Whose Participation? Whose Knowledge?

– Exploring PD in Tanzania-Zanzibar and Sweden

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ABSTRACT

In this paper we discuss two Participatory Design (PD) projects, one in Tanzania-Zanzibar and the other one in Sweden. In both countries the design process was done through the analysis of work practices involving both designers and users. The discussion focuses on a number of factors such as location, time and scene. We also ask how different projects can be that it is still possible to talk about PD as an overall participation and design approach. If PD is not a singular, definite, closed and fixed approach on the explicit layers, so how do these projects relate to each other when focusing on methods embracing the ambiguities of participation? The paper ends with a discussion of differences and similarities considering participation in the projects.

Keywords

Participation, work practices, methods, Tanzania-Zanzibar, Sweden, ambiguity, differences.

ACM Classification Keywords

K.6.1 [Project and People Management]: Systems analysis and design, Systems development. Design

INTRODUCTION

The aim is to juxtapose participation in two PD-projects carried out in different countries and organisations – the Tanzania-Zanzibar in a hospital and the Swedish in a number of municipalities. We are interested in mutual learning of local and situated interpretations and implementations of participation.

The questions we address are: what happens with the

Scandinavian approach of Participatory Design when it travels? How does it keep its core ideas of (user) participation and how are the located and embodied ideas of participation transformed during the geographical, sociopolitical and technological journey? Does its strength actually lie in its capacity and ability to get translated and transformed, in its fluidity and ambiguity?

The paper is structured as follows. In the next section we discuss different forms of participation. This is followed by two sections where the Tanzania-Zanzibar and Swedish cases are presented. In the fifth part of the article we focus on the apparent differences of the projects in terms of locations, sociopolitical spaces, work practices and technological infrastructures. In the sixth part we discuss the difficulties linked to the ethnographic studies of work practices, relevant for both the Tanzania-Zanzibar and the Swedish case. In this discussion we suggest that the themes of knowing and skills could help us to widen the idea of users' participation and contribution.

The paper ends with a discussion of participation by focusing differences and similarities.

WHOSE PARTICIPATION?

Visions of the future information system come into view very near the beginning of the design process; sometimes even before the present domain or situation is analysed [5] Designers' as well as users' ideas, values and understandings are intertwined with their visions of the choice of a certain functionality, structure or technology of the future system, service or artefact [4]. People's visions, ideas and actions are rooted somewhere, thus, it means there exists "an underlying system shaping thought and practice." [15]. Nevertheless, the imaginations of the world are not comprehensive but are situated and partial [14]. Situated knowledges contest the dominating discourse; design from nowhere, its space and preferential right of interpreting the world, by the creation of a competing discourse or position that consider design work as design from somewhere or located accountability [31].

The Scandinavian Tradition of Participatory Design

A critical or located design approach is the Scandinavian tradition of Participatory Design. The central issue of the tradition has been the user involvement in computer based systems design. The approach has had two trajectories: to participate and influence the democratisation of the working life by the involvement of prospective users but also to democratise the design process [2]. Eevi Beck's [1] article *P for Political Participation is not enough* started a new discussion of PD when she argued for the necessity to recapture PD's political dimensions. Susan Bødker [8], one of those who continued the discussion, argued for research-based participatory design alternatives since user quality matters. Research-based PD projects are alternatives compared to mainstream solutions constructed by large companies. Dan Shapiro [28] on the other hand suggests that the PD-community should challenge the development and implementation of IT in the public sector depending on the high percentages of failures. He advocates critical self-reflection and an experimental strategy as a way to build consensus within the PD-community, before making interventions.

Participation in Other Settings

In developing countries PD-approaches in IS/IT development have been discussed and used within limits [24]. Nevertheless, participatory and collaborative initiatives exist also in developing countries, such as for example the research and development program Health Information Systems Program (HISP) [24, 6] as well as the participatory approach Participating Rural Appraisal (PRA) [25, 27]. PRA has been used above all in rural settings but has in stages been extended to other sites as well as to research. The method has been used by a variety of actors from the World Bank to NGOs. However, the use of PRA has been criticised for using local community labour as a mean to reduce costs at expenses of empowerment [25].

The birth region of the Scandinavian tradition of PD is located in the Nordic welfare states, where participation often is understood as a mean of formal representative democracy and thereby also highly regulated. But the ideas of how to expand the notion of participation might be found also in other forms. The Sami people in the Nordic countries have an oral tradition. Depending on this tradition their use of land is not documented or they cannot prove with maps how they have used the land, which causes judicial problems in Sweden. From other parts of the world, such as in South-Africa [24] meetings (imbizo's) are arranged for collective decision making and the Gacaca tradition in Rwanda as the traditional form of village courts.¹ Thus, participation exists in a variety of forms.

