

# Design Oriented Knowledge Production

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Improving the Relationship between Research and Practice in Interaction Design

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Recent years funding structures in Danish IT-research have emphasized collaboration with private enterprises as mandatory. We should expect this situation to mean an improved relation between research and practice also in interaction design and HCI. This is, however, not always as easy as the politicians seem to imply. Below I discuss academia-industry collaboration based on experience from a smallish collaboration project that will be analyzed from the point of view of research and practice respectively. Finally I discuss how a practice-oriented epistemology based on the concept of design artifacts may be helpful.

In a past project (Bertelsen et al 2003) we collaborated with a relatively small (compared to the big actors like Rational) manufacturer of commercial ovens for restaurants, institution kitchens, and in shop applications. This case is interesting because a lot of design decisions were already taken when we were engaged.

The problem, we faced in the beginning of the oven project was that we as researchers needed industry collaboration in order to get our research in pervasive computing funded, and that the company on their part had come to a point where they needed state of the art HCI competencies systematically involved to develop their, traditionally mainly mechanical, products to maintain attractiveness on their markets. The company assumed that we would come with our HCI expertise and infuse that into their coming product by fine-tuning the interface they had envisioned and already stocked parts for. In that way, our initial role was that of doing very limited consulting work.

The general mismatch, exemplified in this case, is that most of the companies in Denmark are SME's who do not have a research department and often not even conduct their development work in-house, but at the same time it is assumed that forefront research should be conducted together with private companies.

Through involvement of a student in the oven project we were able to provide the consulting work in a way that was relevant for the involved parties. In that set up we ended up with research results that were not directly relevant for the company, and the company on the other hand got access to the insights gained from a very open ended process in addition to the standard HCI competencies they otherwise did not have access to.

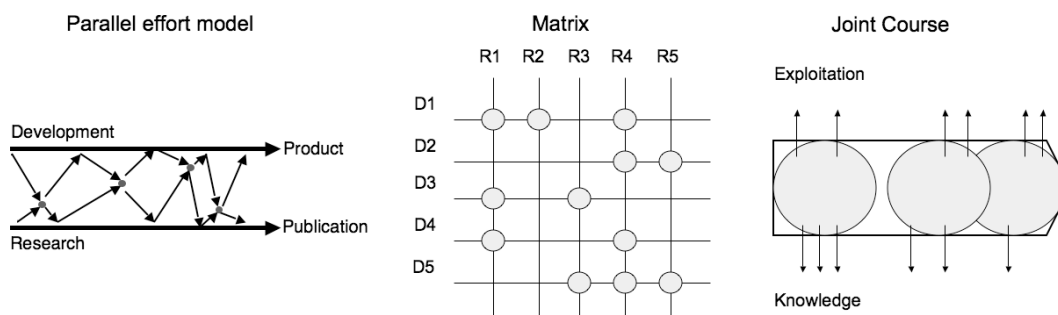


Figure 1: research-industry collaboration models

The kind of collaboration that the oven project illustrates can be represented graphically with the models presented in fig 1. Such models are useful for ensuring that activities in collaboration projects make sense for all parties. However, because they are based on the idea that knowledge is

to be transferred from research to practice in a one directional process, they don't provide a good basis for planning a more dialectical relation between research and design.

The interesting question is how it is possible to make a tighter coupling between knowledge production in research and in practice. Based on the last 20-30 years of user involvement in design and research it could be suggested that knowledge production and consumption might not be a unidirectional process.

Doing research in relation to practical design is not only beneficial because practice generates all sorts of interesting problems; there is also a deeper epistemological reason for a tighter coupling. How do we attribute validity to research? How do we decide if a theory is valid or not? Such questions are normally dealt with as universally answerable in the philosophy of science. In relation to knowledge production in interaction design and HCI (and probably a lot of other fields), however, the validity issue tends to be complicated by the fact that knowledge is produced with a purpose. Knowledge is not produced just by unveiling the world; knowledge is produced in order to enable, and in interaction with, productive action in the world. Thus, we cannot separate the production of knowledge from the application of knowledge. In a design oriented epistemology the results of research including theories should be assessed by assessing how they mediate design (Bertelsen 2000).

Such a design-oriented epistemology is a challenge to research, but also to the way industry-academia projects are organized. Collaboration projects should not be constructed with the traditional knowledge transfer model in mind (as was the case in the oven project) but rather be based on the assumption that design oriented knowledge should be co-constructed together with engineers and designers as well as the end users. A new research model should take the actually existing SME's, and their specific needs, as the basis. More concretely, companies in a region could establish joint design and evaluation resources. Such a centre could then provide researchers with a possibility of engaging more systematically with the small companies, and thereby developing e.g. new ways of packaging knowledge for designers in collaboration with designers.

## References

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