

Scandinavian Participatory Design - Beyond Design, Beyond Scandinavia

Pär-Ola Zander¹, Marianne Georgsen¹, Tom Nyvang¹

¹*Department of Communication and Psychology, Aalborg University, [poz, nyvang, mag]@hum.aau.dk*

Abstract

This paper presents a stream of research that is relevant for development research generally and also in South Asia, but has hitherto remained outside the discourse of mainstream development research. It goes under the name "Participatory design", referring not only generally to participatory approaches, of which there are many in development research, but to a specific body of work that stems from Scandinavia. Within the research fields relating to design of ICT systems the Scandinavian countries have a rich history of incorporating disadvantaged groups in societies. This paper argues for the relevance of participatory design in development research. It is contrasted towards some similar literature that is already mainstream in development research, and provides an overview of its existing accomplishments. We also address some weaknesses in PD, if it is to be successful in its contributions outside its original domain. When possible, the points are illustrated through a recent research project in Dhaka, Bangladesh.

Introduction

This paper presents a stream of research that is relevant for development research generally and also in South Asia, but has hitherto remained outside the discourse of mainstream development research. Within the research fields relating to design of ICT systems the Nordic countries have a rich history of incorporating disadvantaged groups in society. The origin of Scandinavian Participatory Design stems from the early seventies, when it questioned management's monopoly on taking initiative in technological changes at the workplace. Researchers and labour unions made alliances, and carried out research on how the workplace could look like in the future if the needs and know-how of workers were taken seriously. This approach attained great interest, also outside Scandinavia, and today the term Scandinavian Participatory Design is often used to denote it within the domains of information systems design and associated fields of design and computer science. This legacy has since then spread to many other domains of user groups perceived as having a weak voice as compared to dominating actors: Disabled people, consumers, citizens, volunteering organisations, etc.

As the use of ICT is becoming more widespread in developing countries, it is obvious that participatory design (PD) on an abstract level has knowledge that can be applied in the emerging areas of ICT use there. Its contribution does *not* lie in placing focus on participation in general. The participatory aspect is certainly not new - it has evident affinities with approaches in development research, such as PAR (Fals-Borda & Rahman, 1991), PRA (Chambers, 1994), and PTD (Biggs, 2008), to name a few. At the same time, the context where PD started is very different to the South; load shedding and

widespread corruptions are but two examples of phenomena that are absent in most Scandinavian PD projects.

It should be noted that contemporary participatory design has many roots, and the Scandinavian tradition is only one of them. In using participatory design for denoting the Scandinavian tradition, we thus ask for some poetic license, well aware that there are other lines of thought as well that are referred to with highly similar terms¹.

What is PD?

Although the name "Participatory Design" seems to imply that the research focus was to create new (designed) ICT tools, this is somewhat misleading. The underlying goals of PD are increased democracy and economic development through ICT. Actually, that was precisely what made it stand out from much other early participation-oriented work in ICT (e.g. Negroponete, 1970) which was oriented towards developing more usable products and creating less dependency on experts among individual users. Hence, the first project in the early seventies, called the NJMF project, analyzed the future scope of computers for control of factory production in the Norwegian metal industry. The project suggested various strategies for how the trade unions were to cope with the prospects of computerisation, both locally and centrally (Nygaard & Bergo 1974). It emphasized that this kind of analysis for a large part should be carried out by workers themselves, with the assistance of researchers. Three later projects, DUE in Denmark (Kyng & Mathiassen 1979), DEMOS in Sweden (Ehn & Sandberg 1979) and UTOPIA (Bødker et al. 1987) in the Nordic countries, added the features that have come to characterize PD:

- A focus on *concrete mock-ups* (see example below), which *makes discussions tangible*, and enables a discussion about specific, personal experiences (Ehn & Kyng 1991). An example of a concrete mock-up is when participants are discussing the use of mobile phones that are used for scanning, and a scenario is enacted where old mobile phones are used, and scanning labels are provisionally constructed. Another example is when an envisioned web site interface is represented in a workshop by an ad-hoc drawing in order to explore what-if situations in people's everyday lives. The key methodological underpinning is "*an insistence on concrete experiences as the basis for theoretical work*" (Kyng, 1996, p. 32).
- Related to being concrete, PD also advocates the *importance of local action*, possibly paired with action on central level. Change should not be imposed from above, but be anchored in local motivation, e.g. felt needs that are not satisfied (Kanstrup, 2005).
- An emphasis on *engaged scholarship*. The researchers are involved in and take a stance in the real-political situations which relate to the research project. This both means taking the workers' perspective (Ehn, 1989), or in some cases trying

¹ We also ask for poetic licence in another sense. In its early days, Participatory Design went under several names, e.g. the *collective resource approach*, and *cooperative prototyping*. These debates over names we feel are relatively irrelevant for the intended readers of this paper and the task at hand, and thus we have collapsed them into one name only.

to find a win-win situation in a complex stakeholder situation (Bødker & Zander, in review), or other options. But it is never a top-down manager perspective that is taken, or a detached, descriptive approach. There is always some ambition of change involved.

