Four principles for selecting HCI research questions

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Abstract
In this position paper, I present and explain the position that what we should study in HCI depends on the objective of the research and its political, social, cultural, technological, and historical context. I outline four principles for selecting research questions and give a personal account of how I have selected research questions using these four principles. The aim with the paper is to generate discussion and advance the understanding of what to study in HCI.

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Research topic, context, principled account, personal account.

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

Introduction
The question "What to Study in HCI?" is timely and central for the development of the field. The position that I take in this workshop paper is that it depends on the objective of the research and its political, social, cultural, technological, and historical context, see for example [1]. An answer to the question can thus not be limited to consideration of the individual researcher's

choice of research topic, though it may appear as such, and I will discuss it as such in this paper.

Shortly said, the research questions that I try to answer usually concerns how HCI researchers think about their research and practice within various contexts. The purpose of this line of my research is to promote a reflective use of HCI research and practice throughout the world, and in particular outside Western countries. Secondly, I study research questions directly related to improvement of peoples' use of technology for work purposes. The purpose of this research is to improve productivity and innovation, and the psychological working climate in IT enabled work places. In this second line of research, I focus on research questions that are relevant to my part of the world.

The greater question about what is the universal subject of HCI and what questions researchers therefore should address is easy to answer for me. HCI is about creating new knowledge about people's interaction with computers. In my view, HCI may be about developing interaction designs and user interfaces, or methods for doing so, or about saving the world, but the universal subject of HCI is peoples' relation to information technologies. I believe that HCI research has been driven by the designer's or the researcher's needs, rather than the user's needs, see e.g., [2]. My position in this paper is that since HCI research and practice is part of a globalized world, the research questions that we address should be informed by both global and local societal goals and values.

In the sections below, I will explain my position by presenting a principled and personal account of how I came to select what I study in a number of cases throughout my carrier. While I do that I will hopefully convey an understanding of the context of my choices.

My background for doing HCI research

Currently I am a tenured member of the staff at a business school, which is one of eight universities in the country that I live in. I come from a lower middle-class family in a rural area, and got my university education late in life, in my thirties. I wanted to become an engineer (did not meet admission requirements), architect (tried it out for a couple of years, but got sick of drawing brick buildings), or psychologist (got it!). During my basic education as a psychologist, I was trained together with computer scientists, and I did my PhD on distributed cognition for the development of maritime IT systems. I was on my way to become a researcher in Human Factors psychology in safety critical areas. When applying for a university job, I ended up in the business school, where I for the first time encountered the HCI field. Since then, I have been doing psychological and organizational oriented HCI research for 15 years. The country that I have lived in during my whole career is a small welfare state in northern Europe. It is a part of the European Union. This context has shaped my view on what to study in HCI.

My principles for selecting HCI research questions

My position on what to study in HCI can be expressed in a few principles that I try to use as a guide:

#1 Your research should be improve the life of other people and improve the society that you live in.

Since universities in my country per default sponsor research time for faculty, I do usually not apply for grants because of the money, but because of wanting my research to meet societal needs. Thus I am happy to apply for EU's research programmes, e.g. Horizon 2020, because they are formed in a democratic process to state future societal needs for the European Union. I give input to our national representatives in the EU research agenda shaping bodies, I take part in government initiatives related to that, and I lead, support, and participate eagerly in any attempt to get EU research grants that I can. This is not always easy, since there are many barriers and few incentives to do this, but it is something that my society wants. I try to search for and bend my HCI research questions to fit into these research programmes, which traditionally is made for technical IT research.

Similarly, I am happy to apply to national research agencies, both independent research and strategic research agencies. In both cases, I am required to state in the application how the proposed research is important for my country or region and its industry. I feel this is a justified requirement. It is however not always easy to see how the research questions that are important for a small country can be of significance to the global HCI community. For example, I have studied the question: *In the area of greenhouse climate management,* h*ow do empirical work analysis (studies of work and the workplace) inform and interact with paper design sketches and functional prototypes?* This is not only a question of rigour or relevance of the research, but sometimes a problem of explaining to researchers from elsewhere why the research question is significant. It is not in all countries that the horticultural sector is suffering from problems with saving energy in greenhouses. Furthermore, there are unusually high percentage of small companies in the horticultural sector in my country, and the research outputs need to be useful for them (e.g., simple and low cost).

