Role expectations and relationships in co-operative design projects

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ABSTRACT
In this paper, we focus on role expectations and relationships in co-operative design projects. Our research questions are: How are the different roles experienced and understood by the different actors in co-operative design projects? How do we as researchers act and use methods in the perspective of research and in the perspective of design? Can designer be equivalent to researcher or are these roles always separated? Our results are based on analyzing material from field studies performed in the project Community at a distance. The results show that the user (employee) sees no differences between the role of a researcher and the role of a designer. Meanwhile, the researchers are increasingly expected to take the role of a designer, with or without the proper training and skills. The influences of these changes on participatory design are discussed.

1. INTRODUCTION

This paper is about the role of the user, the designer and the researcher in co-operative design projects. By the term user we mean the employee at a specific worksite, often but not necessarily using IT artifacts in order to perform work tasks. By designer we mean a person who develops, construct an IT artifact and by researcher we mean a person who study the use of artifacts in order to create new knowledge. In co-operative design projects the role of the researcher is often multifaceted, mixed among different roles e.g. designer and researcher. Our questions are: How are the different roles experienced and understood by the actors in co-operative design projects? How do we as researchers act and use methods in the perspective of research and in the perspective of design? Can designer be equivalent to researcher or are these roles always separated?

It is easy to find research papers describing examples of co-operative design projects. It is much more difficult to find written reports on how this perspective and included roles are understood or experienced by the actors taking part in the process. It is to our knowledge, not presented in the literature, how the actors experience this co-operation. Nor is it discussed to what design tradition it is related. We would like to discuss this by focusing on the different roles in co-operative design. Let us describe it via experiences from a field study scattered over 18 months within a research project. Before presenting co-operative design, specifically the Scandinavian tradition, we would like to say some words about how design traditions in relation to Human-Computer Interaction (HCI) can be to viewed.

Depending on perspective on design the activities are performed and analyzed in different ways. One way to describe perspectives on design is presented by Fällman (2003). The conservative account (i.e. traditional HCI focusing on a problem to be solved. Here the designer is viewed as an engineer or a natural scientist who work in a process with structured methods in a impersonal and rational manner), The romantic account (i.e. the designer is seen as a creative genius, the design process is guided by the designers values and taste), and, The pragmatic account (i.e. design is about being engaged directly in a specific design situation and situatedness locates the design process. Design takes the form of a hermeneutic process of interpretation and creation of meaning and it is a reflective conversation with the design materials of the design situation).
1.1 The Scandinavian tradition

In Scandinavia and in North America traditions of how to work user oriented were developed. They go under the terms The Scandinavian tradition, or Co-operative design, and, Participatory Design (PD) respectively. In Muller, Hallewell Haslwanter and Dayton (1997) PD is introduced, and a collection of methods and techniques for collecting data from empirical studies are presented. The focus is on practice and the affiliation is the community that is expanding the space for democratic principles and practices in the workplace.

In Bødker, Ehn, Sjögren and Sundblad (2000) twenty years of co-operative design knowledge based on work in the Utopia project is described. This project can function as a description of how the Scandinavian tradition can be understood. In summary, it can be said that a strong goal was to give the end users a voice, to let users have a great impact on IT design in general via early involvement of users in the design process. The overall objective of Utopia, according to Bødker et al (2000), was to contribute to the development of powerful skill enhancing graphic workstation technology. The main activities, during 1981 and 1986, are described as: mutual learning between active participants, requirement specification for a system, and, studies of a pilot installation of the system. The project also established a technology laboratory where different parts of the work to be performed could be simulated. Making it possible for the users to develop requirements and wishes on a concrete level by actually carrying out part of the work on simulation equipment.

The Utopia project and the co-operation with the users is described by Greenbaum and Kyng (1991) in the following way:

“..computer system developers and researchers worked with a group of typographers to help them formulate the ways that computer technology could be used to enhance their skills and better the typographic quality of news papers” p.12.

The main results from Utopia, as described by Bødker et al (2000) were not so much the pilot computer tool built and used at the worksite as the experience and methods: the users and their employers knew the pros and cons of the emerging technology and what to require from it. For the researchers and design community a methodology i.e. co-operative design, for involvement of end users together with interface designers and program developers on equal footing in computer application project were founded.