- *Building realistic expectations* about what can be achieved. ICT (information communication technologies) can do many things, and many organizations where change seemed impossible have in fact changed. However, for a sustainable effort for change to take place, realistic expectations are necessary (Bødker, 2004).
- *Contradictions as a fundamental condition for social reality*, and also a *resource* and catalyst for future action (Gregory, 2002). Contradictions can be productively used for framing discussions. It can also be seen as what produces motivation to change. If there are irreconcilable forces in a social system, individuals will be put in double-bind situations (Engeström, 1987) where they will not feel comfortable. When having to cope with these situations, they may innovate new modes of work, and these modes of work can fruitfully be analyzed in the design process.



Picture 1. A paper prototype, acting as a "thinking tool" for map-based discussions on smart phones.



Picture 2. A mock-up of an envisioned controlling device for home entertainment.

In order to target also the macro level, several influential Scandinavian PD projects have used a double strategy as its goal; micro-cases of applied research paired with a general political strategy (e.g. with labour unions at the top national or international level). Today, some PD projects have a more local focus and concentrate exclusively on a specific workplace. However, this was not in the original idea of PD where PD-projects would also hold ambitions on a more general societal plane. It is still typical that PD projects are prototyping in the context of one particular workplace, but with the intention that the prototyping should have implications for a whole sector. For instance, PD prototyping in the context of case-processing of parental leave in one Danish municipality may result in recommendations for future systems and work processes all over Denmark.

Speaking of design, it should be stressed that this does not necessarily mean design of technological products or software for digital equipment. Design should be understood also as organisational design – meaning development of new work practices and procedures, as well as artefact design. PD is also characterised by a focus on the competence building, as seen in e.g. the UTOPIA project which was concerned with avoiding deskilling of workers as a consequence of digitalisation of the printing industry.

It should be noted that today participatory design is not practiced and researched upon only in Scandinavia. Much related work has also been done in the United States. However, there are differences from the Scandinavian tradition. Allegedly, there are some examples where American researchers have done work that is more similar to Scandinavian PD than mainstream American participatory design (and the equivalent goes also for some Scandinavian researchers). However, PD in Scandinavia is quite distinct from its American cousins (e.g. Spinuzzi, 2002). In the U.S., political empowerment, e.g. industrial democracy, has been abandoned in favour of a concentration on functional empowerment - workers getting better tools. There is also a tendency to focus on issues which are not sensitive to fundamental conflicts between capital and labour. Therefore, although the name is widely spread and that there is widespread collaboration between PD-researchers, it makes sense to talk about Scandinavian Participatory Design, rather than just PD.

A few scholars have attempted to use PD methods for development in developing countries, and we aim to contribute further in this direction. We will analyse the early

stages of a project which aims for development of higher education in Bangladesh. The aim of this analysis is to understand PD's potential to succinctly contribute to the field of development research, and also its limitations. The main objective of the project discussed here, called "ePolicyInPractice" (see www.ell.aau.dk for a brief presentation of the project), is to improve the digital infrastructure and the pedagogical competencies at Dhaka University in Bangladesh. An important part of the project is to shed light on how Bangladesh's ambitious visions for a future "Digital Bangladesh, vision 2021" manifest themselves at the level of realisation. The current government in Bangladesh invests heavily in ICT, but what effects this has for e.g. daily operations in higher education is actually not known. Hence the name of the research project – what does the e-policy mean in practice?

The first development issue we address is PD's assumption that much of local knowledge is tacit and overlooked in the policy processes. Therefore dialogic techniques and methods must be based on concrete actions in order to allow articulation that all stakeholders can understand. For instance, PD has worked extensively with scenarios where concrete situations are walked through, and with specific "personas" which can highlight some developmental problem. This can be seen in opposition to diagrams and maps of abstract processes. Independently from the Scandinavian developments, von Hippel at MIT developed his "lead user approach", which emphasized that some users/consumers were very capable innovators, often more capable than in-house product developers in many aspects. Von Hippel was also able to explain why this was the case, and furthermore he morally defends the lead user approach by arguing for it being more democratic than the more closed, classical model of innovation where R & D departments of companies keep the novel product in-house until it is ready for release. These thoughts go very well together with PD, and combinations of the approaches are emerging, e.g. the SPIRE center approach to PD (Buur, 2011).

Some important PD projects in development research

By no means do we claim that we are the first to utilize PD in the context of developing countries, or for development. An important precursor is the so-called Ahmedabad projects in India (Rice, 1958) carried out by the Tavistock institute. Although not full-blown PD (for instance it has too much of a managerial approach, and it did not have access to many workshop techniques that are at hand today), it is similar in its optimistic view of workers' interest in changing, and as a study of local change.

The HISP project in Norway, South Africa and India is a large-scale project with explicit PD underpinnings (Braa, Monteiro, & Sahay, 2004). It is a project dealing with capacity enhancement of health and ICT for health. One of its main accomplishments is a widely used system for health management information (DHIS), another is the development of a postgraduate program in health informatics. It was one of Norway's highest ranked international development projects in 1999 and 2000. The first versions of DHIS was developed and implemented in Africa, but it has now spawned an Indian branch in the form of an NGO that by 2011 employed 30 people. To some extent it has also been active in Bangladesh and Sri Lanka. All this makes the project not only an example of PD in South Asia, but also the largest and most successful PD project aimed at development (of poverty-stricken countries).