Thirdly, I spend time and money to take part in what I believe are truly international HCI research communities. The reason I do that is to help develop HCI research questions that are either globally relevant or relevant to parts of the world with little HCI research so far. Thus I am the national representative for and go to meetings in IFIP (International Federation of Information Technology) Technical Committee on HCI.

#2 Do not pick on the weak

Related to #1, I believe some HCI research questions should NOT be selected. An example from outside the HCI field is a medical professor in my country who repeatedly do research projects on male circumcision, and recently proved that this is related to autism, see for example [3]. While this research might be scientifically sound, the topic itself and the research outcome has been used in Islamophobic and anti-Semitic political discussions. Within HCI, I believe an example of violation of this principle is the research done on appropriation of western software in India. This research in my view supports the marketing and use of western products in India on the expense of the developing the all important local software industry in India. Obviously this research can be done from local perspectives and to the benefit for the local people, but this choice of research topic is something to think about.

One of my choices of research topics has been cultural usability and here I have studied the question: *What is the impact of culture on the results of established methods of usability testing?* This has been difficult, both due to the inherent racism, essentialism, and evolutionism in the concept of national culture, and because of the risk of supporting too much the development of western style usability professionals locally. What I try to do to overcome some of the difficulties is to collaborate with my equals or superiors in research – colleagues, professors - in the countries that are involved in the research, and to learn from them what to study.

#3 Stick to what you are qualified to say something about.

This principle is about respecting your own qualifications whatever they are. In my view, a HCI researcher's educational background shape the way that he or she perceives the users of the future interaction design [4]. My educational background is in psychology, though mixed with some computer science. Because I am working in HCI, I am not updated on newest psychological research in any subfield of psychology, but I do have the general background for understanding psychological knowledge, and I try to regularly get involved with psychologists both outside and inside HCI. Outside HCI I can for example take part in discussions about what intercultural psychology is or should be, and then use this in my HCI research. Inside HCI I try to do research with partners with a background or interest in psychology, and together with them select HCI research questions that we can address as psychological questions, e.g usability, UX, how people think about and experience technology, and social psychological phenomena supported by technology.

#4 Respect the sponsor of your research

HCI is a transdisciplinary area that create new knowledge across traditional research disciplines. That means that HCI researchers come from different research institutions with different traditions, e.g., technical, natural science, social science and humanities faculties. In order to keep HCI open and innovative and transdisciplinary, it is important to listen to others and not let any field or organization dominate the HCI research community. As I see it, currently HCI is dominated by computer science and design fields, and by major US companies' needs, as reflected in the disciplinary background of HCI authors, the affiliation of conference organizers/program chairs, and the economic sponsorships of conferences. There is not necessarily anything wrong in that, except that there should be more room for other kind of sponsorships (in a broad sense of sponsors) of HCI research.

For example, from my particular perspective, HCI also encompass organizational HCI and business HCI, and I would want the HCI community to collaborate more explicitly with the Information Systems (IS) HCI community. This is already an ongoing effort, see for example [5][6]. However, more could be done in terms of acknowledging that different scientific faculties have different traditions for what count as good research and relevant and rigorous research questions. Personally, I take part in both IS and HCI communities and support conferences and workshops and journals related to HCI in both areas. In my choice of research questions I do tend to go in the direction of socio-technical questions,

which is something my university department has had a strategic research interest in since the 1980ties, see [7, 8].

Other principles

There are a few other obvious principles for what to study in HCI that I will want to mention because they may sometimes override the previously mentioned:

#5 Stick to a few scientific concepts throughout your carrier.

Generally, experienced researchers give the career advice that you should stick to a few scientific concepts during your career, so that you can become, and become known as, an expert on those.

#6 Make a contribution to a research community.

This is what reviewers would want to see, so a research question can be selected simply because reviewers can be persuaded that this is an important question. The implications of this principle is not something that I am able to think through.

Conclusion

In this position paper, I have tried to present and explain the position that what we should study in HCI depends on the objective of the research and its political, social, cultural, technological, and historical context. I have outlined four principles for selecting research questions and given a personal account of how I have selected research questions using these four principles. The aim with the paper is to generate discussion and advance the understanding of what to study in HCI.

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