Utopia showed that it is possible to design IT based on use requirements such as work organizations, environments and working skills at work. The project was also a precursor to developing different techniques to be used during interaction design. A way to support involvement of users in the design-process and building theories based on these experiences i.e. how design thinking and practice can be brought into software development.

In the project, researchers were co-operating both with managers, ordinary users and with the unions. The researchers, describe themselves as being politicians during the 1980 and then moving forward and taken the role of designers, over a time period of 20 years.

1.2 Involving the users is not the complete solution

Co-operating with users is regarded as important in design of interactive systems, and, that more studies of work and use has to be done (Bødker and Iversen, 2002). Co-operating with users and thinking that it will solve all problems during the design process is wrong and the authors’ say that shared “where to” and “why” artifacts help to focus on where to head in participatory design. It is also said that an ongoing reflection among practitioners in the PD process is necessary if a professional work is going to be performed. An introspection and discussion among the participants in a project in general is often treated as unprofitable but from the perspective presented in Bødker and Iversen (2002) necessary.

1.3 Different roles

In Bødker et al (2000) the following question is posed: Which are the roles played by the different actors (management, union and researcher) and by technology? The technology has moved from, being seen as a way to control people and material, to being powerful tools that are controlled by the workers. Management is described as having ideas based on Taylorism and controlling the work and using computers in a way based on this perspective. More recently, management started to see the worker as a resource for the production in the way that their competence and their participation in changes is a resource. The unions are described as strong, working with investigating laws and agreements codetermination and work environment, with a strong work
representation at the company boards. During year 2000, unions became more weak and included in a crisis of legitimacy. Democracy at work and economic democracy are topics that, according to Bødker et al (2000), are far down on the contemporary agenda. The researchers are described as having a political commitment to the idea of democracy at work and this could be influenced by working with management and unions trying to influence them. Later the role of the researchers became more of designers than of politicians and the focus in the PD-projects changed to striving for good relations between workers and management. The approach for the researchers as designers is described as becoming more aesthetic, focusing on the quality of experience (for the worker and user in a use situation).

In Greenbaum and Kyng (1991) the authors who are researchers describe their role as: “For us as system designers we are sharply aware of the need for active learning during the development process in order to avoid the way trap of seeing users as passive receptacles”. p.15.

They also have a number of ways to describe “people who put together computer systems” but no one of them is designated the term researcher.

A description of a future workshop, performed by the authors of the book Design at work, is presented in Greenbaum and Kyng (1991). One example of complaints about the performed PD-project and its’ end results is lack of good products and of recommendations for turning good designs into good products or systems (p. 273).

According to Kensington (2000) participatory design solutions have seldom survived after the researchers have left the work site. The role of the researchers has been reduced. Either we are not members of the project group, or we participated but then only together with internal or external IT-design practitioner. In all projects’ users and managers were taking part.

There are two primarily audiences for PD-researchers according to Greenbaum and Kyng (1991): workers and other organizational members who benefit from the design project, and, design professionals who may adopt the PD agenda including methods and techniques for collecting empirical data.

1.4 Co-operative design as experienced by the users

Researchers can be described as developers or even as professional designers in a context of co-operative design. In Ehn (2003) the Utopia project it is continuously described as a project among users and designers (although the “designers” where researchers). This can lead the expectations in a wrong direction. Researchers have the goal to come up with new knowledge in an area, while designers have the aim to design and most often to deliver a product. How does the users understand the different roles?

2. A PROJECT EXAMPLE

Experiences from an ongoing research project (using a co-operative, user oriented approach) are presented. In the project, Community at a Distance, communication environment with audio and video connection, between three different locations of a distributed workplace has been established. The research is still in progress, the final results are not available while writing this paper. One of the authors of this paper participates in the project and here provide the empirical material for the research questions in this paper. For more detailed information about results during the project see (Gullström-Hughes, Erixson, Lenman, Räätänen, Thuresson, Westerlund and Wiberg, 2003; Lenman, Räätänen and Thuresson, 2002).

2.1 Background

The workplace in question is the Stockholm County Police Call Center, located on three islands in the Stockholm Archipelago: Arholma, Sandö, and Ornö. The Call Center is managed and organized as a single unit. There are approximately 50 employees with the primary task to handle telephone reports from the general public concerning committed crimes (except ongoing crimes).