What are then the key lessons that can be learned from HISP about how to appropriate PD to development contexts? HISP has learnt from the early PD projects that a focus on sustainability needs to be built into this kind of projects (Braa et al., 2004). This includes situating interventions within networks rather than in "singular units" (typically single organisations). Other lessons learned from HISP include models for doing action research in development research for health information infrastructure, and most important – the project has greatly improved the health information infrastructure of several countries, despite that this task had no success model which the project could "carbon-copy".

In the following, we will discuss how links between PD and development research has hitherto been conceptualised.

Existing Literature on PD in Development Projects

We are aware of two papers which discuss the relationship between PD and development research, namely Gregory (2009) and Puri et al. (2004). Puri et al. (2004) notice some interesting tactics which has not previously been tried in "classical" PD in the West:

- working within the local patterns of participation
- consideration of top-down approaches in bureaucracies in the South
- focussing on capacity development as an integrated part of any design
- adapting interventions to a lower level of democratisation, literacy and infrastructural logics

Whenever possible, they have worked with existing cultures of participation (e.g. in South Africa, as described in Puri et al. 2004). In some cultures ways of participation may not be formalised, but are constituted by social practices that are participatory by nature, such as village meetings, etc. In traditional workplace-based PD the tactics have been to rely more on institutional participation (through trade unions, paid time off, etc.). This also includes relying on ceremonies and rituals as mediators. Furthermore, Puri et al argue that PD may need to be top-down in Indian bureaucracies, since there is only little scope for bottom up-participation in traditional organisations with strong bureaucracies. We find this to be the case in our own work in Bangladesh as well. Puri et al notes that capacity development is a somewhat absent theme in PD, and in fact they talk about this as a problem with information systems-research as a whole. As mentioned above, projects within 'original PD' has a history of working together with workers to avoid what was known as deskilling, a much feared consequence of computerisation in the 1980'es. However, the need for skills development in the context of developing countries cannot be ignored, and new ways of making capacity development part of the design process may be needed. The assumptions made in PD about democratic workplaces, high literacy level, and a reasonable infrastructure are also a challenge when it comes to taking PD to new contexts. A possible weakness in the work of Puri et al is that they seem to ignore that PD is no longer about workplaces only, and thus their comparison is partly misguided. There are plenty of non-work PD studies, for instance several papers are found on other issues than "old waged men" already in Bjercknes et al, 1986, and interesting recent developments include also large-scale infrastructure projects (e.g. Shapiro, 2005) and PD in the private sphere and in the home (e.g. Glasemann & Kanstrup, 2011; Kanstrup & Christiansen, 2009).

A short description of our case - ePolicyInPractice

In this section we briefly introduce the context of the project ePolicyInPractice, in which we apply a participatory design approach. Among other things, we will be conducting workshops, interviews, observations, data analysis and feedback sessions with participants.

“ePolicyInPractice” (ePiP for short) researches the question of how to translate and transform existing learning and teaching practices and administrative workflows at Dhaka University (DU), Bangladesh, in order to form a sustainable strategy for implementing information and communication technology (ICT) policies in higher education in Bangladesh. The project started in 2011. Both digitalisation of society and higher education are seen as vital for the growth of Bangladesh's economy, not least by the Bangladeshi government. An important part of the research project is to shed light on how Bangladesh's ambitious visions for a future “Digital Bangladesh, vision 2021” (Prime Minister's Office, 2010) manifest themselves at the level of realisation. We think of this as a development research project, as it provides knowledge about governance of public higher education, as well as knowledge about digitalisation in order to meet several of the Millennium Development Goals through higher education in general. It differs from mainstream policy studies in that it is a micro-level study and a case study of the "Digital Bangladesh" policy. It is also different from mainstream by being action research-oriented, thus interventions and activities with the participants at DU play an important role in the progress of the project. By employing a PD-approach in the project, we will be adding to the experience of feasible ways of conducting change-oriented case studies in Bangladesh. PD has in the past spawned a wealth of interesting research findings about ICT use and development in the developed countries (Greenbaum & Kyng, 1991; Clement, 1993), but to our knowledge this approach is still rather novel in the context of Bangladesh (and most other Asian countries).

The authors of the Digital Bangladesh strategy paper claim that the "Digital Bangladesh vision and its implementation offer the country a tremendous opportunity to leapfrog and accelerate its journey to becoming a middle-income country" (Prime Minister's Office, 2010). Such understandings are often built on cross-sectoral, quantitative studies and interviews with key personnel (Carden, 2009). However, there is a knowledge vacuum in the qualitative micro foundations of this policy. According to Carden, previous micro-foundation approaches have proved beneficiary in understanding and impacting policies in developing countries. A reason to focus on the micro-foundations of use is that research in deployment of ICT has shown that poorly understood workplace and organisational conditions are often a more underestimated challenge than technological matters.