THE CASE IN TANZANIA-ZANZIBAR

Zanzibar is one of the political entities constituting the United Republic of Tanzania. It consists of two islands,

Unguja and Pemba. Zanzibar has considerable autonomy in her domestic affairs administered through the Revolutionary Council and the House of Representative. The health care sector is one of the domestic affairs administered separately from the Union government, although there are considerable collaborations with the health care sector in Tanzania mainland. The health care sector in Zanzibar is under the Ministry of Health and Social Welfare. This ministry is the responsible agency for health services in Zanzibar.

With a population of 984,625 inhabitants (2002 census²), Zanzibar is divided into five administrative regions, three in Unguja and two in Pemba. Each region is subdivided into two districts which make a total of ten districts for the Islands. The districts are subdivided into 50 constituencies, 29 in Unguja and 21 in Pemba. The constituencies are further divided into 237 shehias, 168 in Unguja and 69 in Pemba. The shehias are the lowest government administrative structure operating at the community level.

The Health System

The current health care delivery system in the public health care structure in Zanzibar has been divided into three main levels: primary level, secondary level and tertiary level. The *primary level* is the lowest level where there are most of the Primary Health Care (PHC) services basing on preventive services and promotion of health education. It comprises of the 1st line (PHC Units) and 2nd line (dispensaries) health facilities. The *secondary level* is the referral point from the primary level health facilities. It comprises of district hospitals (cottage hospitals and general special hospitals) of which offer curative services with little out patient services. The *tertiary level* is the last referral point for the health facilities. It comprises of Mnazi Mmoja hospital which is the only specialized hospital in Zanzibar, located in the Unguja Island. This hospital provides a full range of specialized services for both referral and emergency conditions. Parallel to providing health care services, Mnazi Mmoja hospital is also a centre for medical education and operates in semi-autonomous entity.

The Zanzibar health care delivery system has a number of sub-systems for collecting and reporting data. Health programmes such as Expanded Programme on Immunization (EPI), NACP, Malaria, TB and Leprosy have been introducing forms for collecting disease specific information at the PHC units and hospitals. These forms usually range from handwritten to printed formats.

The system of collecting information on diseases and related health services at Mnazi Mmoja hospital was introduced in 1968 when the Ministry of Health and Social Welfare established a Statistics Unit. Being a big hospital with 14 wards and 18 clinics, serving the majority of the population in Zanzibar, Mnazi Mmoja has experienced

¹ <http://www.inkiko-gacaca.gov.rw/En/EnIntroduction.htm>

² <http://www.tanzania.go.tz/census/regions.htm>

problems in collecting and managing its health care data. The main problem was lack of standards in reporting from the wards and clinics. Some wards and clinics do collect health data and others do not. Even those who collect data do not have a standardized way of collecting, keeping and reporting those data.

In November 2004, the Ministry of Health and Social Welfare and all its stakeholders conducted a workshop to review the health management information system (HMIS) in Zanzibar. The result of the workshop was a need for improving the HMIS in Zanzibar which included improving the information system within Mnazi Mmoja referral hospital. These decisions embarked on a project known as the Health Information Systems Programme (HISP). This paper reports a participatory approach used by the HISP in redesigning the information system within the Mnazi Mmoja hospital. Since the implementation stage was about to start by the time to writing this paper, this discussion is limited to participation during the initial concept development and system configuration.

The work of HISP is to consolidate, reorganize and redesign the data collection tools into a standardized data management and reporting system. The main focus of this process is to create a system that can serve the following functions. *Routine*: data collection, processing and reporting is continuous and within the specified time period. *Functional*: the amount of information collected should base on the need to identify problems and thus being able to respond quickly.

A task force from users was created consisting of the head of the HMIS at the Ministry of Health (MoH) who is a medical doctor by profession and works at the Mnazi Mmoja hospital, vertical programmes representative, representative of the Expanded Programme on Immunization (EPI), representative from the Planning unit, a representative from the Mnazi Mmoja hospital who is the head of the Statistics unit within the hospital, the head of the Statistics unit from the MoH, a representative from the AIDS control programme and representatives from the health districts (both Unguja and Pemba).

Designers' team³ was formed consisting of professionals in research, programming, information systems in general and experiences in the implementation of health information systems in developing countries specifically. One of the authors of this paper is a member of the designers' team.

THE SWEDISH CASE

Blekinge is a county in the southeast of Sweden. It is one of the many regions that were earlier dependent on the metal industry; and in Blekinge's case, also on fishing and the

military. During the last thirty years a great number of these branches have disappeared. Blekinge, as all similar regions with high unemployment figures, has been looking for new industries and new futures. One of the municipalities in this region, namely Ronneby, can be used as a point in case. Early in the 1980s, some municipal politicians had heard about the expanding field of the computing industry and especially about developments in software. In the beginning of the 1980s, the technology centre known as Soft Center was established. What later became the leading activity for almost the entire region was computers and information technology in general. The other municipalities in the region are striving in a similar manner to become economic, social and ecological sustainable in a changing world. In addition to the industrial and business development, Blekinge has been a base for many information technology projects e.g., school, library and health care projects. [10]

A Project about e-Government

The Swedish case is a research and development project with the title 'From government to e-government: skills, gender, technology and learning'.⁴ The rationale for the project is that the Swedish public sector is in the middle of an overwhelming change process with strong political hopes of creating a good service society by the usage of information technologies (IT). E-government is the overall concept for the transformation process. The more or less explicit goals in the political documents seem to be rationalisation, efficiency and effectiveness of the public sector, thus, called a modernisation. At the same time the goal is also to provide qualitative services to the citizens.

