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Abstract

Does using Value-sensitive Design and Participatory Action Design together guarantee a more appropriate technology solution than just one of the design processes? In this paper, I attempt to determine if Value-sensitive Design and Participatory Action Design together guarantee a more appropriate technology solution than one or the other. I look at similar research problems where Value-sensitive Design and Participatory Action Design were utilized separately, and attempt to gauge what, if anything, could be gained by applying Value-sensitive Design to Participatory Action Design and vice-versa.

Introduction

Participatory Action Design has been utilized for thirty years and has proven effective solving many problems [1], whereas Value-sensitive Design has emerged in the last decade and has been applied to various existing research problems fairly successfully [2]. Value-sensitive Design focuses on creating technology that is consistent with the values they determine to be important to the stakeholders. The process in Value-sensitive Design for addressing stakeholder conflicts is very thorough, but it lacks the utility guarantee that Participatory Action Design has. The opposite is true for Participatory Action Design. In other words, neither of these guarantee an appropriate technology. However, if we were to make a research process that involved first using Value-sensitive Design to determine what human values are essential, then Participatory Action Design to increase usability, an appropriate technology could be obtained. I think it's important to note that while

Background

The concept of Participatory Action Design began in the early 1970s in Norway, when computer professionals worked with members of the Iron and Metal workers Union to enable the workers to have more influence on the design and introduction of computer systems into the workplace. The workers were considered equal members of the design team, and they participated from the start of a project through its completion [1].

Participatory Action Design (PAD) was used in New York City to determine the importance of permanency in foster care programs. In this scenario, the end-users were people who were directly involved in the foster care process. That includes children in foster care, parents of children who have been or were in foster care, adoptive parents and child welfare professionals [3]. PAD was also implemented in a research effort to determine the effect of problem-based learning in health care professional education programs. The end-users here were the students enrolled in the courses [4].

Value-sensitive design was proposed by a framework proposed by Batya Friedman and colleagues in 1997. While many people believe that technology is value neutral, Friedman believes that computer technology and human values have direct links.

Value-sensitive design was utilized by Batya Friedman, Daniel C. Howe, and Edward Felton to explore the values associated with web-browsing. This was one of the first efforts to use Value-sensitive Design on a large-scale real-world network. The important human value that they determined as being under represented in web-browsing

was informed consent. They then went on to explore how simple changes in the technology mechanisms could make informed consent of cookies [5].

Waddell Borning developed a simulation package for predicting patterns of urban development. Borning broke down the wide range of values that they had to deal with into “explicitly supported values” and “stakeholder values”. The explicitly supported values were things they wanted to be directly in the simulation. Stakeholder values were important to some people, but not all [6].

Methods

The obvious and most important comparison is whether joining Participatory Action Design with Value-sensitive Design would yield a more appropriate technology. In order to do this, I broke it down into two cases.

The first case is when Value-sensitive Design was implemented on the research problem. The metric I used here was to look for the relationship between the human values and the usability of the technology. The relationships in the technology take on four different forms: First, a design can be good for usability and independently good for human values with ethical import. Second, a design can be good for usability but at the expense of human values with ethical import. Third, a design can be good for human values with ethical import but at the expense of usability. And fourth, a design good for usability may be necessary to support human values with ethical import [2]. The important ones to look at are the second and third relationships. If these relationships are present, then Participatory Action Design can help create a better solution.

The ability to involve the user in the design as well as the testing phases of a project will help resolve or at least find a balance in the two conflicts described above. Furthermore, it takes the decision away from the researcher.

The second case is when Participatory Action Design was used for the research problem. In this case, the comparison is simpler. If the resulting technology was critiqued because of a disregard for human values, then clearly Value-sensitive Design will provide aid.

An appropriate technology solution is a solution that provides utility while addressing other potentially grave concerns.

Results

Below are some of the examples where Participatory Action Design or Value-sensitive Design were used, and whether or not the implementation of the other research process would be able to help create a more appropriate solution.

Research Problem	Research Process Used	Additional Process Helpful
Informed Consent [5]	Value-sensitive Design	Yes
UrbanSim [6]	Value-sensitive Design	No

Informed Consent for cookies had a difficulty of providing a usable solution, because in the case that Informed Consent is perfectly served, you would be prompted for consent everytime a cookie would be added. This approach suffers from a lack of usability, as most users would probably find it too much work.

The UrbanSim application does not have any direct conflicts between the human values it determines as essential and usability, so adding participatory action design will not create a more appropriate technology.

Discussion

The largest shortcoming of this methodology is that it relies on speculation. In other words, we have to speculate as to how augmenting one research process with another will change the solution.

Clearly this is not a very exhaustive search or application of the methodology in this paper, yet it is suggestive that the research designs and models, while effective in their own ways, serve best as guidelines. There are many things that are not taken into consideration, however, such as the cost of adding participatory design to the end of your research process, or even whether the end-user is in agreement with the values you've decided on for the technology. Part of value-sensitive design is determining what values should be inherent in the technology itself, and if the researcher holds a different view from the end-user, things are unclear.

References

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Appendix:

Research Problem: Does Value-sensitive Design guarantee a more appropriate technology solution than Participatory Action Design.

Problem Statement:

Given a research problem, construct a way to determine if Value-sensitive Design yields a more appropriate technology solution than Participatory Action Design.

Operation Definitions:

An appropriate technology solution is a solution that provides utility while addressing other potentially grave concerns.