focus on social-cognitive domain theory and the work of psychologists in this area [19, 21, 22].

Values and Design

Early research investigating how values play into the designs of computer systems and digital products specifically are largely centered around privacy and transparency issues [2, 4, 17] the ways in which groups can best work together in a digitally mediated environment [16, 19]. Many of these investigations utilized methods including participatory design methodology [11], cooperative design methodology [10], Reflective Practice [17], ethnographic inquiry ([3]; potentially troublesome per Dourish, [4]), or more traditional focus group/survey research type approaches [12]. Several other design approaches also keep an eye toward values and are important to consider. Notable among these are Reflective Design [18], Participatory Design [11], Values in Design (VID) [8, 9, 10], and Value Sensitive Design (VSD) [9].

It is important to note that value-centric design practices may require an additional investment of time and resources over design methodologies currently employed by many designers. Ideally, for both VSD and VID specifically, potential consumers are to be met with, interviewed, consulted with, iterated with, and generally brought along for the design process. The time cost and financial cost (presuming these people will not do all this for free) to taking on this level of commitment to a new process is prohibitive for much of the design industry. Beyond these costs, there are only more to be uncovered. Educating employees in the process, risking slower time-to-market because of the complexity of the process, etc. For a company concerned with profitability and return-on-investment (which is essentially every company) the process may be too demanding. In order for decision-makers to consider adopting a value-centric process, substantial documentation of the financial, cultural, and quality advantages need to exist. These data also need to exist in a format that is accessible to people in industry.

We conducted the following study to gain insight into why the adoption of value sensitive frameworks in general seems to be moving slower than hoped by researchers in this field. This study is intended to begin to uncover what gaps may exist in communication between the academic developers of value-centric methodologies, how values are perceived within an industry context, and what these may mean to the possibility of future adoption of such methodologies.

Research Questions

Our two main research questions focused on understanding how values are conceived of by designers, and what communication gaps might exist between professional designers and academics working with value-sensitive methodologies. Research question one is broadly exploratory in nature and reads (1) What particularities in the way designers conceive of values may be contributing to the slow adoption of value-sensitive design practices?

The second research question specifically asks about the communication channel between academics and industry professionals and reads (2) What communication gaps, if any, may be keeping scholarly approaches to integrating values into the design process from reaching an industry audience?

Method

A web-based questionnaire using surveymonkey.com was distributed to over 200 individuals who work as digital/electronic designers in some capacity, or have

within the last 3 years. Approximately 25-68 responses, with the exact number varying by question, were collected, with the majority of the respondents working in a Web design capacity. It was divided into four distinct sections: 1) basic demographics/background, 2) "as a designer," 3) "as an employee," and 4) "as a consumer." This allowed us to gain a more holistic view into the conception of values held by the respondents, as designers are also employees of institutions and are consumers of products, and each of these roles in some way involves an awareness of values.

Data frompurely quantitative questions collected were analyzed using statistical methods. For open-ended questions, the researchers developed a coding scheme using a randomly selected half of the data. Intercoder reliability for this scheme was assessed using Cohen's kappa [1] and was found to be k=.78.

Results

There are many possible and probable reasons for why value-centric design practices are generally respected in academic circles yet have not yet gotten a solid grounding in industry. First, information and "buzz" on VSD and VID is largely focused within academic circles, with most of the articles on the process appearing in academic journals and being presented at academic conferences. Respondents were asked *"How often do you read ACADEMIC journal articles on your type of design?"* and *"How often do you read INDUSTRY journal articles on your type of design?"* These questions revealed that the overwhelming majority of industry professionals who responded do not read academic journal articles very often. Ninety-three percent read academic journal articles *no more than* 3-6 times a year Conversely, designers reported that they read industry journal articles quite regularly. Sixty-five percent of respondents claim to read industry articles *at least* 3-6 times a year. Nearly 40% overall of respondents stated that they read industry journal articles more than 11 times a year. This indicates that for our sample, design professionals read significantly more industry articles (M = 3.82, SD = 1.19) than they read academic articles (M = 2.53, SD = 1.09), $t(68)$ = 7.61, p = <.001. These numbers indicate that the academic VSD literature may simply not be reaching the practitioners in industry who might then use it.

Looking more broadly at the workplace, designers do seem to weigh heavily the place of values in their jobs. When asked "Are the values of the company/organization you work for important to you?" followed by a rating scale from 1 (Not at all important) to 5 (Very important), responses indicated that designers do hold their company's values up as significantly important to them (M=3.98, SD=.94), t(47)=7.54, p<.001. Additionally, when asked "If the values of your employer are important to you, is it because (Choose as many as apply)" 41% of respondents reported that their employers' values played a part in their choosing to work for that employer, and 64% believe that they need to care about their employer's values to do their jobs well.

When asked *"Do you think it makes financial sense for your company to investigate the values of your customers/end users?"*and given a scale from 1 *(Definitely not)* to 5 *(Definitely),* responses tended significantly toward designers believing that there would indeed be a financial benefit to their company from learning about customers or end users' values (M=4.41, SD=.93), t(47)=10.29, p<.001. Designers

may therefore believe that an increased awareness of values, perhaps even the adoption of a value-centric methodology, could be a wise business move for their employer. This indicates that designers may support or even advocate for such a methodology should their employer show interest in value awareness, whatever the motivator of that interest may be.

In an effort to understand what tools might be useful as points-of-entry, respondents were asked "*Which of the following do you think might be somewhat effective in helping you keep end user/customer values in mind throughout the design process? (Choose as many as apply)"* and presented with several options Overwhelmingly, designers indicated that a "values checklist" could be effective as a tool to aid them in remembering to consider their customer/end user values. It is interesting to note that only a small percentage (17%) of designers thought that a complete overhaul of the design process, putting values in a privileged position, would be an effective approach.

Discussion

Encouragingly, designers largely respond positively to the idea of values as integral to their work. Many of them consider non-moral values regularly in their designs and specify that they even use the word "values" in their design meetings. By leveraging these existing conversations on values, researchers may be able to broaden the types of values considered by designers to include moral values. This also represents, however, a substantial communication roadblock to be overcome. If designers believe themselves to already be engaging in value-aware design methodologies, they may not see themselves as an audience for scholars' calls to integrate values into design. This may also indicate that value aware design is already in place, but in ways researchers may not have uncovered.

Another potential way to get these practices into use in industry is to concentrate on publishing articles and case studies in industry publications, which are much more widely read by design practitioners, rather than primarily in academic ones. In the writing of these articles, scholars must take care to address their audience as having some different concerns than an academic audience. Industry designers may be more concerned with how values-based projects affect client relationships, profit margins, and overall quality of product than they might be in the specific details and development of the process itself.

The reality may be that value-centric design practices might require an additional investment of time and resources. For a company concerned with profitability and return-on-investment (which is essentially every company) the process may be too demanding. The continuation of this research hopes to uncover what other barriers, if any, hamper the adoption of these methods.

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