The employees work together, planning and organizing the same tasks, as well as creating a common work schedule. The communication and co-ordination activities between the sites have mainly been accomplished by telephone and e-mail. The staff members seldom meet, because of the large distances and inconvenience with transportation (Lenman et al 2002).

The overall aim of the research project, Community at a Distance, is to study whether it is:
“possible to create connections to distant places so they are experienced as immediate and natural extensions of the local environment, as communicative surfaces between co-workers at distant places?” (Lenman et al, 2002, p.323).

The question is in line with the research tradition of Media Spaces (Bly, Harrison and Irving, 1993) of video- and audio connections that enable for people to work and to be together at a distance. The focus in the study is not in the formal meetings and the working tasks but on the informal encounters and peripheral awareness.

A common media space between the three sites implies changes in both the physical and the social aspects of the work environment (Lenman et al, 2002). Thus, a multidisciplinary project team including competencies from Architecture, Cinema Studies, Human-Computer Interaction, Industrial Design, Media Technology and Social Anthropology, has been working together with representatives from the Stockholm County Police as well as an independent consultant with previous work on Call Centers. The work in the research project has been carried out with co-operative design methods, together with the staff members in the Call Center in line with co-operative design aspects. These include workplace visits with observations, discussions and interviews, various kinds of workshops (e.g. with video, Mackay, 2000) and use of cultural probes (Gaver, Dunne and Pacenti, 1999). In addition a design model developed at The Center for user-oriented IT-design, CID, is used in the project. The design model emphasizes a holistic perspective on the use situation as well as the participation from all the parties during the different phases of the project. Researchers bring various skills and perspectives to the process and by working together a common ground is easier to establish and the problems with handing over information and experiences can be eliminated (Westerlund, Lindqvist and Sundblad, 2003).

The first contacts between the project team and the personnel in the Call Center were made during a pre-study in 2001. The particular research project started in September 2002. It is divided into three phases. In phase 1, the aim was to gain general understanding of the working practices as well as to document how the localities were used at the time. A design model with a broad approach was used in combination with several methods. The model is foremost aimed for unprejudiced development phases in order to capture a large number of ideas. These are then discussed and a few of them are selected and developed further. The issues are then again broadened out for new ideas and variations. The main ideas out of this work can be summarized in a design idea “Open door”, suggesting an always-on communication environment, including basic conditions of reciprocity, if you at one location see and hear others on a remote site then you yourself are seen and heard (Gullström-Hughes et al, 2003).

In phase 2, the communication environment, including both the technology as well as the physical, architectural aspects, was designed and installed in the locations. When this paper was written, the project was moved to phase 3, where the communication environment is in daily use at two of the three Call Center sites. The communication environment on the third site is still to be installed. Continuous observations and evaluation of the use are now performed. However, the final evaluation of the use as well as the participants’ experiences on the research project as a whole is still to be carried out. After the finished research project the communication environment can become a permanent part of the Call Center.

### 2.2 Project experiences

#### 2.2.1 Participation

A research project, such as the Community at a Distance, affects already from the start the working day in the Call Center. The staff members participate in the project activities at the same time as the everyday work continues. Naturally, an agreement from the management is essential in order to facilitate the staff members’ participation. The meetings, visits and workshops in the project have been planned to fit in the working day as well as possible but, of course, the activities have taken time from the ordinary work. Sometimes the meetings have been closed by comments such as “*Now we must get back to work*” or “*Now we need to be useful again*”.

The co-operative, user-oriented approach used in the project supports employee’s participation. In the beginning, and continuously during the project, the research team encouraged the employees to a dialogue with the research team. It has resulted in that the research team now has a rich amount of data and an understanding of what is going on in the Call Center. It has also resulted in that the employees and the research team knows each other, which is an important condition for the co-operative work in the project. It also contributes to a common ground (Gullström-Hughes et al, 2003).

Several of the staff members expressed their appreciation of the project activities and the fact that the researchers spend time in studying their particular everyday situation and conditions in the Call Center.

