Participatory design and feminist interventions. Emancipatory potentials of public engagement.

Some insights into participatory design and research in computer science

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In this presentation I will try to shed some light on what participatory practices in computer science look like and what, from an Science & Technology Studies (STS) perspective, an analysis of such practices might enable us to do in STS, as well as in computer science or other disciplines that try to facilitate some forms of public engagement.

There is no STS literature on this specific topic yet, so I can only present you a first preliminary glimpse into the entanglements of science in public, or in this case better framed as publics in science. There is of course a lot of STS work available on public engagement with science – whether facilitated by the sciences themselves or by interventionist publics. Even the *participatory turn* in studies of science and technology (as Sheila Jasanoff pointed out (Jasanoff 2003)) has happened a while ago. Yet, we seldom find research about public participation in the computer sciences and even less about participation in concrete technoscientific practices. What is usually understood by participation or public engagement in science is the participation of non-scientists on different levels of science policy debates (cf. Lengwiler 2008). There are only few notable instances where concrete technoscientific practices are conducted by scientists in cooperation with non-scientists – as far as I am aware of.

Before going into detail, let me explain some central terms first. What I am investigating is how participatory design and research is enacted in computer science. This is primarily done so in the disciplines of *Computer Supported Collaborative Work* (CSCW) and *Human-Computer Interaction* (HCI), or more specifically in the research field of *Participatory Design* (PD). My empirical analysis is focused on this context. Yet the facilitation of participatory design and research practices is not necessarily confined to these contexts. Under *technoscientific practices* I understand practices that are usually conducted by researchers and developers and include the use of technological artefacts in creative ways – creative meaning simply to build something. Examples for such technoscientific practices might be the programming of an algorithm, the design of a user interface, the configuration of certain tools and so on. *Technoscientific research* then is research that conducts technoscientific practices to gain certain knowledges. Analytical emphasis then lies on technoscientific practices on the one side and research practices on the other. We therefore also have to differentiate between practices

of *participatory design* and practices of *participatory research*. While technoscientific practices were conducted traditionally by ICT researchers or developers, I now want to find out how specific publics are participating in these concrete practices. So, how do I want to accomplish that?

At the moment I am finishing my STS master thesis at University of Vienna. Before I did my BSc in Technical Informatics at Vienna University of Technology. Starting an STS master was in some sense my personal flight from a field to narrowly focused on the technically feasible where social, ethical and epistemological considerations are often deemed as unnecessary overhead, something the social sciences and humanities might think about and evaluate, once a technical artefact is in use. Yet, I did not want to just wander off, so I am still not sure where to situate myself. Especially my readings of feminist epistemological considerations encouraged me to see that there always are entangled ethico-onto-epistemological issues to think about (as Karen Barad highlighted in her framework of Agential Realism (Barad 2007)). And we have to do that whether we are situated in technical computer science or in STS or in any other discipline. So, I came to look for some common ground and what I found was the participatory design approach. And now here I stand, as a prospective STS researcher with some identity issues regarding hir disciplinary orientation – neither acknowledged computer scientist, nor practically detached social scientist; presenting accounts of multidisciplinary research fields that aim to synthesize those approaches, yet trying to do that from a critical and somehow detached STS perspective. Sounds complicated. I am still not sure if I am on the right way here. But at least I have some sort of plan and I hope you may find it reasonable as well.

So, at the heart of my research project is a situational analysis (Clarke 2005) of the construction of certain *publics* in the process of *participatory design and research*, as it is enacted in the before mentioned fields. My research then is also informed by feminist theory & critiques from informational & computer science and STS (to name a few: Star 1991; Wagner 1994; Suchman 2002; Wyatt 2003; Bath 2006), as well as by STS research on public engagement (to name a few: Michael 1992; Kleinman 2000; Irwin 2001; Stirling 2008; Michael 2009; Felt and Fochler 2010) and theories of publics and public spheres (to name a few: Arnstein 1969 & 1975; Habermas 1974; Fraser 1990; Mouffe 1999; Benhabib 2002).

This leads me to my central research questions: How are different groups of people constructed as relevant, and how are they integrated into the research projects? Who gets to participate and when do they get to participate in these processes? And finally: what is the aim of letting publics participate in technoscientific research?