However, the IT policies are rather silent about the processes of introducing and developing solutions integrating organisational and technological change. They also keep quiet about the agency of the employees of the public sector, their participation and development of the IT-based services, and also that the public sector is a dominating labour market for women. [26]. The increased introduction of IT will probably change the working conditions and practices radically for the civil servants. However, remembering from the earlier experiences of computerization there should be a great concern regarding how the skills and experiences of the civil servants could and should influence the processes which once again seem to have a taste of technical determinism and a strong belief on IT as a driving force in the modernization of the public sector [12, 22]. In the crossroads between possibilities and risks of the expanding IT-mediated society and working life the aim of this PD-project is to study and design processes connected to work practices and IT-development in the public sector with a special focus on the participation of the civil servants.

³ The design team consisted of 5 locals, 3 from South Africa who came as consultants due to their experience from the HISP project, two from Norway.

⁴ Two of the authors are involved in the project.

METHODS OF PARTICIPATION

Redesigning the Work Practices for the Mnazi Mmoja hospital: A Participatory Design Approach

In Mnazi Mmoja hospital the designers' team through one medical doctor and the head of the Statistics unit from Mnazi Mmoja hospital (members of the task force) managed to have access to other doctors and nurses in the wards and clinics. After the identification of the members of the task force the design process used may be divided into six main steps of which the last three steps were recurring. First, a meeting between designers and members of the task force whereby the designers described the importance of improved HMIS in general and the hospital information system in specific. This description was followed by an explanation of the design and implementation process at hand. We (designers) explained what we would like to know from the users work practices.

Second, users described the current work practices whereby they identified existing tools and artefacts being used for health care data collection and storage in all the wards and clinics. Parallel to how data is being collected, the users identified communication channels and destinations for the collected health care data, that is, where the data has to be reported within the hospital and outside the hospital, see Fig. 1.

Figure 1. Data collection and information flows in Mnazi Mmoja hospital

To enable users to continue providing health care services to patients, this step took place within the hospital in respective wards and clinics. The representation of the work practices involved the descriptions of situations that users' find important in their work, situations (activities) are currently constitute a bottleneck and needed to be changed or modified.

Designer: "Are you using all these data you [users] are collecting? [For example one clinic had recorded more than 50 diseases whereby some diseases had one patient in a year.]"

Users: "We use some of them ... among those diseases recorded [for some there are at least 10 common diseases]."

Designer: "What if we group those uncommon diseases into a category called others."

Users: "It will be ok as long as it does not affect the total number of patients attended."

On our side (the designers' side) the representations of work pointed out to whether the kind of technology we were considering might potentially support the work in question, and how well to design the technology to be able to support the work in question.

Most of the data collection forms were not standardized. Each diagnosis was hand written by different doctors in different spellings although from the same ward for instance. Therefore, in the third step, the designers together with a doctor and the head of the statistics unit from the Mnazi Mmoja hospital who has experience on what diagnosis they attend at the hospital and what are their specific spellings created forms with correctly spelled diagnosis.

User: "We have a book called the *International Classification of Diseases* with the correct spelling of most of the disease. But it is from a long time ago [published in...] and some diseases are not there.... we also attend diseases which are due to the local environment and activities. These [those not in the book] we need to discuss with the incharges of the respective clinics and wards."

As a preliminary stage these forms were created using Excel sheets. In the fourth step, forms were printed and distributed to the specific wards and clinics for testing whereby the health workers were asked to use the forms for data collection and reporting and then give recommendations on what is missing and how well the forms should be improved. The form distribution was done by the head of the Statistics unit from the task force who was also responsible for getting the feedback from the health workers and thereafter discuss with the designers.

User(s): "Other clinics have common diseases more than 10. It would be better if the forms are designed in such a way that there are empty rows at the end of the forms so that we [user] can add (writing by hand) more diseases which are not specified in the forms."

Designer: "If users will write by hands then there will be not standardization of the diseases. It is better each ward and clinic with more diseases to indicate them so that they can be specified in the respective forms."

While testing the forms, we started the fifth step which is configuring the District Health Software (DHIS)⁵ to meet the specification and requirements of the Mnazi Mmoja hospital. The software module was being demonstrated to the task force which included major stakeholders (DANIDA⁶) who also funds the HMIS design project. The

⁵ DHIS is a an open source software designed by the HISP project to enable health care providers and managers in handling health care data for management purposes.