The first of Digital Bangladesh's key challenges is education, and this is where we concentrate the in-depth case study in ePiP. There are several motivations for the usefulness of the outputs of the project. The first and most obvious is that ICT comparatively speaking is used very little at DU, and that it can be observed to be useful in many other countries. Furthermore, the current government in Bangladesh invests heavily in ICT, but what effects it has for e.g. daily operations in higher education is actually not known. Finally, there is no high quality academic research in the domain of Bangladeshi universities and their ICT use, so there is a need for descriptive research as well. The project is planned to run for four years.

Outputs

The outputs of the project will be the following:

- Innovative ways to use ICT not envisioned in the current policy, identified through user involvement in the development process
- An improved ICT infrastructure of Dhaka University, i.e. faster, more reliable and trusted case processing
- Higher education infrastructure, supporting public administration for "good governance" and key DU institutes
- Improved teaching and research capacity in Dhaka, leveraged by applied ICT skills in particular
- Improved skills for managing ICT and reorganisation of work practices
- Skills development

At the moment, the project has no secure funding for training. The ambition is to train phd candidates and post docs through the implementation of the project, so that DU as the first university in Bangladesh can offer a much needed program in Human Centered Informatics. This would increase the long-term sustainability of innovative ICT teaching at DU. Since the project aims at both development at DU and at contribution to the research tradition of PD, we aim to keep a dual focus on project activities.

Method

In the project, Danish researchers will cooperate with staff and management at DU in an effort to strengthen its ICT infrastructure. Digitalisation of DU has a huge efficiency potential, at least as indicated by pre-studies and anecdotal evidence. Many of the DU academic staff has served in foreign universities, and are provoked by lengthy and complicated administrative case processing and communication. Our approach focuses on user needs by using concrete design artefacts, creating user ownership and letting all senses of users assist a design process. It will help us understand how the relevant organisations receive national policies, unintended policy consequences, and how they mitigate the risk of low sustainability of policy initiatives.

More specifically, we will carry out parallel pilot studies in three key areas: Administration workflows, access to library material, and teachers' ICT skills and rethinking the pedagogical approach with ICT. Planned key activities include:

- Observation of current use and interviews
- Training and awareness workshops with management and staff. This involves raising awareness of the goals of current activities, the tools at disposal, and getting enthusiasts aware of the various initiatives already running at Dhaka University
- Prototype construction. We will assist in creating prototypes for future work and future teaching practices. Prototypes will both work as first steps on the way to designing new tools for use, and as facilitators of discussions about future ways of working and teaching
- Tailoring, localisation and integration of existing technologies. This component will be heavily assisted by local ICT firms and the computer science department at DU
- DU will diffuse the systems to other departments as they see feasible

- Researchers will evaluate the implementation and diffusion, also outside Dhaka University

Due to lack of funding, we are currently applying a ‘small steps-methodology’ where we pursue the objectives of the project in connection with other activities and at a speed which is not always determined by what is most ideal, rather what is possible. So far, we have conducted initial field work within student administration at DU (spring 2011), and in the autumn 2011 we have carried out a series of awareness-activities at DU, more specifically: Workshops with teachers and administrators; PR-events for the project; interviews with teachers; and planning of the next steps. In the following, we describe the approach taken in three workshops with teachers and administrative staff. This will serve as the basis for further discussion of the PD-approach to development at Dhaka University.

PD workshops with staff at DU

We have carried out three workshops with staff at DU, one with teaching staff from various departments across the university (13 participants), and two consecutive workshops with administrative staff from different offices (15 participants). All workshops were based on an adapted version of the Future Workshop (Jungk & Müllert, 1987; Klokmose & Zander, 2010), and were aimed at three main objectives: Creating awareness about and positive interest towards the ePiP-project; generating visions about future work practices with ICT; and gaining insight into the participants’ positions and assumptions about their work practices and the conditions for change which apply to their specific situation.

More specifically, the admin-workshops had the following goals:

- To build ownership among workers in order to reduce future risk for resistance
- To capitalise on their detailed knowledge about processes
- To test workshop-methods which ensure that workers can think about the possibilities of technologies without knowing about them beforehand

We were aiming for the following type of outputs:

- Proposals of how a key workflow could be carried out in the future (however, we were expecting this to be an optimistic goal, given the fact that we were unsure how the participants would respond to the participatory approach in the workshop)
- Basis for scenarios of future work processes to hand over to developers at a later stage
- Analysis that enable description of user needs (including end-users, e.g. students, not just staff at the administrative offices)

Both the admin and the teacher workshop shared the goal of learning more about the participants’ perspective. In the case of the teacher workshop this includes their experience with use of ICT in teaching, and their general position towards using ICT in teaching at all. To take ICT into use in teaching and learning almost inevitably infers changes to the existing teaching practice, thus we anticipated a higher degree of interest towards this topic from teachers who are positive towards change and reform in general. Also with the teachers, the testing of the method played an important role to the researchers. A shared concern for all workshops had to do with the willingness and ability of the participants to be critical towards their own practices. This is a well known challenge with future workshops, where participants are asked to base visions of the

future on articulated critiques of the present. Furthermore, we were unsure about the degree of openness to expect between the participants, both in relation to voicing their individual opinions in the group, and in sharing their work practices across different offices or academic departments. Given that the domain of higher education in Bangladesh is highly political, it was expected that the participation in discussions would be somewhat influenced by this.