To investigate those issues I have so far conducted and analyzed 5 qualitative interviews with researchers in computer science who work with participatory approaches. I have also gathered and analyzed project reports and theory and methods literature from the Participatory Design context. Based on the theoretical part of my work and the analysis of the empirical material gathered so far, I can present you the following insights:

In Participatory Design there is an explicit aim to facilitate participation in research and design. A strong current within this field is the theoretical and practical deconstruction of a traditionally strong divide between developers and users. Here, especially critical and feminist approaches had major influences on the development of integrative approaches and strategies (e.g.: Haraway 1991; Harding 1993; Suchman 2002; Wajcman 2004; Bath 2006; Barad 2007). Participatory Design researchers also regularly draw on STS insights or conduct STS research themselves (e.g.: Wagner 1994; Suchman 2002; Sengers et al. 2005; Bath 2006). Generally Participatory Design is a highly inter- and multidisciplinary field.

Participatory approaches in computer science became popular through the Scandinavian approach to systems design in the 1970ies and 80ies. Since then they have diversified into several forms and

regions. This way the field of *Participatory Design* was established. A common motivation for conducting participatory design is the democratization of technology as well as being able to produce 'better' technologies, as one interviewee responded:

> "Better systems. I think this is a rather simple answer. To just develop systems that are really supporting their users. (…) What are better systems? Here we probably would say that this is only exposed in the use situation. Of course then value questions will be exposed." (I2 R.14)

Depending on the specific context or techno-social artefact in question, or on the "use situation" as my interviewee put it, the resulting approaches then take diverse forms and may differ strongly from each other. Common to them is the aim to bring publics or stakeholders, often just framed as users, into the research project, especially into it's design phase. In this way publics participate in the configuration of artefacts and processes – they actively engage in tasks configuring the specific routines and material artefacts which are devised through the researchers. This might be recognized especially when it comes to the development of technological artefacts (for example computer programmes or embedded devices).

To facilitate participation a broad range of practices and methods is used. Some of the most common are the following:

- Prototypes are simple versions of systems or tools that make certain functions available for the participants' experiences

- Mock-ups are early design prototypes that should make the handling of envisioned artefacts tangible to the participants

- Interviews, observations and ethnomethodology are used to gain insights on the participants' experiences, needs and demands

- Workshops, ranging from ones with strong hands-on or playful character to ones more common also in STS, like focus groups or future workshops

There are of course a lot more tools and methods used to facilitate participation. This was just to give you some perhaps familiar examples. What differs here from using such methods in STS contexts is, that most of the methods try to enable the participants to express their immediate experiences with, and demands towards specific technoscientific artefacts.

Now, all those research practices are applied early on in the projects and aim for ongoing participation of relevant publics. Nevertheless researchers have to start off somewhere. The initial research endeavor therefore is sketched out and research funding has to be acquired. Only after those initial processes, which are framing the research endeavor, the aspired participation begins. Depending on context, the publics might be outlined rather clearly to the researchers or they might be rather vague and have to be outlined and invited by the researchers through diverse institutional and public channels. Here problems arise that are not unfamiliar to STS researchers who try to engage publics: usually only certain people react to calls for participation and only certain people have the resources to spend their time on such activities. So not only in the process of finding participants but also through the concrete forms of participation the set of relevant publics is preconfigured, especially through the enacted tools and methods and their spacio-temporal context. Also the institutional settings create significant restraints on possible forms and amount of participation. And adding to all that, participatory design and research approaches are rather marginalized in computer science.

So, to conclude, we find some fruitful participatory approaches on the level of concrete technoscientific practices. When it comes to research itself, the issue gets more tricky. There is a strong focus on the design of technological products. Much less is said about the design of the research processes. Herein

lies a potential for *Participatory Design* – to reflect on a meta-level and engage in policy debates, in order to shift institutional arrangements towards an environment more friendly to participatory research.

When working through the literature, both of what STS has brought forth regarding Information & Communication Technologies (ICT), as well as what Participatory Design has brought forth, I often had a hard time grasping the differences. Not only that many authors from a Participatory Design context are engaged in STS or vice versa, even many single texts resisted my urge to categorize them and to put them either in the one or the other field. I thought this might have a lot to do with my personal background and the peculiar position that I find myself in. But through my research I actually realized that this is not only my individual experience. Participatory Design assembles a lot of different interdisciplinary perspectives and hybrid researcher biographies. It often deals with phenomena we also encounter or investigate in STS and it regularly engages with STS. Therefore, from an STS perspective, investigating and reflecting on Participatory Design means also to reflect on STS itself.

Maybe herein lies a potential four ourselves (that is, STS or social science and humanities researchers) to rethink and rework our own frameworks of participation, analytically as well as practically.

And whether if in STS, Participatory Design or computer science: by drawing on feminist and anti-racist research we might gain additional awareness on who the relevant publics are, their heterogeneous configurations and conflicts within. We might become aware of publics that are continuously excluded, despite their affectedness. This would strengthen our analyses of participatory processes as well as our practical experiences with them.

I now would like to invite your critique, feedback and advice and thank you for your attention.

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