⁶ DANIDA, Danish International Development Agency.

sixth step involves redesigning the forms to incorporate the users' suggestions. In the first testing session users added more common diseases which were not specified in the forms. The second testing session involved reducing the number of patient's age categories on each disease being recorded. The age categories for the data collected from the clinics were <1, 1-4, 5-14, 15-17, and 18+ for females separated with males. The discussion with different clinics regarding the importance of each age category compared to the national population data categorization resulted into a categorization of < 5 and >5 for some clinics while leaving other clinics with <1, <5, 5+ and >15.

Designer: "Do you use all these age categories?"

User: "..."

All users told they do not use all age categories. Some did not even know why they collect those age categories. Others said that they are collecting them because some people from different organisations (usually NGOs) come to them (users) looking for those data.

Figure 2. Mnazi Mmoja hospital information system design process

Exercising Participation in Blekinge

The Swedish project started in October and November 2005. During the autumn a number of workshops were conducted; two at each municipality participating in the project, with the total number of eight workshops.

"Do we really have everything with us? The tape recorder? The digital camera? The paper cartoons? The two paper bags with pens, clue sticks, tape, colour pens, yellow, green, white and pink post it notes, scissors, our scenarios, picture catalogues? Have you checked? And are the batteries of the tape recorder loaded? We really look like low-budget travelling sales persons or academic bag ladies. Is this really serious?!...", see Fig.3.

Figure 3. The travelling PD-researcher

Let this short re-visit to the initial phase of the project summarise the guiding principles for the exercise of participation:

- Simple, cheap and familiar tools for all participants
- Open entrance – no specific pre-determined focus on e.g. technology
- Not requiring time consuming preparations
- Inviting to and allowing collective exercises of participation – focus on the team not on the individual person
- Talking by doing – creating trust through a non-formal and open dialogue of the everyday life of the participants

The First Workshops

The participants in the workshops were, in addition to the two researchers⁷, a number of civil servants in four municipalities in the region of Blekinge. The participants were invited and encouraged to create a collective map/collage of their physical work place on a big white sheet. The creation was done as a collective exercise where the research participants facilitated material such as cutting images (people, furniture, technical artefacts), coloured paper, scissors, tapes, catalogues with pictures of desks, computers, binders etc. for creating 'maps' (see Fig 4). The map making also demanded discussions between the civil servants and the researchers of what should be included and not on the map, asking for support and help, commenting each others contributions, chancing ideas of what is important and what is not. So the maps were shaped as a co-constructive activity.

After the basic map was created the civil servants continued their cartographic exercise by including the most important relations in their work practices, which could be with their fellow colleagues, other employees at the municipal office,

⁷ Gertrudes Macueve, PhD student at University of Oslo participated in the first part of the workshops.

representatives from other companies, politicians, citizens as well as with artefacts (telephones, computers, printers, e-mail, fax, web pages, post-it notes, maps, rules and regulations, digital assistant, paper based brochures and so on).

Figure 4. A collective map

In situ interviews, or preferably dialogues or just talk, were closely enweaved in the mapping activity, providing an easy access to relevant topics as presented by the civil servants and also an uncomplicated and informal way for the research participants to talk and ask clarifying questions and discuss.

The researchers had also created a variety of scenarios in advance based on their experiences and imaginations of day-to-day situations in the employees' work practices. The scenarios consisted of telephone calls, web inquiries, personal visits made by citizen X living in the actual municipality. A number of scenarios were performed as a role game as one additional way to get insight/understanding and to follow the traces of human and nonhuman actors in the work practices as for example: *"Hello, I and my family have recently moved to this town. Now we are wondering if there are any afternoon activities for children?"* *"Hi! It's absolutely devastating that children on their way to school have to take their bikes to the big road. How should I proceed if I want to suggest a new bicycle lane should be constructed?"*

The Second Workshops

The following workshops were based on the civil servants' own ethnographic exercise. In order to test experience based ethnography a number of disposable cameras were delivered to the workshop participants to develop further the idea of collective maps of their everyday work. The aim was both to visualise further the work routines for the participants themselves but also to give further clues and ideas for our situational process approach. Based on our earlier experiences and also referring to the ideas of testing and developing forms of participation we were convinced that when walking through with cameras and taking photos closely connected to the working environments and practices it was essential that it should be done by the experts of the everyday in focus, namely the civil servants

and not the research participants. Participants from each municipality received two cameras each. The period for photographing was limited to approximately 2-3 weeks depending on how the date for the next coming workshop was negotiated.

