

Aligning Research and External Stakeholder Agendas in Collaborative Interaction Design Projects

Peter Dalsgaard

Department of Information and Media Studies & Center for Digital Urban Living
Aarhus University
dalsgaard@cavi.dk

ABSTRACT

In collaborative interaction design projects involving researchers and external stakeholders, there is an inherent risk that conflicting agendas may lead to outcomes that are not mutually beneficial. This paper examines how the interests of researchers and external stakeholders may be aligned around joint experiments that are at the intersection between researchers' agendas of exploring research questions and external stakeholders' pursuit of specific strategies or contractual commitments. The contribution of the paper is an extension of the notions of question, program and experiment as proposed by Brandt & Binder (2007) to include the external stakeholder perspective; furthermore, the paper explores how series of experiments can be combined in long-term research projects.

Author Keywords

Interaction design research, research questions, research programs, experimental design research.

ACM Classification Keywords

H.5.2 [Information Interfaces and Presentation]: User Interfaces – Theory and Methods, User-Centered Design.

INTRODUCTION AND BACKGROUND

Interaction design research is an umbrella term that covers a heterogeneous field of research agendas and approaches. In recent years, a number of contributions have addressed this heterogeneity by distinguishing between different types of design research (e.g. Frayling 1993; Laurel 2003; Rogers 2004). One of the recurring topics in these contributions is the debate of how to position design research in relation to design practice. In some cases, interaction design researchers can plan and carry out research experiments and inquiries in projects that they control themselves; however, in many cases researchers join forces with partners outside of academia in collaborative projects. This can happen for a number of reasons: researchers may seek to explore projects of a scale that demands external partners; they may wish to study co-design or participatory design methods that involve external stakeholders in the design process; they may wish to study the use of interactive systems "in the wild"; or it may be prompted by research funding policies

which in some cases favour collaborative projects that encompass researchers, private industry and/or other institutions and organizations outside of academia, e.g. cultural institutions or hospitals.

In such collaborative projects, there is an inherent risk that misunderstandings and miscommunication regarding the agendas of the involved partners may complicate the relationships between researchers and external stakeholders. Fallman (2005) addresses this topic and articulates the notions of *research-oriented design* and *design-oriented research* in order to distinguish between diverging agendas for combining research and design. Research-oriented design refers to design projects in which research is employed in order to generate knowledge inform and improve the design of a product. In contrast, design-oriented research refers to a research process in which the researcher's involvement in design activities functions as a way of producing knowledge for use in research. These notions are apt for outlining the potentially diverging agendas of participants in collaborative design projects, although they do not propose specific ways of mediating between the two. Brandt & Binder (2007) have presented the notions of *question*, *program* and *experiment* as a useful frame for understanding the components of experimental design research and for planning research projects; however, this framework focuses on design projects primarily from the researcher's perspective.

To address this problem area, which sits at the intersection between the themes of this year's OZCHI conference ("Design - Interaction - Participation"), this paper contributes to the understanding and planning of collaborative interaction design projects by expanding the question-program-experiment triad to include the external stakeholder perspective. Furthermore, the paper offers an example and discussion of how strings of experiments can be combined in long-term research projects.

QUESTIONS, PROGRAMS AND EXPERIMENTS¹

The notions of *question*, *program* and *experiment* are presented and developed in Binder & Redström's "*Exemplary Design Research*" (Binder & Redström 2006) and Brandt & Binder's "*Experimental Design Research: Genealogy – Intervention – Argument*" (Brandt & Binder

OZCHI 2010, November 22-26, 2010, Brisbane, Australia.
Copyright the author(s) and CHISIG
Additional copies are available at the ACM Digital Library
(<http://portal.acm.org/dl.cfm>) or ordered from the CHISIG secretary
(secretary@chisig.org)
OZCHI 2010 Proceedings ISBN: x-xxxxx-xxx-x

¹ Some of the discussions regarding question, program and experiment build upon the summary sections of the dissertation *Designing Engaging Interactive Environments - A Pragmatist Perspective* (Dalsgaard 2009)

