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What to Study in HCI: Beyond, Beyond, Beyond

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Abstract

Evaluation is considered one of the major cornerstones of human-computer interaction (HCI). During the last decade, several studies have discussed pros and cons of lab and field evaluations. In response we suggest moving beyond usability evaluations, and to engage with field studies that are truly in-the-wild, and are longitudinal.

Author Keywords

Longitudinal studies, beyond usability

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

Introduction

Evaluation of technologies is generally considered one of the major cornerstones in interaction design and human-computer interaction, and it is well known that most HCI design processes include evaluation as a key component. Consequently, the body HCI research holds a substantial amount of research on how to evaluate interactive technology, pros and cons of different evaluation methods, and different metrics for assessing usability (and user experience). Thus, usability evaluations have been a primary way of studying how

humans interact with interactive technology both in industry and HCI research.

However, over last decade we have seen an extensive growth in the use of technologies that are mobile, pervasive, or ubiquitous, and used in numerous and greatly varying contextual settings, i.e. work, home, play, and used by diverse user populations, i.e. novices and experts, old and young. This has also affected how we study technology in use, and while usability and usability evaluations still play a significant role in HCI research, we experience more studies where the objectives are different than in traditional usability evaluations. In our opinion, this highly affects *what we should study in HCI*.

Beyond in HCI

- Usability and usability evaluation
- Non-wild studies
- Snap-shot field studies

As a response, we argue that we need to *study* how we study technology use and re-focus our studies of technologies. We argue that we need to move *beyond* current ways of conducting technology studies. In our opinion, what we need to study in HCI is that we need to move 1) *beyond usability and usability evaluation*, 2) *beyond non-wild field studies*, and 3) *beyond snap-shot studies of use*.

We will elaborate these three perspectives in the following. We believe that we need to investigate and understand how technologies are being used and adapted in real world settings and therefore we need to conduct field studies. But we should focus our field study research to better reflect and embrace the complexity and richness of real world interaction with technology as suggested by Rogers et al. [3]. As argued by Brown [1], we need to address the reality of in-situ studies including innovation in methods that are not necessarily replicable.

We base the following suggestions in our previous work on research discussions on mobile technology evaluation [2], but re-focus to more broadly include HCI in general.

Beyond Usability and Usability Evaluations

Our first claim is that HCI research needs to move beyond usability and usability evaluations. For several years, we have focused on usability and usability evaluation when trying to understand interactive technology use. However, we would question whether usability evaluations are even what we ought to be doing in the first place when studying HCI?

In line with the argumentation by Rogers et al. [3] we think that a focus on usability simply fails to capture what it is that we really need to learn more about when we study our interaction designs in use. We would argue that after several decades of HCI research and design, we have become pretty good at designing interfaces that people can operate in various contexts. Usability is perhaps not the key research challenge anymore. Where the research challenge 15-20 years ago was to achieve usability for different technologies, e.g. on small mobile displays or on web pages, the research challenge today, and what we need to learn more about, is about designing services, devices and interactions that fit well into people's complex lives, for work and leisure, and that fit well with the abundance of other technologies that we surround ourselves with.

This entails a shift from designing for interacting with individual technologies, to designing for "orchestration" of digital ecosystems made up by a multitude of different systems and devices across ever-changing and overlapping contexts. Just considering using email

clients or Facebook on different technologies and in different use contexts and situations. For this challenge, we consider usability a basic condition like bug-free code. It will not get us there in itself, and therefore neither will usability evaluations. Also, we should not use usability problems as a metric when comparing the performance of one method against another.

Beyond Non-Wild Field Studies

Our second claim is that HCI research needs to move beyond non-wild studies conducted in a field setting. We see a strong need for carrying out studies of technology use in real-life settings and situations – also referred to as field studies. Moving beyond a focus on usability might be a useful prompt for approaching such studies in a different way. Typically HCI research studies have attempted to maintain or achieve experimenter control while conducting studies in field settings, which is often problematic and difficult to ensure. Rather than trying to “fix” the issue of limited control in the field by introducing experimentation, such as usability evaluations, why not consider going in the opposite direction and purposely let go of researcher control?

Rogers et al. [3] stress that traditional evaluation methods and metrics (derived from laboratory settings) fail to capture the complexities and richness of the real world in which systems or technologies are placed and used. Field experiments are fine as ecologically valid alternatives to lab experiments, but perhaps not as a controlled alternative to field ethnographies. The main value of the field is that it is real and perhaps messy (as argued by others), and not an amputated version of reality. That is perhaps also why the labels “in-situ” and “in-the-wild” have been adapted by some papers (e.g.

[1, 3, 4]) as they are really much better at capturing the essence of what field studies should be about. So, just like a lab study without control and replicability would be considered a poor one, a field study that does not really take the researcher into an uncontrolled real world situation is perhaps not a good one either. When going out of the lab, we ought to actually make across the parking lot outside our buildings, and go all the way in to the wild. Studies in the field should embrace the wilderness and not be half-tame.

Beyond Snap-Shot Studies

Our third claim is that HCI research needs to move beyond studies that are snapshot. Moving beyond non-wild field studies of mobile systems should include a third element namely being longitudinal. As another piece of legacy from the tradition of usability evaluation, we have grown accustomed to grounding our knowledge in “snapshots of use” rather than repeated and sustained use over longer periods of time. This is not only true for the lab, but also for several field studies, especially the growing body of field experiments, but also most of the ones using field ethnographies for evaluation.

If we are to address issues beyond usability (our first beyond claim) and truly embrace going into the wild (our second beyond claim), we should also start embracing longitudinal studies, perhaps even entertain the thought of sometimes sacrificing some of the direct researcher involvement in order to stretch out the time in use of our systems in the field. Studies like that already exist amongst the group of field surveys described earlier, with [5] being a prime example of a longitudinal study in the wild that does not focus on usability. We definitely believe that more studies like

that will give us valuable information on studying technology use (e.g. mobile, pervasive, or ubiquitous systems) over the coming years.

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