One of the advantages with a co-operative design approach is that it facilitates and supports an introduction of a new product or a service. The members of the project team believe that the approach helped to get the staff’s support for the research project as well as for the video and audio communication installation in the Call Center. However, not all of the approximately 50 employees support all the aspects of the project or the installation. One important question is then: when can a project be considered to have the support of the employees? What criteria
and requirements should be met? Is it when all the individuals within an organization have a common understanding, even about the details? Who is responsible to find support for a research project and a technology installation, the researchers or the organization in question (Gullström-Hughes et al, 2003)? In phase 2 and 3, the communication environment got a physical form and entered the workplace. It also changed the work situation adding a new way of getting in touch with each other between, at the moment, the two sites. The “honeymoon” in the beginning of the project, when everything is possible was replaced by a new phase, where the expectations meet the concrete possibilities. In this case it meant that not all the requests could be filled. There are several limitations, for example technical as well as the economical resources in the research project. The technical equipments do not always work as they are expected to and the project budget limits the changes in the physical environment. In addition, for several reasons, e.g. working on three locations at the same time, the process has taken quite some time. The staff members has kept on asking the project team: 

"Why is it not working yet?" and "What are you going to do about it and when?"

Even if the work has been conducted in the co-operative manner, the researchers have designed and facilitated all the activities. How much can the employees influence and control the project? How much do they want to control? What are the employees’ responsibilities?

2.2.2 Roles taken and expected

One of the challenges in the project is that the outcome, if the employees wish, will be a permanent communication environment in the Call Center. Therefore, a possible goal for the employees is an accomplished communication environment, a product providing a certain service. This is true for the researchers as well, but in addition, the researchers also want to learn more about methods, different technology, and use aspects to name just a few areas of interest.

The Call Center staff have no or limited previous experience of participating in research projects. However, many of them have witnessed development projects or participated in purchase of technical equipment.

Even if the members of the research team have emphasized the research goals and that the way of working differs from the one traditionally used in a development project there is (seen from the staff members’ point-of-view) little difference between the goal of a research project compared to a goal in a development project. To put it very simply, the employees in the Call Center want a product and someone to deliver it. To be part of a research project is somewhat secondary, even if we believe, that several of them are quite pleased to participate in the project.

All the members of the research team, apart from the skills and knowledge in their field of competences, have also done several hands-on activities. For example, (one of the authors of this paper, together with the activities in her field of social anthropology,) helped to transport and deliver furniture, fabrics, lights and parts of the communication technology to the different Call Center locations. Later in the project, the activities were about help to change gadgets, and search for, localize and fix faults with technology was also part of the job. Some of the roles were taken, others were given. There are several reasons for the hands-on work. Most of them are solely practical and can be considered to benefit the project. In a multidisciplinary research team the hands-on activities also contributes to the understanding of each other’s work and perspectives. In addition, the hands-on activities contribute to the quality of the author’s fieldwork by expanding the assignment and thus contributing to a holistic view of the communication environment, as well as the different processes in the project. Observation through participation is a common practice within anthropology in order to learn more about the concepts of interest (Tonkin, 1984). In practice, the author visits the Call Center locations regularly for performing research activities. It is easy to combine the visits with some practical work such as adjustments of the communication environment. The limited resources in the project provides challenges to the project team. All help is needed and appreciated. The researchers are, in a way, in debt to the personnel for being able to be there and therefore, wish that the research would not cause too much inconvenience in their work situation. Of course, the researchers would also like to preserve the goodwill the research project has gained among the Call Center employees.

3. DISCUSSION

In this section we discuss the findings related to our three research questions. We end by discussing a view on development of design and the outcome of co-operative design projects’.

3.1 Roles experienced and understood by the actors in co-operate design projects

For the employees of the Call Center, the question of taking part in a research or a design project, working with designers or researchers, does not matter. They are eager to get the support, and to receive planned solutions. If it
is a researcher or a designer that fix the problems is equal to them. By the comments given, the project activities seems to be regarded as something to be done on your spare time i.e. not real work even if the project activities are authorized by the managers and clearly expressed to be part of their work. For the researchers the same view is not presented. Our experience is that the role of the researcher, in design projects, is changing, not in the manner described in (Kensing, 2000) but rather to be a mix of researcher, colleague, designer, technician. The researchers regard the activities as real work but question whether it is research related or design related. In co-operative design projects it can be a problem to clearly see the distribution of the responsibility. Who is responsible to find support for a research project and a technology installation, the researchers or the organization in question? If it is the researcher then we need to enable funding for technical support, equipment and so on. This is not given today but collaboration among researchers and organizations are expected in order to receive funding.