The structure for the second workshops with the project participants was the same: have a complementary look at the workplace maps, browse through the photos (which were developed and printed during the weeks between the first and second workshop), choose and then place the most important ones of them on the map. Finally, to have a specific thematic discussion in each location based on the analysis of the first workshop session map. The introductory workshops were concluded by starting to think and to imagine of relations, connections, contacts and co-operation. In one case the dominating theme was the performance of gender in a male dominate sector, while in another case the implementation of the digital assistant or the relations between people and technology appeared to be a leading theme when thinking of important relations and communication at that specific work place.

EXPLICIT DIFFERENCES BETWEEN THE PROJECTS

When bringing the Tanzania-Zanzibar and the Swedish projects together the most explicit differences were connected to participation, scene, location, and technological skills.

Participation

In the Tanzanian case, due to the nature of the health care work and lack of human resources within the health care system the participants were working, the designers had to follow users in their working environments. Most of the time interviews and discussions had to be rescheduled to fit the participants' time. The Mnazi Mmoja hospital is a referral hospital therefore many patients from other small hospitals come to this hospital. Sometimes the health workers have to give priority to emergence cases instead of the project even if we had agreed to meet. One health worker expressed:

"Today there has been an accident and therefore the doctor in charge is in the theatre room and he is the one who can tell you in specific what diseases are most common. We [the nurses who were there] will give him your [designers together with the head of the hospital Statistics unit] message."

To participate in the Swedish project was taken for-granted. A number of local factors helped to create a smooth acceptance; such as the physical distance as almost non-existing in a small region such as Blekinge, and the mental closeness being tight between the municipalities and the university – most of the municipalities have experience of working in R&D-projects and one could almost claim that there is a quiet agreement that co-operation with the university is important both for the region and the actual project partners.

Scene

The Tanzania-Zanzibar case was carried out in a hospital in the public sector as a part of the HISP project, a large-scale program. On one hand the organisation is hierarchical with strict boundaries between the professionals both within the individual clinics, individual wards and within the hospital as a whole. This resulted in the fact that every time the designer(s) needed to have access to the in charge of the wards and clinics, the head of the hospital Statistics Unit had to coordinate. On the other hand the IS was implemented very recently and only a few health workers had used IT earlier. In the Swedish case a number of municipalities in a low populated region are involved, the project is low-scale and limited to the involved units compared to the Tanzania-Zanzibar case. The involved civil servants had been using IT in many years

Location

The most apparent difference between the two projects is of course the geographical. One of the projects was conducted in Africa (Tanzania-Zanzibar) and the other one in Scandinavia (Sweden-Blekinge). But what do these locations mean if we consider them as sociopolitical spaces? Tanzania-Zanzibar being a developing country has been putting efforts in improving its public health care through increasing access to health facilities. However, Tanzania-Zanzibar apart from having a short history of using information systems as compared to Swedes, it also has a short history of computerization in the working life. Together with the human resources, the technical infrastructure is limited. Health workers are lacking even simple calculators for totalizing the number of patients attended in a particular month. This results in time consuming job and error prone results. In Sweden the political ideology, known as 'folkhemmet'⁸ [13], has been the ruling social democratic ideology in Sweden since the Second World War. The main characteristic of the 'folkhemmet' ideology has been to build up a strong welfare system that guarantees social benefits. During the 1970s new working life legislation was carried out, which enforced the position of the employees in the decision making bodies. The ground of participation is politically grounded and also formalized. [9]

Technological Skills

Computer skills are wide between Tanzania-Zanzibar and Sweden. Due to the stable technical infrastructure, on-going computerisation and automatisation in the working life in general, and also to political initiatives aimed to promote access to technology (e.g. tax reductions and free access to the Internet e.g. at public libraries) have provided time and opportunities to get familiarised with IT. There is hardly anyone in Sweden who has not experiences of a variety of IT-implementations. The story is quite contrary when we change the scene and analyse the access and familiarity

issues in Tanzania-Zanzibar. The lack of basic computer skills and as a result experiences of IT-use are hardly existing [17].

Currently no taxes on importing computers in Tanzania which has reduced the prices and therefore many people are now starting having computers for home use. However, since this is a recent initiative people are still lacking computer skills. Another reason is the poor electricity infrastructure which limits the use of computers in different organizations especially those in remote areas - hardly to find a computer in a rural hospital. The improvement in using computers due to the current policy of removed taxes takes place in towns and big cities with electricity.

From Differences to Similarities

The discussion above stresses the apparent, clear and obvious differences so it might seem as if we were comparing apples and oranges. But the both cases take their starting points from the Scandinavian tradition of PD; namely from the wishes to involve users, to understand work practices, to situate and locate design, and to respect the democratic principles of participation.

These similarities construct PD as a boundary object [29], in the meaning that through the similar core ideas the projects are not only tied together, but also connected to the shared PD-approach. So the sameness is there. At the same time we now know that the differences are also there. PD seems at the same time to be something fixed and fluid. John Law [18] suggests the concept of fractional objects for phenomena that are successful just because they can change their shape by being fluid. The conclusion is that it is the richness and multiplicity that will keep PD alive and that also makes it richer and stronger. PD has become 'more than one but less than many.' [18].