The participants in the two types of workshops differed in terms of educational level (the teachers were better educated, had travelled more, also to foreign countries and visited universities there, they spoke better English, etc.), and – we think, but are not yet empirically convinced - in terms of influence on and control over their work tasks. We found the teachers to take more initiative and pushing harder for change in their work practice; however, this might be so due to the opportunities related with the different types of jobs. In the admin workshops, both workers and office managers participated (3 senior managers in total), whereas in the teacher workshop the participants seemed to be peers. In the admin workshop, the participants were 12 men (two were managers) and 3 women (one was a manager), and in the teacher workshop 12 participants were male and just one was female. Of the ‘no shows’ there was a higher proportion of women (in the teacher workshop we expected 22 participants, and in the admin workshop 16). Women with families can generally not be expected to participate in activities outside their regular working hours, and even though the workshops took place from 10 to 3 o’clock, the change of venue from their usual offices could be enough to make it impractical for some to attend.

The workshop leaders (researchers) were supported on site by one local senior person (also part of the research team) and two students, who acted translators during the workshops. We decided beforehand to let the participants choose the language they were most comfortable with (English or Bengali), both in the group work and in presentations. In general, the admin staff spoke Bengali in both groupwork and in presentations, and the teachers spoke English.

Regarding the academic challenges in the workshops, we were particularly curious about the following:

- How to give a voice to lesser educated, usually unheard groups in the university administration?
- How to create an atmosphere of trust, openness and imagination towards existing and future work practices amongst co-workers in a political and competitive work place?
- How to produce negotiated and consensus oriented design proposals (across language barriers) which can inform future actions in the project?
- How to connect ideas and visions for the future to a feasible process of change and development, when the scope for future development (including investments) is both unknown and controlled by someone else than the participants?

What we did in the administration workshops

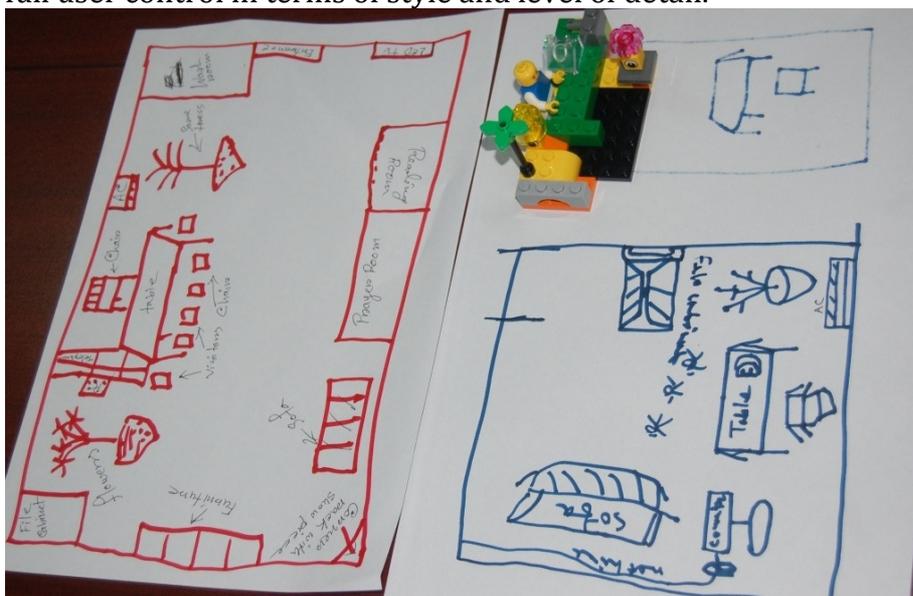
Workshops with the administrative staff went on for two consecutive days, since we were informed that the participants could not be away from their offices for a full day. Instead we worked with them for two half days. The intention of the workshop was to go through two phases of the future workshop (critique of existing practice; and fantasy

about the future). The third phase, the so called realisation phase, was left out, as the main purpose was to try out the scope for user involvement in the process of pinpointing shortcomings in the current work practice, as well as in the creation of new ideas. The idea was to let the critique phase determine focus in the continued workshop, e.g. to find out what workflows to rethink and redesign. The intention was also to try to get a number of fantasies or visions documented which were also detailed in their level of description. Furthermore, we were aiming for the outcome of this workshop to be used as basis for further field observations.

To start out the fantasy phase, participants were asked to engage in a group based game with using Lego as a tool to illustrate something which each person liked about his/her work. One person would build something, the others in the group should guess what it was, and this was followed by a short discussion before the next person was asked to build something. By doing this, we achieved the simple purpose of letting the participants do something fun and serious at the same time. The childish feel of the tool in this exercise gave room for some amusement, and caused some hesitation at the same time, particularly among the senior participants.

The warm up-activity was followed by a collective brainstorm where participants described organizational routines which they found to be unproductive or bad in other ways. These procedures were described in short, and the majority of time and effort went into trying to come up with ways of improving these procedures.

On the second day of the workshop, the groups would repeat the warm up exercise, this time they were asked to collectively illustrate the office of their dreams, using Lego and pen and paper. Following this, the participants worked in group with developing ideas for how to improve some of the problematic procedures identified the previous day (see example of illustration below). They were then asked to produce story boards to illustrate the new improved workflows and –practices. Story boards were chosen because they are easy to exemplify (given most of these techniques would be novel to the participants, we were concerned with ways of giving good instructions); a story board does not focus narrowly on the form, it is fast to produce, and it allows for almost full user control in terms of style and level of detail.



