Software Design: a deconstructivist feminist approach

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Abstract. Generally speaking, practice-based research on gender and information technology is strongly dominated by feminist approaches emphasizing the difference between women and men. This position paper suggests a deconstructivist feminist approach and outlines how a combination of design oriented research in Computer Supported Cooperative Work, qualitative Software Engineering research and Critical Design Practice can gain from a theoretical underpinning avoiding dichotomous gender conceptions.

Introduction

As has been highlighted by the rich body of literature on the social shaping of technology, on the co-construction of society and technology, and on the gender implications of these processes, software development is a sociotechnological process in various ways: firstly, it takes place within organisations and teams and therefore system specifications and their implementation are co-determined by social dimensions of the organisational setting in which they are developed (such as organisational structures, engineering cultures of the respective sector, work practices as established ways of doing, professional self-conceptions of team members); secondly, design decisions – although mediated by methods and tools of software engineering – represent the outcome of processes of negotiation and meaning construction; in this sense everyday knowledge and implicit social dis-

courses become operative in the development process as hidden a-priori assumptions (e.g. on future use contexts).

Even though during the last decades qualitative research focusing on social and organizational contexts influencing the development process and thus shaping the final artefact and its uses has gained in importance, the discourse is rather fragmented. Different facets can be found in computer-supported cooperative work (CSCW), in software engineering (SE) research, in information systems (IS) research, in human-computer interaction (HCI), as well as in critical design practice. When it comes to so-called "social dimensions" or "aspects of gender and diversity" these labels often remain obscured or activate ideas about gender-specific (as well as e.g. culture-specific) requirements, attributing special needs to female consumers (or other user groups). Frequently, also the idea prevails that female developers could per-se respond better to these needs. Such dichotomous and essentialist conceptions of gender are problematic as they do not account for the diversity within the group of women and men. Rather I suggest that it is crucial to analyse and reflect cooperative work practices in which social meaning is (re-)constructed and in which gender is inscribed into software artefacts and use practices. We need to gain a deeper understanding of the function that ‘gender' (as a knowledge category) fulfils in software development processes in order to allow for negotiations on the adequateness of implicit assumptions guiding decision-making. Making these implicit and unconscious processes visible idealistically results in value-sensitive (e.g. gender-sensitive, non-exclusive) software or even in artefacts that embody cultural critique. As has also been suggested by scholars in CSCW, qualitative SE research and critical design practice development teams should reflect their implicit 'ways of doing'. Such reflection initiates learning processes deepening the team members' understanding of their power to shape technologies that strongly impact peoples work life and everyday life, as well as enhancing their knowledge on gender and sociotechnological processes.

Systems design and deconstructivism

As a special issue of CSCW published in 1996 on ‘Studies of Cooperative Design‘ shows, software development has been an important research strand in CSCW from its initial point in the 1980ies. Since then, a variety of workshops (e.g. at CSCW 2006 and ECSCW 2007) have aimed at bridging the gap between design research and CSCW. Importantly, they have pointed out the need for openness and reflexivity in learning to understand how the construction and use of systems for professional cooperation are interrelated. Moreover, they take a look at software development as cooperative work. Empirical research in CSCW has a tradition in using qualitative methods such as ethnography and ethnomethodolically informed methods (Dittrich et al., 2007: 533f.). To a certain extent, gender perspectives and feminist approaches have entered the discourse more

successfully (e.g. Suchman 1994; Star/Strauss 1999; Tellioglu/Wagner 2001) than in other more quantitatively dominated fields such as IS and SE. Whereas the mostly quantitative oriented SE research focuses on investigating the influence of deploying specific methods on the outcome of a process, qualitative approaches in SE also take into account implicit work practices and theories-in-use (e.g. Dittrich et al., 2008; McAvoy/Butler, 2007). As a third design-related field, research in critical design practice suggests integrating value-based perspectives by reflecting practices of meaning construction within the systems design process (e.g. Schön, 1983; Mathiassen, 1998; Sengers et al., 2005; Friedman et al., 2006). Nevertheless, gender theoretical or feminist approaches also don't play a major role in the two latter research fields and gender as guiding knowledge category is often marginal.

In order to put gender in the focus of cultural critique in IT design-related research my main interest is in learning how software development is – in addition to know how on technological methods, processes and standards – unconsciously informed by social discourses and gender knowledge. In order to go deeper into the question of what functions implicit gender knowledge fulfil in development processes I draw on deconstructivist feminist theory, both theoretically as well as methodologically. Deconstructivist feminist theory avoids the pitfalls of difference approaches which in the context of discourses on gender and design very often pin down "female" and "male" needs according to their seemingly group coherent actualities (sometimes biologically argued or more often argued by deterministic notions of gender-specific socialization). Deconstructivism instead proceeds from a postmodern conception of gender which means that "femininity" and "masculinity" are not seen as ontological coherent identities but as fluid subjectivities contextually oscillating between different gendered subject positions. Gender is theorized as a social practice, as something that people enact or "do" (West/Zimmermann 1987), as a performative act (Butler 1993) that is constructed. Therefore, these practices and performances can be de-constructed and re-constructed in a way that subverts hierarchical gender relations.

With regard to software design a deconstructivist approach suggests reflecting implicit work practices from a gender perspective. Important questions for such a reflection are (e.g. Allhutter/Hanappi-Egger, 2006): How did the software engineers come up with this specific specification? Which assumptions concerning social relations in terms of e.g. assumptions on future users, requirements or quality standards have they made? How does implicit gender knowledge inform their work practices and design decisions? Most importantly also, how can software designers make these implicit processes and unconscious a-priori assumptions visible within the design process in order to overcome pitfalls of stereotyping, in order to allow for explicit negotiations and conscious decision-making? And eventually, how can they make gender discourses operative in a productive way, allowing for an increased space of innovation?

The deconstructivist theoretical background suggests that such gender analysis and reflection is also methodologically to be supported by deconstructivist methods. For example, the method of Mind Scripting (ibid.) gives insight into processes of meaning construction and social discourses which system designers have appropriated in their professional field, through public discourses and everyday experiences. Deconstructing concepts crucial to the work of software developers in the context of concrete design situations and investigating how gender discourses implicitly serve to "socially enrich" seemingly technology centered design decisions enables to make hidden gendered assumptions visible. It allows to negotiate different views explicitly and eventually to create a commonly shared and deeper understanding of one's own work practices and their gender implications.

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