We take the concept of fractional objects with us, when we move from the discussion of differences towards participation as a resource for the development of PD. In order to do this we re-visit our individual projects.

HOW TO KNOW ABOUT KNOWING?

Many of the PD-projects have been and are still located in the working life, such as in our case at a hospital and in a number of municipal offices. A sincere development of work practice sensitive methods has been one of the corner stones in the history of PD. Especially ethnographically oriented methods, such as interview and observation, have been used when trying to capture the richness of the everyday work. In general, the ethnographic studies within the PD-projects have been placed in the initial phases and conducted by the initiative of the design partners of the project.

In Tanzania-Zanzibar participation was done through interviews, observations, individual and group discussions. Based on the hierarchical nature of the working environment, the head of the statistics unit had to organize all the interviews, go with the designers ward by ward,

⁸ People's home [Our translation]

clinic by clinic for observations and some group discussions. The initial design work involved these ethnographic methods in order to understand the conditions and work practices within the hospital. However, unlike traditional ethnographic methods the work did not end in understanding the setting and the work practices, but the methods were used through the design process for making improvements in what was being designed. This was mainly during the testing phase of the design process.

In most of our design work, we adopted the role of participant observers, finding ourselves becoming part of the hospital context through activities such as going with the head of the statistics unit ward by ward collecting the monthly data. This role helped to research the data collection and reporting process and creating a working relationship with the hospital staff. Most of the interviews and individual discussions were done when we exercised the role of participant observers. Group discussions were done through meetings between designers and users.

However, using these methods was not free of challenges either for designers or users. The challenges lie partly in setting up meetings due to the busy schedule of health workers. For example it was not possible to have two meetings for group discussions with people having the same work. The other challenge was in defining courses of action in the design in cases when there were multiple perspectives and suggestions from the health workers. Whose perspective and suggestions should be designed in the system? In dealing with this challenge we had to extend our discussions and point out to the importance and strengths of one suggestion over the other. This was possible with the help of the heads of the statistics unit and the hospital matron who has experience in most of the hospital issues.

Despite these problems we still used ethnographic methods due to the following reasons: Considering the fact that the HISP project (together with its accompanying software – DHIS) is a research and development program which originated from South Africa, ethnographic methods provides us a valuable tool for developing the HISP and DHIS for local adaptation. Another reason is due to the busy working environment of health workers these methods helped us to us participatory design at the same time allowing health workers to continue with their work.

There is no doubt that questions concerning methods of the user participation have been widely discussed and developed during many years within the PD-community. We have seen methods growing from experiments and later on finding their place in the method cupboard: games [3] probes [19] ambiguity [11], photography and video filming as extended tools for ethnographic studies [32] and a number of other visual techniques (freehand drawing, and dead sea scroll) [7]. The common feature for these methods is to obtain 'first hand experience with present work practices, technological options, or a proposed new system'

[7 p. 246]. In spite of the powerful idea of connecting the design phases to the present work practices and inviting users to participate there is still room for critical questions.

Are Ethnographic Methods Really Enough?

The practice and experience based aspects of knowledge and knowing are not directly observable for ethnographers since they are not knowledgeable experts of experiences and practical skills in focus. On the other hand, to articulate practical and experience based knowledge in words, is not a simple task for the practitioners either [see e.g. 21, see also [23] for a discussion of silences]⁹. This has been on going discussion in the PD communities but the question is still of importance: How to sensitise the work practice oriented methods to enhance the tacit knowledge? What are the practitioners' own ethnographic methods, and what is the role of the expert ethnographers is a question occupying the researchers in the Swedish project.

The implicit starting point when using interview and observation is that knowledge, knowing and skills are something that can be captured even by an outsider - the ethnographer - and/or something that can be put in words and talked about. [see e.g. 7]. However, when linking ethnographic methods and work practices together with knowing and skills (knowing and knowledge in practice), we step aside the visible, explicit and articulated aspects of knowledge. The focus shifts to the direction of experiences and the tacit aspects of knowing and skills. How to face the problem is not in the PD-community important (only) as an interesting epistemological question. But mainly it is a demanding methodological challenge because at the end the issues of knowing and skills get linked to the design issues: "How can the invisible knowledge, experience... be articulated and integrated into technology design?" [16, p. 36]). In earlier projects, with the special focus on tacit knowing, a story telling method has been tested but in the actual project the method was not applicable due to the time limit.¹⁰ In the Swedish case the aim was to avoid 'methods of words' but instead in a higher degree visualise the work practices by the civil servants themselves.

Embracing Ambiguity

Susan Leigh Star and Anselm Strauss [30] raise, however, an ethical question of invisible and silent knowledge: Is it always wise from the perspective of the professional people to uncover their skills? Or might we risk something when we add aspects of power and status in the analysis? With an

⁹ The statement is also based on the recent projects with a number of employees at a call centre and a job centre conducted by one of the authors.