2007). *Question*, in this regard the most abstract entity, refers to the overarching research question guiding a research project. *Program* is a concept imported from design and architectural practice, in which “program typically defines an area of exploration setting goals for what is to be achieved by the design, but leaving it open how this is accomplished.” (Brandt & Binder 2007:3). In design, the program is developed as design work progresses and understandings of what constitutes the design space are gained. A research program, however, departs from a design program in a crucial way, namely that a designer fortifies and refines the design program through the development of a product, whereas a researcher aims at challenging the assumptions of the research program: “... where the ordinary design work proves its relevance through what the program can accomplish in terms of finished design, design research has to show the strength of the program beyond the individual experiment... where the program is a means for the designer to be able to pursue a particular line of design, the program is to the design researcher the suggestion that must be substantiated through experiments.” (Ibid p.3). *Experiment*, the most concrete entity among the three, denotes the more specific inquiries undertaken within the space laid out by the program. Brandt & Binder describe the design research experiment in the following manner: “We think of the design experiment in design research as on the one hand the result of a truly designerly engagement with possible form that can be appreciated and evaluated as design and on the other hand as a deliberate attempt to question what we expect from such design.” (Ibid p.3) Figure 1 illustrates the relations between question, program and experiment.

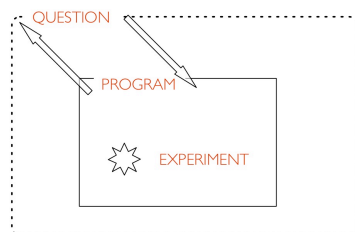


Figure 1: In design research, the experiment is undertaken to challenge and develop notions set forth in a research program, which in turn is framed by a research question [Reproduced from Brandt & Binder 2007].

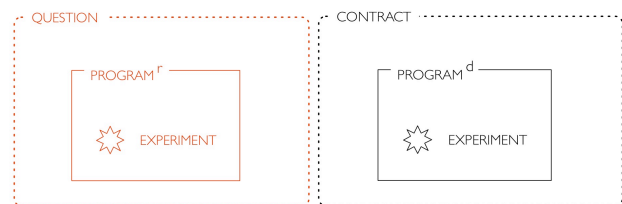
Although question is at the most abstract level, this does not imply that research has to spring from a well-articulated question; it may as well spring from an experiment which opens the researchers eyes to a new research agenda, or from the definition of a program to guide experiments, which may later on be scrutinized in a more general perspective. Also, the question may be narrowly defined, in which case it can possibly be answered in a specific program with one or few experiments, but it may also in some cases be broad and open-ended, and thus invite a series of programs and experiments. The relations between the three entities are not set in stone, since developments in one may cause transformations in the others – experiments may develop

the program, and the development of the program may influence a revision of the question.

THE QUESTION-PROGRAM-EXPERIMENT TRIAD IN COLLABORATIVE PROJECTS

In collaborative projects in which interaction design researchers work in partnership with external stakeholders, there is a need for understanding not just the notions of question, program and experiment from the researcher's perspective, but also for considering how and why external partners enter into the collaboration, and ultimately how the two may be productively combined in order to produce outcomes that are of benefit to both researchers and collaborating partners. In order to develop an understanding of these issues, I will develop Brandt & Binder's framework to examine the differences and interrelations between programs in design research and design practice (by which I refer here to the practice of partners outside of academia who enter into collaborative design projects).

Within the framework of question-program-experiment, design practice is set apart from design research in two respects: first, professional design practice is most often not driven by an overarching research question, but rather by an assignment, often explicated in a contract; second, design practice strives to fortify the design program, whereas design research must challenge its design research program.



Figures 2+3: The research program (Program^r) is framed by research questions, whereas design program (Program^d) is often framed by contractual obligations.

However, designers and researchers must find ways to combine their efforts in collaborative projects, and at times this can lead to tensions and misunderstandings. I propose that these tensions often pertain to the different agendas of either challenging or fortifying the program, i.e. researchers may be driven to explore and question central aspects of the project, whereas collaborating partners may wish to complete and strengthen the project. An explication of these differences at an early stage in the collaboration may go some way to resolving or remedying the tensions. If designers and researchers are to collaborate in design experiments, there has to be some overlap between their programs – but there must also be an awareness that the two programs are not the same (illustrated in figure 4):

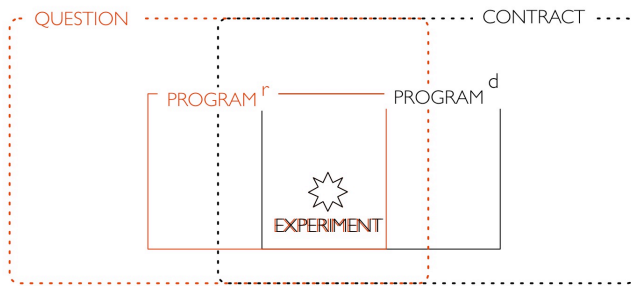


Figure 4: By articulating the differences between the design program (Program^d) and the research program (Program^r), designers and researchers can negotiate converging interests and experiments as well as pursue different objectives.