Picture 3. Example of illustration of future office from the admin workshop.

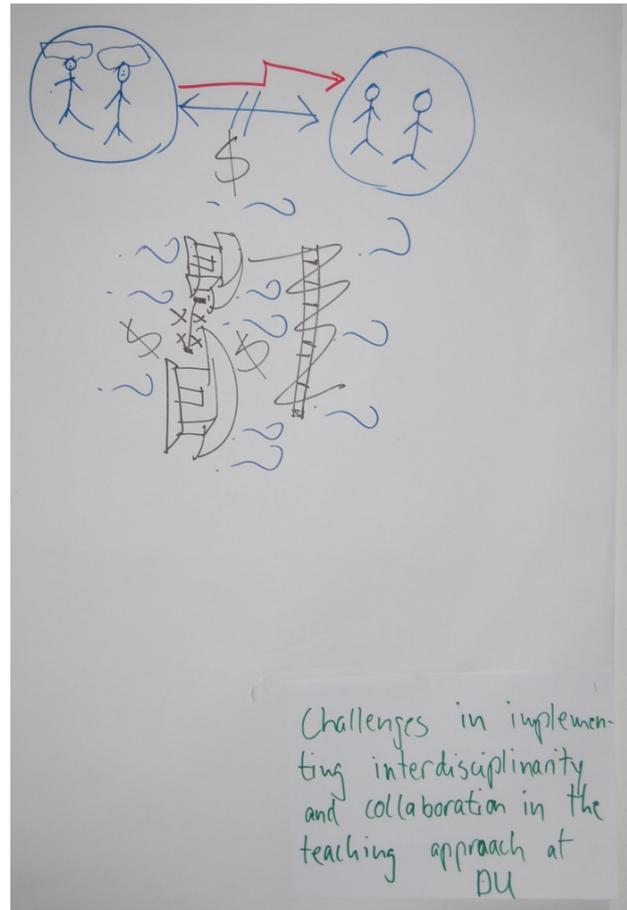
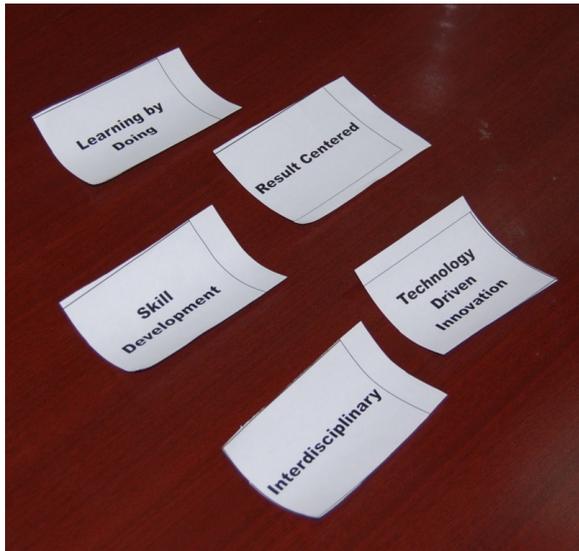
What we did in teacher workshop

Purpose of the workshop:

- To initiate discussions about how ICT can be useful in supporting teaching and learning at DU
- To initiate discussions between DU-staff about what is important in teaching (as this should be the basis for using ICT – ICT should support what the teachers find important)
- Exchange of knowledge and experiences with ICT-use, also about the students' use of and access to technology
- Formulate needs and visions for DU's ICT-pedagogical projects

There were two main activities in the workshop, and part I was about *Identifying values and paving the road for formulating visions*. This part started with a card sorting exercise, where the participants were asked to sort through a set of paper cards with 'value statements' printed on them, and pick out the ones closest to their own beliefs. Participants worked in pairs or groups of three, and had to select 10 out of 45 cards. This was followed by a second round, where groups/pairs would merge into larger groups, each bringing their 10 cards to the table. The process of selecting and reducing was repeated, and the end result of this phase was a negotiated set of value cards (3-5 cards) which were of major importance to the majority of the participants. As part of the process, the participants had to explain to each other why e.g. 'learner independence' was more important to them and their teaching practice than for instance 'globalisation' or 'learning by doing'.

Part II of the workshop was called *Describing needs and creating visions for future development*, and the method was collaborative creation of so called 'rich pictures'. Creation of a rich picture is a group-based process where participants work together on identifying and describing either a work process or the work practice of a specific domain, which in this case was university teaching with and without ICT. In the process participants discuss where the major challenges (or needs, if you like) are; what possible conflicts exist within the domain; etc. Using a set of agreed symbols helps the participant produce rich pictures which illustrate their understanding of the practice in question. The general idea is to generate discussions between participants and by not allowing words in the drawing, participants are forced to articulate the meaning of their drawing as it is created. Each group was given a problem to focus on, and was asked to produce one or two posters with their rich pictures on it, and present for the other groups at the end of this session. An example of a rich picture from the workshop can be seen below. It is characteristic of the pictures produced in this workshop (but not typical for the method) that they were rather hard to interpret for an outsider. Without the presentation by the group behind the picture, the product makes very little sense on its own. We made audio recordings of the presentations of the pictures in the workshop, and the following day we carried out in depth interviews with one member of each group where we asked for further explication of what the group had illustrated.