¹⁰ The earlier projects with the staff at a call centre and a job centre were conducted as a continuous series of seminars during appr. 6 months.

example from one of the Swedish workshops we will illustrate tacit knowledge and silence:

We are laughing and talking. One of our participants is telling a wonderful story from her everyday work. One citizen visited her. The woman was behind with the payments of day nursery. She wanted to pay in cash but the system did not accept any real money. So the civil servant said to the person: "Let's go together to the bank. Then I'll see that you fix it and I get a receipt. When I go back to the office I register your payment. After that everything is in order". And they did it, thus, marched together to the nearby bank. Everything worked out smoothly. And everybody was happy: the citizen (she could pay the fee for day nursery and not end up in the enforcement register), the civil servant (she could do her job and get in the expected fee) and the municipality (they got their money). Then (Pirjo) asked that couldn't the citizens use the municipality web site to check their taxes and other fees. Hence to develop a self service municipality? And we started to make fantasies or scenarios. And suddenly I heard the civil servant who sat next to me, she said, very, very silently: "But then Anna (referring to the civil servant working with the municipal fees, sorting them, posting the payment forms, reminding etc) will get unemployed??" (From the research diary).

When we open up the questions of knowing and skills we might end up in ambiguities giving a feeling of uncertainty when one has to deal with fuzziness and fluidity that cannot be interpreted and compromised in a one single linear and rational story supporting design [18]. However, if we really take the PD-core ideas seriously, fuzziness and fluidity are not anything we should work away from. Instead we should ask how to keep them alive in PD-projects. So the key question becomes how to talk and exercise participation that enables and allows different realities, experiences and knowledge.

DISCUSSION

Participation and its various forms have been reported through the two cases. The prerequisites differed in terms of location, scene, and technological skills. Nevertheless, it was possible to create space for agency for those involved in the projects. Hence PD's and particularly the Scandinavian tradition's strength actually lie in its capacity and ability to get translated and transformed; in its fluidity and ambiguity.

While the differences were obvious the similarities were more ambiguous. But by discussing methods, we could address the question of skills, qualifications and knowledge and also the question whose knowledge dominates; the user or the designer/researcher. Then the similarities appeared more obvious. The original idea of PD was to develop tools and methods to support the mutual co-operation between different groups of expertise, but it still kept the skills and positions of designers and users separated.,

The lessons learned through juxtaposing the two cases are that participation and how to participate has to be negotiated and adapted to the local setting. Sometimes we can renegotiate the relations between the designers and the users like in the Swedish case and sometimes the mutual cooperation demands separation of designers and users like in the Tanzania-Zanzibar case. Thus, the designers seem to dominate in the Tanzanian-Zanzibar case compared to the Swedish. On the other hand the users were not a uniform group; some dominate more than others. Users from the Mnazi Mmoja hospital can be categorized into two groups: health practitioners and the head of the statistics unit. When health practitioners were busy and we (designers) could not get them to make decisions, the head of the statistics unit made decision on the particular issue.

So there are no universal answers to the ongoing discussion about the relationship between designers and users [see e.g. 20]. But the question to be asked in all PD projects is: How can the dominant notions of 'relevant expertise and views' be challenged? [16, p. 36] This is the only way to keep PD's idea to create trust, openness and to give room for participation.

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REFERENCES

1. Beck, E P for Political: Participation is Not Enough. *Scandinavian Journal of Information Systems* 14, 1, (2002), 77-92.
2. Bjerknes, G., Bratteteig, T. User Participation and Democracy, A Discussion of Scandinavian Research on System Development. *Scandinavian Journal of Information Systems*, 1, 7, (1995), 73-98.
3. Brandt, E., Messeter, J. Facilitating Collaboration through Design Games. In *Proceedings of Participatory Design Conference (PDC)*, Toronto, New York City, USA. ACM Press, 2004, 121-131.
4. Bratteteig, T. *Making Change. Dealing with relations between design and use*. Dr. Philos dissertation, Department of Informatics, University of Oslo, 2004.
5. Bratteteig, T., Stolterman, E. Design in groups—and all that jazz. In Kyng, M., Mathiassen, L. (eds). *Computers and Design in Context*. MIT Press, Cambridge, Mass., London, 1997, 289-316.
6. Braa, J., Hedberg, C. The Struggle for District-Based Health Information Systems in South Africa. *The Information Society* 18, 2, (2002), 113-127.
7. Bødker, K., Kensing, F. and Simonsen, J. *Participatory IT Design. Designing for Business and Workplace Realities*. MIT Press, Cambridge, Massachusetts, London, England, 2004.