If the differences between researchers' and external stakeholders' agendas are not articulated, the picture tends to get blurry (as illustrated in figure 5) when researchers and stakeholders have diverging motivations for developing a program and carrying out experiments. This framework offers a simplified account of processes that are in practice much more complex (I shall return to this in the following section), but these are nevertheless aspects of collaboration that are often overlooked or unarticulated.

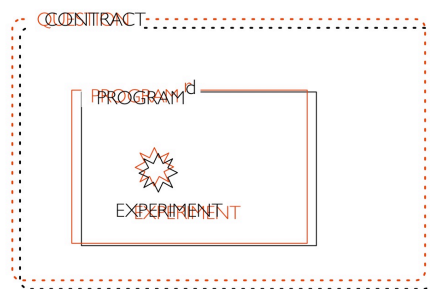


Figure 5: Misaligned researcher and stakeholder programs.

A case example of alignment of agendas in a collaborative interaction design project

In order to exemplify the challenges of aligning researcher and external stakeholder relations, the following is an outline of a design case in which I, in collaboration with fellow interaction design researchers, worked with a large architectural firm to develop a competition proposal for a new museum. My participation in this project was motivated the pursuit of a long-term research question: "How can we conceptualize the design and use of engaging interactive environments?" The research program in this case can be outlined as the exploration of the potential of interactive displays integrated into buildings. The exploration of this type of technology was the focus of the research group and the specific context of the future museum provided an excellent opportunity to explore this research program. The design program was developed by the architectural firm on the basis of specific parameters laid out in advance in the competition rules, e.g. building size, location and requisite facilities such as exhibition spaces, restaurants, museum shops etc. Some aspects of the design program were developed in discussions between the research group and the architects. In this part of the project, the research program can be construed as

overlapping with and influencing the architectural design program developed by the architects for the entire museum. In the research group, we did not deal with this entire program, but with interactive media façades specifically. Briefly explained, media façades are interactive displays integrated into buildings. In order to explore the research program, a number of experiments were carried out. As an example, one experiment concerned the exploration of the visual expression of a specific new type of display technology. This exploration was composed of numerous parts in which we as researchers, through different visualisation experiments, approximated how this display technology would appear in different architectural configurations, from varying angles and distances etc. This design case is presented in more detail in (Dalsgaard et al. 2008). The experiments can be seen as examples of well-aligned experiments between the design and research programs, since they both satisfied our intentions as researchers in exploring the potentials of integrated interactive displays, and the agenda of the architectural firm with regards to fortifying the design program they developed for the museum competition. However, in the case we also experienced divergence with regards to the research and design programs. As researchers, we had a keen interest in breaking new ground, both with regards to exploring new technologies and with regards to employing existing interactive technologies in new and innovative ways. Whereas the architects shared our interest in breaking new ground, they ultimately had to answer to the contracting authority and respect the deadline and the rules of the competition; furthermore, they were primarily motivated by the end product, the museum building, rather than by research questions.

One example of these tensions was our initial frustration in the research group caused by an early meeting with the architectural firm in which the principal architect established that we should focus on a particular type of display technology for the remainder of the project. As researchers, we felt at the time that this decision cut off a number of alternative and interesting avenues for research. However, through subsequent design events and discussions we identified a number of interesting research opportunities within this seemingly restrictive frame, and we were able to re-align our interests with those of the architects in the experiments that we undertook.

The program and experiments in this specific design case clearly did not provide an exhaustive answer to the overarching research question that I started out with, "How can we conceptualize the design and use of engaging interactive environments?" Indeed, it is doubtful that any single program can provide an exhaustive answer to a question of this sort. Borrowing from the notion of *wicked problems* put forth by Rittel & Webber (1973), my framing research question can be construed as a wicked question, which in return is more likely to result in wicked answers, rather than tame answers. As such, this type of research question is not intended to generate a concrete answer; rather the question is there to act as a catalyst for knowledge generation. This type of question is therefore one that is often pursued over the course of a

several programs and cases. With regards to the overarching question presented here, I have thus engaged in not one, but multiple programs. Each of these programs in turn consisted of multiple experiments. This approach is illustrated in figure 6:

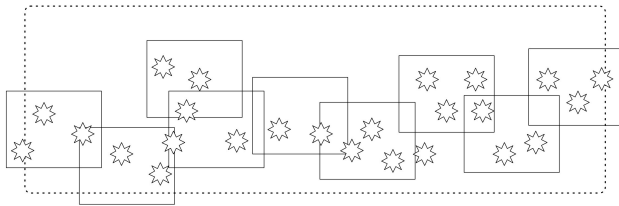


Figure 6: Sequential and overlapping programs and experiments in a long-term research project.

