
Design Precepts for Responsible Innovation HCI Projects

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Abstract

In this short position paper, I propose four precepts for engaging in HCI projects with responsible innovation goals, based on over 10 years of experience working on research, design and service projects with homeless and at-risk people, industry professionals and non-profit service agencies. With the goal of developing a straightforward set of principles for responsible innovation practice in HCI, I would like to discuss these precepts with other attendees at the Towards a Responsible Innovation Agenda for HCI workshop.

Author Keywords

Design precepts; responsible innovation

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

Introduction

I have been working on HCI research, design and service projects with homeless and at-risk people since 2007. Most of this work has been with homeless young people, aged under 30, and non-profit agencies that serve their needs, although in recent years I have begun working on projects with older homeless adults. My work to date has involved ~500 homeless and at-risk people and a number of academic, industry and non-profit agency collaborators, is published in a number of venues and has been recognized with grants, awards and press coverage. The body of work is

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very broad, and includes co-design of a community technology center [2,10], research on information design [11], mobile phones [12], experiences with music [8], security and privacy practices [4,7] and pieces on precaution [9], an art exhibit [8], and a volunteer project to build phone apps for a street newspaper [1,3], among others.

Design Precepts for Responsible Innovation in HCI

Building on four dimensions of Responsible Innovation [5] I propose four design precepts meant to help guide practice toward being *anticipatory*, *reflective*, *deliberative*, and *responsive*. At first glance, these precepts may seem like common sense, although I have seen projects ultimately fail or never make progress when one or more of these design precepts have been overlooked. Additionally, my goal is to state a simple set of considerations that are helpful at the start of an HCI research project or program and may also be used to guide work as it progresses.

Anticipatory: Ask yourself if HCI design work is needed

It can be easy to assume that our expertise in HCI will be beneficial or helpful, especially when we think of doing work with people who society often views as being vulnerable or marginalized. However, at the outset, it is good to consider whether HCI design is needed in the particular setting or context. Broadly speaking, the question to ask (and to keep in mind as you proceed) is: Am I doing more harm or more good? There are many ways to go about doing this. I have found that scenario writing is particularly useful for reflecting on this question. For example, in one of my early projects, we considered whether to turn a paper flyer (with a map depicting service agencies and their operating hours) into a digital information resource [9]. After carefully considering the context and setting, we decided to leave the paper flyer as is since the benefit of presenting the information digitally (i.e. a digital system would potentially make it easier for homeless

young people to find services) was outweighed by the risk (i.e. a digital system would definitely make it easier for people with malevolent intent such as pimps and abusive parents to find homeless young people).

Responsive: Make a long-term commitment

Often our time is constrained by academic calendars, conference submission deadlines, funding availability and other factors. All of these can work against making a long-term commitment to a particular project, group of people, or service agency. Yet, almost without exception, the projects I've worked on all have to do with long-standing and largely intractable social issues (e.g. How can HCI projects make progress on the problem of homelessness?) that do not yield easily to short-term efforts with quick turnaround times. So, early on, I determined that the way forward lay in long-term commitments to particular agencies and groups of homeless young people, and these commitments in turn opened opportunities for new work and collaborations. For example, the work we did to co-create a community technology center for homeless young people included securing a grant for a local service agency then working with staff and homeless young people to develop and teach a course on the role of digital technology in finding employment [2,10]. Volunteering to co-teach this course, and ultimately working with about 100 homeless young people over 18 months, gave me an opportunity to learn from homeless young people about their experiences with information systems and technologies. The relationships that were created led to an NSF grant and a number of subsequent studies [e.g. 8]. Simply put, service agency staff and homeless young people were willing to continue because they saw tangible benefits from the projects and studies and knew we were in it for the long haul. This stood in sharp contrast to their prior experiences with researchers who wanted to do short-term projects with little apparent benefit to the agency or homeless youth.

Reflective: Be up front about what you will provide
Although we think about it every day, HCI design and research is not all that familiar to people outside our field. You need to be clear and honest about what your work will provide so that stakeholders' expectations are met. Again, this can be difficult given time, financial and resource constraints and limitations. But, I have heard often over the years from HCI researchers in academia who have done a usability study on a prototype and then have no response when a participant asks when they will be able to use the product since there is no money or plan in place to see the design through to reality. This can be particularly difficult when the technological intervention being tested is meant to fit the needs of people who have previously been excluded from the design process and it's important to remember that these unmet expectations can ultimately sour relationships between HCI researchers and the larger community. Having an agreement in place can help alleviate these difficulties, set expectations and ensure better outcomes. For example, in a volunteer project that I led, where Google employees made mobile phone apps for Real Change, a Seattle street newspaper sold by homeless and low-income people [1,3], a volunteer agreement was put in place so that the agency would know what was and was not provided and how long the volunteer commitment would last. Of course, many projects can proceed without a formal agreement, but getting deliverables and timelines down on paper can go a long way to increasing stakeholder confidence.

Deliberative: Find the right partner
There are a very large number of agencies that provide assistance to people who society considers to be vulnerable or marginalized. To date, I have worked directly with over a dozen agencies in the US, Canada and the UK. These agencies were both large and small with widely different levels of funding and numbers of staff. In all cases, I needed to be sure that the project fit the needs and abilities of the organizations since

little good would have come of proposing an expensive system for an agency with very limited funding, or putting a system in place that required manual data entry at an agency that had no extra staff to perform these activities. In all cases, although I had my own research questions and goals, I found it best for the agency and the people being served to lead the way.

Additionally, since the network of agencies who serve similar needs can be quite large and it is just not possible to work with everyone, partnering with agencies and individuals that have good reputations and connections can add to the power of the HCI work. For example, when the Real Change mobile apps were released to the public in April 2015, the agency's reputation helped garner media coverage [1,3]. Additionally, the apps we built were an important milestone for Real Change and for the larger street paper community (over 100 papers worldwide), since the apps were the first successful digital street paper and payment system in North America. So, we also reported on our efforts at the 2015 International Network of Street Papers Global Summit opening up deliberation about the benefits and risks of HCI projects to the global street newspaper community. This has resulted in a number of developments, including opening up the space for design deliberation among vendors of street newspapers and service agencies. This, in turn, led to the retirement of the apps we had built in favor of the use of readily-available third-party payment solutions [6].

Closing

I propose that these four design precepts, based on years of hands-on experience with HCI projects, will make a good starting point for discussion at the CHI 2019 workshop. I believe that they point toward an overall orientation to Responsible Innovation HCI as a practice, something that is not just theorized or spoken about but performed, becoming more and more a part

of mindset and HCI research and design approach as we move forward.

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