Picture 4 and 5. Example of result from the card sorting (right), and example of rich picture (left), both from teacher workshop.

Some general observations from the workshops

At this point in time, we have not carried out extensive analysis of the data from the workshops and following interviews. For the purpose of this paper, we will list only a few points from our observations and experiences with the PD-workshops. These points, as well as others, will be explored further in the near future:

- Collaborative skills were expected from the participants, but not always very strong. This was particularly challenging with the admin group. Also it seems that the younger participants were more collaborative; however, this could be a matter of education and position in the office rather than a matter of age.
- Even though we were using 'low fidelity' tools (pen, paper, post its, etc.), the choice of 'technology' should be considered carefully. Our student helpers pointed out that even though Lego was familiar to most people in the workshop, they had no childhood experiences of building with it. Had we chosen to use coloured paper instead, most likely they could have created some rather elaborate scenarios with this.
- As expected, it turned out to be of importance to 'isolate' the managers in their own group. We noticed that the daily hierarchy from the office in some cases was turned around, since some of the participants were very skillful when it came to producing posters/story boards, and also spoke very good English.
- The follow up interviews with teachers turned out to be very informative, and filled in many gaps in our knowledge and understanding about their teaching practices and the conditions for change related to it.

Some Key Differences between PD and Other Participatory Approaches

After having presented PD and a project serving as illustration of possible PD-inspired ways of involving users in both definition and analysis of the problems, as well as in the creation of ideas for new practices, we now turn to pointing out what we see as contrasts between PD and other participatory approaches in development. Our approach is to find the methods and frameworks that are most similar to PD, and contrast them. The following analysis is preliminary work on this issue, and we wish to extend the comparison based on further literature studies as well as on further analysis of our own data material from the ePiP-project in the time to come.

The insistence on concreteness

As described above, part of the admin workshops was to produce visions of the future ways of working with ICT at the university. The purpose behind this was in short to give voice to a group of workers that normally do not have much of a say in the shaping of the ICT systems to come. Concreteness and specificity was not something that came spontaneously out of discussions among case workers. Their default approach was to model work flows, where different formal, bureaucratic roles ("Dean's office", "Treasurer", etc.) were acting. When discussion remained on this abstract level, the facilitators would ask the participants to be more concrete, for instance by asking *which* person was receiving the report at the Dean's office. Was it the dean himself, or was it actually one of his subordinates? In some cases this led to interesting elaborations. In other cases, however, participants were not able to elaborate their vision even when encouraged to do so - they seem simply to fantasise abstractly, or perhaps to lack the specific knowledge about what happens outside their own office.

There are several reasons for why being concrete is important in design of ICT. The first is that when future-oriented solutions later are to be discussed in abstract terms, researchers will normally have the "upper hand". Often researchers have chosen the modelling language, and they are more skilled in abstract reasoning, etc. This may impair the inflow of caseworkers' contribution of records of breakdowns, if they do not translate easily into that language.

Detail and diversity rather than consensus

A second reason for concreteness is that within the field of CSCW² there is consensus that a description of work that is design-relevant is only partial if workflows alone are described. Also other aspects are pivotal, e.g. the routines that reproduces the current way of working, or aspects of trust, non-formalized coordination, etc. (Schmidt & Bannon, 1992). Dhaka University is highly politicised, but this does not show in the workflow descriptions. Thus, there is every reason to believe that the workflow descriptions are very partial descriptions. The danger with partial descriptions is that a future IT system will be designed to comply with the partial description, and will turn out to be incompatible with a lot of other rules, norms and routines (often vaguely described as the 'culture' of the work place), which will cause problems and perhaps rejection of the system.

² Computer Supported Collaborative Work, see e.g. Schmidt & Bansler, 1992, for a definition.

Own language rather than symbols supplied by researcher

PRA is, like PD, modelling various things in participatory ways. In what follows, we will take Mascarenhas & Kumar (1991) as an instructive example. They emphasise the need for maps as important in the design process, and acknowledge the input locals can give in mapping resources and spatial layout. They describe on a very practical level how to do mapping with the very primitive tools that are at hand in rural villages. This may be done in a relatively naturalistic manner, or by introducing symbols that represent socioeconomic variables or other data that are important for the problem at hand.

For the purposes of this analysis, we find it perhaps more interesting what is not discussed by Mascarenhas & Kumar (1991). They do not discuss whether it is a problem for the villagers to appropriate the symbol language used. They are not discussing what the maps do not capture in terms of village practice. We claim that this may be problematic because of what has been outlined above; design-relevant aspects are overlooked, and participants may lose privileges, become alienated, or muted, even though the intention was nothing like this in the first place. In some situations, abstract modelling can work very well, for instance if the modelling has the purpose to act as a vision, which everybody can agree on. Another possible use of abstract modelling is in situations when it is already used for explorative and heuristic purposes which are later followed up by other methods for more concrete specification.