8. Bødker, S. A for Alternatives. *Scandinavian Journal of Information Systems*, 15,1 (2003), 87-89.
9. Ehn, P, Scandinavian Design: on Participation and Skill. In Schuler, D., Namioka, A. (eds.) *Participatory Design: Principles and Practices*. Lawrence Erlbaum, Hillsdale, New Jersey, 1993, 41-77.
10. Elovaara, P. *Angels in Unstable Sociomaterial Relations: Stories of Information Technology*. Karlskrona, Blekinge Institute of Technology, 2004.
11. Gaver, B., Beaver, J. et al (2003) Ambiguity as a Resource for Design. In *Proc. CHI 2003*, ACM Press (2003), 223-240.
12. Göransson, B. *The practical Intellect: Computers and Skills*. Springer Verlag, London, Berlin, cop. 1993 Carlssons, Stockholm, 1996.
13. Hansson, P-A. Folkhemmet, medborgarhemmet [People's home, citizens' home]. In Hansson, P-A, *Demokrati : tal och uppsatser* [Democracy : speeches and essays], pp.19-32. Tiden, Stockholm, 1935.
14. Haraway, D. J.. *Simians, Cyborgs, and Women: The Reinvention of Nature*. Routledge, New York, 1991.
15. hooks, b *Feminism is for Everybody: passionate politics*. South End Press, Cambridge MA, 2000.
16. Karasti, H. Gendered Expertise and Participation in Systems Design. In Mörtberg, C., Elovaara, P. and Lundgren, A. (eds) *How to make a difference?: Information Technology, Transnational Democracy and Gender*. Luleå University of Technology, Luleå, 2003, 29-49.
17. Kimaro, H.C., Titlestad, O.H. Challenges of User Participation in a Design of Computer Based System: The Possibility of Participatory Customisation in Low Income Countries. In *IFIP WG 9.4 Working Conference. Enhancing Human Resource Development through ICT*, May 26-28 2005, Nicol Hilton Hotel, Abuja, Nigeria.
18. Law, J *After Method: Mess in Social Science Research*. Routledge, London, New York, 2004.
19. Loi, D, Voderberg, M, Manrique, P, Marwah, S, Liney B. "Live like I do" – a Field Experience Using Cultural Probes. In *Proceedings of Participatory Design Conference (PDC)*, Toronto, New York City, USA. ACM Press, 2004, 121-131.
20. Markussen, R. Politics of Intervention: Feminist Reflections on the Scandinavian Tradition. *AI & Society*, 1996, 10, pp. 127-141.
21. Molander, B. *Kunskap i handling [Knowledge in Action]*. Daidalos, Göteborg, 1996
22. Mörtberg, C. *Medborgare i en digital tid - aktörer eller konsumenter? [A Citizen in a Digital Era: Actors or Consumers?]*. Oslo: Nordisk institutt for kvinne- og kjønnsforskning. NIKK Småskrifter nr. 9, 2004.
23. Mörtberg, C., Stuedahl, D. Silences and Sensibilities – increasing participation in IT design. In *Proceedings of The Fourth Decennial Aarhus Conference, Denmark (ACM)*(2005),141-144
24. Puri, S., Byrne, E. , Nhampossa, J.L. and Quraishi Z.B. Contextuality of Participation in IS Design: a Developing Country Perspective. In *Proceedings of Participatory Design Conference (PDC) Toronto*, New York City, USA. ACM Press, 2000, 42 - 52.
25. Rydhagen, B. *Feminist sanitary engineering as a participatory alternative in South Africa and Sweden*. Blekinge Institute of Technology, Karlskrona , 2002
26. Regeringens proposition 1999/2000:125 *Ett informationssamhälle för alla* [Government Bill 1999/2000:125 An Information Society for All], <http://www.regeringen.se> [2006-01-15].
27. Sahay, S., Avgerou, C. Introducing the Special Issue on Information and Communication Technologies in Developing Countries. *The Information Society* 18, 2, (2002), 73-76.
28. Shapiro, D. Participatory Design: the will to succeed. In Bertelsen et al. (eds.) *Between Sense and Sensibility Critical Computing Aarhus 2005 Proceedings ACM*, pp 29-38, 2005.
29. Star, S. L. *Misplaced Concretism and Concrete Situations: Feminism, Method and Information Technology*. Gender-Nature-Culture Feminist Research Network, Working paper 11, Odense University, Odense, 1994
30. Star, S.L., Strauss, A. Layers of Silence, Arenas of Voice: The Ecology of Visible and Invisible Work. *Computer Supported Cooperative Work* 8, (1999), 9-30.
31. Suchman, L. Located Accountabilities in Technology Production. *Scandinavian Journal of Information Systems* 14, 2, (2002), 91-105.
32. Suchman, L., Trigg, R.: Understanding Practice: Video as a Medium for Reflection and Design, In Greenbaum, J., Kyng, M. *Design at Work: Cooperative Design of Computer Systems*. Lawrence Earlbaum, Hillsdale, 1991.