To some degree, programs and experiments in this long-term research process have been overlapping, and to an even larger degree, they have inspired each other, such that insights from one program or experiment have been brought into subsequent programs and experiments. This was also the case with regards to the museum competition: in the light of our research agenda, this individual design project was not a clean slate. It was influenced by findings from similar preceding projects, which had led us to insights regarding e.g. the importance of understanding multi-user challenges, social interaction, the level of complexity of large-scale public installations etc. A final point to stress is that although the research process was guided by research questions and objectives, it was developed and refined in response to themes and insights that emerged through our ongoing collaboration with the architects. This points back to the initial presentation of the framework (illustrated in figure 1), which states that developments in one of the aspects may cause reciprocal transformations in the others.

CONCLUSION

The field of interaction design research is emergent and the literature of the field presents a variety of ways in which researchers have approached the research process. Whereas some researchers and research groups establish research projects that they are in control of, there is in parts of the field a growing interest in partaking in collaborative experimental design projects. For instance, Zimmerman et al. (2007) have examined the ongoing efforts to develop *research through design* as a research approach that integrates research and practice agendas. Looking towards Participatory Design, Oostveen & van den Besselaar (2004) have reported how projects within the field are often "small scale, stand alone, and researcher led." This has led recent authors to urge researchers to take part in larger experiments, e.g. Shapiro (2005) has suggested that the community should "seriously consider claiming an engagement in the development of large-scale systems." (Ibid p. 32) If researchers are to take up this challenge, a clear understanding of the divergences and convergences between the agendas of researchers and other stakeholders is required. The extension of the question-program-experiment presented in this paper is one step in that direction. In combination, these notions form an

accessible framework for understanding the agendas of researchers and external stakeholders and of the potential misunderstandings and misalignments of collaborative projects. It is intended primarily as a frame for articulating and giving an overview of the issues that may arise in such collaborations. The relative simplicity of the model however also implies that it cannot comprehensibly map the complex and intricate relationships that are often at play in real-life interaction design research projects: there may be misalignments or misunderstandings within the research group, within the organization of a collaborating partner, or both; and there may be more than one group of researchers and several external parties involved. The extended question-program-experiment framework presented here does not fully address how to articulate or represent these issues, but hopefully it will invite further explorations of how to align research and stakeholder agendas in collaborative interaction design projects.

REFERENCES

- Binder, T. & Redström, J. 2006, "Exemplary Design Research". In Friedman, K., Love, T. and Corte-Real, E. (Eds.) Proceedings of Design Research Society Wonderground International Conference 2006.
- Brandt, E. & Binder, T. 2007, "Experimental design research: genealogy, intervention, argument". Int. assoc. of societies of design research 2007, Hong Kong.
- Dalsgaard, P. 2009. Designing Engaging Interactive Environments - A Pragmatist Perspective. PhD Dissertation, Aarhus University, Denmark.
- Dalsgaard, P., Halskov, K. & Nielsen, R. 2008: Towards a Design Space Explorer for Media Facades. In Proceedings of OzCHI 2008.
- Fallman, D. 2005, "Why Research-oriented Design isn't Design-oriented Research". In Proceedings of Nordes 2005, Copenhagen.
- Frayling, C. 1993, Research in Art and Design, Royal College of Art Research Papers series vol. 1 no. 1. Royal College of Art, London.
- Laurel B. Design Research: Methods and Perspectives. MIT Press, Cambridge, MA, 2003.
- Oostveen, A. & van den Besselaar, P. 2004. From small scale to large scale user participations. In Proceedings PDC 2004. ACM, New York, NY, 173-182.
- Rittel, H.W.J. & Webber, M.M. 1973, "Dilemmas in a general theory of planning", Policy Sciences, vol. 4, no. 2, pp. 155-169.
- Rogers, Y. 2004, "New theoretical approaches for HCI", ARIST: annual review of information science and technology, vol. 38, pp. 87-143.
- Shapiro, D. 2005, "Participatory Design: The Will to Succeed". In Proceedings of Critical Computing 2005, Aarhus, Denmark, pp. 29-38.
- Zimmerman, J., Forlizzi, J. & Evenson, S. 2007, "Research through design as a method for interaction design research in HCI". In Proceedings of CHI 2007. ACM Press, pp. 493-502.

