Rigor and Relevance: Knowledge Production in Interaction Design

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Abstract
Interaction design calls for rigor and relevance in its knowledge production. Given the diversity of theories, processes and design contexts within the field, there is a need for further development of appropriate theories, frameworks and concepts that aid better integration of design and research. I believe that multiple options are needed, depending on the main orientation (research or design), intentions and desired outcomes. Intermediary forms of knowledge such as bridging concepts, strong concepts or generic design, as well as pluralistic approaches related to arbitrage and bricolage, could all offer a good start in building a more comprehensive conceptual toolbox for this purpose and increase rigor and relevance in knowledge production.

Author Keywords
Contribution; knowledge production; prototyping; design classes.

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

Introduction
Educated as a mathematician, with art and design programs taken alongside graduate studies (and later work), I have long wondered what am I - a scientist doing design for pleasure, or a designer making a living by doing science. Interaction design offered a possibility to integrate research and design, although no longer at a personal level only.

In [1], Owen proposes a model for knowledge production and use depicted in Figure 1.

Figure 1. The dual nature of knowledge building, Owen [1].
Within interaction design, the research (finding, discovery) and design (prototyping, making) are often intertwined, involving knowledge of *techne* (programming, digital crafting), *episteme* (theoretical grounding) and *phronesis* (practical design knowledge). Production of new knowledge within these three (or any similar distinctions between knowledge forms) is also expected. Situation is further complicated by multiple roles interaction designer often assumes (researcher, designer, programmer, crafter). However, he/she may have a personal biases towards, or different levels of expertise in, either finding or making [2].

Figure 1 makes another important point: realms of theory and practice are seldom balanced in a field. I remember with fondness Papadimitriou’s paper [3], where he discusses the relation between theory and practice in the field of data bases, summarizing what a good theory is, how applied science looks like during the ‘normal’ phase (ref. Khun [4]), and what is the equivalent of ‘crises’ in a non-natural, applied science field of data bases. The ‘crises’ was identified as the lack of connections between theory and practice, and represented by a directed graph with very few paths between theory and practice, while many paths existed within both theoretical and practical domains.

Table 1. Summary of the discussion on what constitutes a good contribution to the HCI Design field, in particular related to prototyping, held in December 2014 at the research group.
Direct bridging of practice and research may have some success [10], and may facilitate application of theory in practice and integration of results from practice with theory within a specific domain. It is an interesting direction to explore in interaction design, when design-oriented research is used [7], [8]. I could make a similar statement about other forms of intermediate knowledge [9], [11], [12]. Yet, there are other possibilities as well.

I would suggest, in addition and complementary to intermediate knowledge forms, arbitrage and bricolage as pluralistic approaches to bridging the theory-practice gap.

*Arbitrage* is a concept used in economy and has to do with price negotiations where one capitalizes on striking deals that profit most from imbalance between prices on similar items at different markets. Translated to interaction design and proposal to introduce intermediate knowledge forms, one might want to strike the optimal balance for similar work in terms of capitalization on differences in knowledge among practitioners and researchers, working closely together. Over time, this strategy could increase links between research and practice in interaction design.

*Bricolage* and *assemblages* are terms used by Levi-Strauss [13], and many others. I have experimented with use of bricolage practice, as well as assemblages of skills, practices and materials within an interaction design course, where these concepts appeared to be very useful for teaching science students (HCI students) to support creativity and better understanding of a design practice [14], [15], [16], while also improving their analytic skills. Essentially, using assemblages of diverse knowledge and skills within a team, through a process of arbitrage, optimal approaches to solving real life problems in interaction design were negotiated (although not necessarily achieved).

In conclusion, my contribution to the discussion at the workshop is a proposition to use, in addition to intermediate knowledge forms, arbitrage, bricolage and diverse assemblages to support and understand knowledge creation in interaction design.

**References**