Prototyping rather than recording

Prototyping is widely used within PD, and also in the ePiP-project. Floyd (1984) says about prototyping: "The prototype is a vehicle for learning; facilitates communication – and is a result of the communication." However, there are different forms of prototyping, and thus the PD-researcher needs to be aware that prototypes and prototyping as an activity can serve different purposes. In the workshops described above, prototyping plays a minimal role, since we wanted to fuel the innovation process in regards to both formulating critiques and enhancing collaboration and negotiation of meaning before we engage in actual prototyping. Based on Mascarenhas & Kumar (1991) we find it fair to say that this version of PRA is outcome-oriented (as is the case with PD), in the sense that what is modelled is what a village may look like after a certain transition. Thus focus is on *describing the result*, as opposed to *modelling the process*. In the Scandinavian PD tradition and in the Information systems research field in general, the issue of process vs. product has been debated extensively, and it is our impression that there is good reason to dwell on this issue when trying out participatory design-methods in Bangladesh. We believe that this focus on the process forces the researcher to have his/her analysis also deal with how the process is carried out, which subsequently implies an interest into the issue of skills and competencies. We hypothesise that when a project has its focus solely on the product such questions will fall into the background and may never be touched upon at all.

Perhaps another difference is that the object of redesign is not the future mediator, but the world itself. Where PD typically will design or redesign a tool which can change the world, PRA tries to change the world itself, e.g. by introducing a new urban structure, etc. We also find that a difference between PD and other approaches is that in PD, the researcher is always *engaged*. This is not the case in development research. There, the research domain can be participatory approaches, whereas the research process itself remains detached from intervention.

The issue of local knowledge naturally leads to a clear characteristic of the PD approach, as compared to other participatory approaches. The enacting of concrete actions benefit from concrete prototypes of future technologies. It is common to use paper prototypes, rapidly designed prototypes and similar techniques, in order to stimulate inquiry. We analyse the potential for this in ePolicyInPractice, and what outcomes it can lead to with relevance for development.

Ownership of process and sustainability

Both PD and PRA-researchers talk about the importance of ownership of the research process. Also here we see some differences. Some PD projects will accept or even aim for user-led approaches, where researchers take on an assisting role. We understand PRA-projects to be interested in citizens adopting and taking up the goals of the project, and if the citizens furthermore take over the execution of the project, this is even better. However, the goals and the values of the project itself are not up for debate.

Ownership to the project is often seen as a prerequisite for sustainability in relation to change and development. When it comes to empirically based knowledge about how to achieve sustainability, PD has surprisingly little to offer. One exception is Monteiro (2004) who has discussed how PD-influenced projects can become sustainable and survive over time in an environment with many antagonists and competing alternatives. Survival can mean both access to funding, as well as sustained use, or access to new organisations. In our opinion, what we are still lacking is concrete techniques for impacting policy processes on national and sub-national levels. Monteiro et al in our view correctly note that an action research project-environment is filled with competing actors and that there is not one best solution. But concrete tools are scarce. As a comparison, we may take Participatory Poverty Assessment (World Bank & Robb, 2002), which has carefully analysed how the poor can be given voices to the political process.

A note of caution is that much research has analysed how projects with some participatory underpinning have managed to have an impact. Many of the projects studied had no research agenda. This compares to situations when industry players in the IT field are utilising PD methods, and someone analyses their success in doing so. In PD, the majority of projects carried out are by researchers. In PRA, the majority of projects are carried out by professionals. Therefore, the comparison may be halting.

Concluding remarks

The work we have done so far leads us to the preliminary conclusion that PD is not only about designing good information technologies that will work well in the South. PD can also contribute with a research perspective above the immediate use situation and the micro level, for instance on institutional policies and the mechanisms of organization. This is due to the fact that PD is not about aid and building a channel for resource distribution, but rather about building on local resources and – as part of the design process – strengthening competencies and developing skills.

Furthermore, because PD (at least by practice) thinks in terms of design of concrete artefacts, and not only about abstract systems, this approach has a strong potential for involving users and finding ways of incorporating their practice-based perspectives into new designs.

At this point, Puri et al's claim about work inside Indian bureaucracies (which are very similar to those of Bangladesh) comes to mind and reminds us of the challenges involved in applying PD in Bangladesh:

"Therefore, in starkly different historical, political and social contexts such as India, participatory processes will not arise naturally as a result of democratic aspirations or reasoned argumentation, as may be the assumption in formal workplace settings of western countries like in Scandinavia or the UK. Paradoxically, however, participatory processes often need to be initiated by government officials in-charge, rather than these emerging idealistically from grassroots as a bottom-up process. An implication, therefore, is that to enable participation in settings that are traditionally hierarchical and non-conducive to self-initiated bottom-up processes, the initiative may need to come from the top, and then be gradually nurtured over time." (Puri et al, 2004, p. 48)

In our future research, we will keep focused on issues of sustainability in a highly politicised domain, and at this point in time we are looking for ways of situating the interventions within a network rather than within a 'singular unit' which is very much the case at this early stage of the project. The challenge is to create momentum, while keeping in mind the initial aim of giving a voice to the unheard at Dhaka University.

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