Lost—or liberated?—without theory

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HCI is diverse and rapidly developing. Should we celebrate its diversity, or should we require it to have a clear theoretical foundation? And, whatever our view of the discipline itself, how can we support each other (and especially our students) to work to high standards as the discipline develops?

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1. THE WORKSHOP

What is your conceptual framework? Why is your work valid? What is your theory?

Many PhD students, whose work is most sensitive to these questions, start out with a fairly well-defined research problem, often provided by the project funding the research. Finding a suitable theoretical or conceptual framework (and methods consistent with that framework) with which to address the research problem is, however, a very complex and difficult issue. Indeed, the relations between different theories, and between theory and application within HCI has long been a source of frustration, debate and problems [1–6].

This workshop will focus on some of the problems related to theory and the application of theory within HCI research. The workshop will make authoritative and positive recommendations to the community. The workshop particularly addresses the difficulties facing PhD students as well as researchers trying to navigate in a multi-disciplinary and multi-theoretical research area.

There are very many theories and theoretical frameworks within HCI with different origins and traditions. In other areas like biology that have longer traditions (and a more stable world to research!) there are pretty clear subdisciplinary boundaries, and people can be clear they are botanists, geneticists, or biochemists without difficulty. It is rare for a competent botanist to be told that they ought to be studying cetaceans and that their work is bad until they do so; there may certainly be some interesting botanical issues with cetaceans that might be worthy of study — but that isn't *all there is* in botany. Fanciful as that criticism seems, it or something similar happens all the time for both young and experienced HCI researchers. Many successful HCI researchers often learnt the rules of how to be successful within a *single* discipline (e.g., as undergraduates) before entering HCI; possibly they now impose these traditional criteria on others.

In HCI, the boundaries seem to change continually: in the 1970s we were after principles and organisational issues; in the 80s we were after model human processors; in the 90s, phenomenology and situated action reigned; in the 2000s we have moved to activity theory and grounded theory — and the field has started to split, represented by the very different flavours of HCI, CHI, DIS, DSVIS, and so on. Grudin [3] is a mature and recent review of the main issues; Thomas and Thimbleby [7] is an example of alternative proposals, in their case suggesting there needs to be a "new usability" since the present one has problems.

HCI includes designers, computer scientists, anthropologists, and psychologists as some of the major stakeholders. How do the different community traditions impact on HCI in practice? How do we address the problem of the incommensurability of different theoretical frameworks? Can theory itself be interdisciplinary? Few would argue that the theoretical framework underpinning software engineering approaches can be seamlessly merged with the social constructivism underpinning, for instance, anthropology. Yet HCI borrows extensively from both areas, and in a practical research or development project the different approaches often have to cohabit.

A cynical observer might say the field is expanding faster than any competent person can keep up with! Is this diversity a key part of our discipline as we naturally develop better theories that usurp older ones, or is it sometimes destructive, and if so what can we do about it? How can we do good research, recognised as such by specialists, yet remain true to inclusiveness?

If we fail to address these questions constructively, HCI will continue to be ignored by the world (which seems to be progressing fast enough without our help), while our internal criticisms will undermine any claim that there is a body of reliable knowledge, and on-going and future research that can make our complex world a better place.

1.1 Contents of the workshop
The workshop will particularly address the following issues regarding theory within HCI.

- A review of the role of theory and its relation to method and consensus in science. What are the main meanings of theory, as in a mathematical theory or a grounded theory etc? What does theory provide?
- What does a theory within HCI need to address? Brooks [8] suggested three criteria for HCI theory to be of any value to design. Theory must provide (*i*) a comparative understanding over many domains, (*ii*) high level analyses that enable the evaluation of major design decisions and (*iii*) information that suggests actual designs. Are these the criteria we want to use for HCI? Should every HCI contribution do *all* of them at once? Is there more to HCI than understanding Brook's goal of informing the design process so that the designers/developers can construct a system?
- How can theory relate to practice, how can it help frame research problems, provide methods to research them, and analyse the results? Is "usability" (e.g., as practiced by industry) a quite different domain — like market research compared to psychology or economics — that should be held separate, or is it applied HCI subject to the same ideal criteria?
- Most disicplines hold that good research must be grounded in theory and that to do so requires skilful researchers and practitioners. But there is no real agreement on *how to* apply theory. While some research traditions require that theory precedes and frames the inquiry into the research problem, other traditions apply theory in a more iterative manner, where particular observations may point to specific theories that can be applied "after-the-fact" — grounded theory and (some) mathematics being at opposite ends of this particular spectrum. What counts as good science and good application of theory in one tradition is rejected as "poor science" in others. How does the individual researcher navigate in this "space" of incommensurable approaches?
- Practical advice for researchers (whether for theses, papers or proposals, or for public understanding).
- Issues as raised by participants in their position papers.

1.2 Organisation of the workshop
The leaders of the workshop will edit participants' position papers into a coherent initial document that will be distributed before the conference.

The workshop will primarily be based on group discussions and breakout sessions. The participants will give a *brief* presentation of their position papers and throughout the workshop constructively debate their main questions and issues.

The workshop will prepare a panel presentation for the main conference, and (so far as possible with the longer term help of the participants) edit an authoritative contribution with the intention of submitting to a major journal or conference in the future.

The workshop participants will be invited to join in and support a research proposal for a future international workshop to strengthen and continue the progress made. (We already have the draft of one that was very strongly supported by two referees but rejected by one, and thus was not funded on the first attempt!)

For more information on the workshop, please see http://www.it.uu.se/research/hci/HCI2005-WS.

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