3.2 How do researchers act and use methods in research and in design?

Various methods have been used in the research project Community at a Distance. Many of them were used in order to inform the design. However, in the co-operative context, the methods cannot always be classified as data collection, either for the research purposes or for the design. On the contrary, they often work collaboratively, contributing to each other. In addition, the co-operative approach also contributed to the collaboration between the employees and the research team and helped to create a common ground.

The co-operative activities itself contribute to the blurriness between the different roles. The built-in, rather ideological approach of democracy and everyone’s equal value in a design/research project also affects the understanding of the different roles.

3.3 Can designer be equivalent to researcher or are these roles separated?

Co-operative design projects operate on the assumption that joint decision-making and collaborative input into the various phases of a project is better than the traditional hierarchical command structure of the expertise. The first wave of researchers in the Scandinavian tradition regarded themselves as political in the sense that they worked for the realization of a democratic vision. The second wave saw the development of these ‘politicians’ into designers. Perhaps we can now see the emergence of a third wave of researchers who may find themselves and the user’s being regarded as ‘resources’ and ‘useful’, i.e. as being co-opted by another interest and agency which is inherent in the process towards design itself.

Similar ideas concerning development stages of design areas are presented in (Lundeqvist, 1992) where all design disciplines go through three development phases and focus shifts throughout the phases. The first phase is a problem-solving phase where problems are broken down to smaller and easier bits to handle. To measure usability criteria, or, to perform a heuristic evaluation can be activities performed during this phase. The second phase views the development of products as an integration of problems and solutions that are reciprocal actions throughout the process. Here the focus is on the users needs, requirements and ideas and see the designer as a pedagogical leader. At the third phase the focus is on the design. Here design is explored and the skills and knowledge that a designer is expected to have are described. The designer is in the center of the process of creating and has great freedom in choosing theories and scientific method as the designer think suits the best. The main aspect is that the designer uses the designers own design competence that is achieved by training and connected to a situation not regarded as general.

This description is not directly applicable on the area of co-operative design but since the role of researcher and designer is discussed in this paper a few things needs to be brought up. Throughout the development of co-operative design, the user has been in the centre. As described early in this paper the researchers working within the area for about 20 years, see themselves as going from acting as politicians to acting as designers. So, can we see that they follow the three phases of design as described above? No, not regarding the view of the user. But, if we view co-operative design, not as a total democratic activity but more with a major design interest, it can be said that the new technology is presented as user oriented. The designer might work together with users but many decisions and the last say is on the designer side.

3.4 The product of co-operative design

The users we co-operated with expected products to be delivered or problems to be fixed. In the role of a researcher this can be viewed as a dilemma. We can be satisfied with the research results but unsatisfied with the results for the users or vice versa. It is therefore interesting to investigate the projects “imperative of design” and how it delimits the researchers work. “Imperative design projects” are goal oriented, are supposed to result in a product or a service that is resulting in improvements of any kind and the results are more important than the knowledge, the insight.
So, let us end by giving two concluding remarks. Actors in co-operative design projects have different interests of the outcome. The users do not view the roles researcher and designer as different, they want to get a solution, a product. In order to fulfill the users wish, and to minimize their frustration, we have to either perform our research in industrial projects or get the possibility to apply for funding that can help us include project participants that cover the expertise needed.

In a paper by Fällman (2003) design oriented research vs. research oriented design is discussed. In design oriented research the knowledge that comes from studying the designed artifact in use or from the process of bringing the product into being is the contribution while the resulting artifact is considered more a means than an end. In research oriented design the production of new artifacts is the main motivation not the production of knowledge. So the main problem as discussed in this paper might not be on the level of roles and how they are labeled but rather on a level of purpose and outcome of the activity. For the users, the employees participating in research activities it is unimportant if they co-operate with a designer or with a researcher what is important is the outcome. They expect a new artifact to be delivered not new knowledge.

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