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ABSTRACT

Users should be involved in the interactive systems development. However, involving users is often difficult and rare, especially in the product development context, referring to the development of commercial software products or systems. This paper critically examines user involvement in the cultural context of three software product development organizations. User involvement is indirect and labeled as usability work. Empirical, qualitative material has been gathered from the organizations during three years time. A set of discourses constructing usability work and its cultural context are identified by following a poststructuralist, Foucauldian approach. Both theoretical and practical implications are discussed.

Keywords

User involvement, usability work, culture, discourse

INTRODUCTION

This paper analyzes user involvement in the cultural context of software (SW) product development. SW development is 'configuring the user' through defining the user and through establishing parameters for user's work practices (Grint - Woolgar 1997). We focus on 'usability work', which aims at contributing to the 'configuration of the user'. Usability work is carried out by professionals called usability specialists, who 'represent the users' (Cooper – Bowers 1995) in the development. Usability work refers to indirect user involvement; users do not participate, but are represented in the development. The role of users is informative or consultative (Damodaran 1996); they comment on predefined design solutions or act as providers of information or as objects of observation.

Our focus is limited to usability work in the SW product development. Custom IS development is the traditional context for user involvement, while product development is a relatively new and challenging context (Grudin 1991, Carmel - Sawyer 1998). This is because in this context even identifying and making contact with the users is difficult. In addition, the development cycle is typically very short and there is no time for usability work. (Grudin 1991.) Literature also highlights the difficulty of having usability work accepted in organizations. The position of usability specialists is often weak, their credibility questioned and work undervalued. Finally, if usability work is carried out; it often happens too late having no effects on design. (Bodker – Buur 2002, Borgholm – Madsen 1999, Gronbak et al. 1993; Kyng 1994; Poltrock – Grudin 1994).

We took a culturally oriented approach in the analysis of usability work. Many studies argue that culture affects user involvement in organizations (Butler and Fitzgerald 1997, Nandhakumar and Jones 1997, Symon 1998). Studies have shown that different meanings have also been attached to user involvement – it has been used only as a buzzword or a weapon (Beath – Orlikowski 1994, Hirschheim – Newman 1991; Kirsch – Beath 1996; Symon 1998). The studies lead us to assume that that there might be 'symbolic uses of user involvement' and multiple meanings attached to it. However, no empirical culture studies were found in the product development context. Therefore, an analysis of usability work in the cultural context of SW product development is the focus of this paper. We adopted an approach informed by Foucauldian tradition for the analysis, and focused on the construction of culture and usability work in the discourses the organizational members participate in. Foucaultian analyses of discourses have proliferated in IS research (e.g. Edenius 2003, Stahl 2004, Thompson 2003). Nielsen (1999) has analyzed discourses on user participation, and shows that they were mainly used for increasing management control. However, her study was also carried out in the custom IS development context.

The paper is organized as follows. Next section outlines a poststructuralist approach to the concepts of culture and discourse utilized in this research effort. The third section presents the interpretive case study approach we relied on. In the fourth section empirical findings are outlined. The last section summarizes and discusses the findings.

POSTSTRUCTURALIST APPROACH TO DISCOURSE AND CULTURE

We rely on critical poststructuralist approach informed by Foucauldian tradition in the analysis of usability work in the cultural context of SW product development. Within this approach language is in a critical position: language doesn't represent reality, but produces it. Different languages and discourses produce different kinds of realities. Discourses are 'certain ways of speaking' that 'systematically form the objects of which they speak', excluding other ways (Foucault 1972: 49). Discourses are both socially constructed and socially constructive. They construct our identities and our objects of knowledge. They offer us subject positions to be occupied while participating in the discourses. People are continuously invited as subjects in the discourses. Identity is constructed by participating in discourses that constitute individuals as subjects 'of certain kind'. However, people do not only adopt the discourses and the modes of identity offered - discourses can also be questioned and challenged. Foucault highlights the importance of power in the analysis of discourses. Discourses struggle over meanings in language. Some discourses are more available and carry more weight than others. (Foucault 1972, Weedon 2004.)

Poststructuralism has gained increasing attention in anthropology – in the discipline excelling in the analysis of culture. Poststructuralist criticism questions the traditional view of culture as a static, harmonious, shared pattern of meanings or cognitions. Instead, it is highlighted that cultures are always plural and open to interpretations. Meanings are continuously negotiated. Cultures are constantly interpreted, reinterpreted, contested and struggled over. (Clifford – Marcus 1986, Fox 1991, Ortner 1999.) Cultures has also been conceptualized as discourses – cultures are produced and reproduced in and by discourses (Abu-Lughod 1999, Ortner 1991). Poststructuralism postulates culture as a site of struggle of conflicting interests, in which meanings and identities are produced in language. Power limits the possibilities for participating in the discourses. On the other hand, identities may also be put into question and discourses challenged. (Weedon 2004.)

Next guidance for the analysis of discourses on usability work and the cultural context are outlined. First, important is to analyze the construction of the objects (e.g. usability work) in the discourse. One needs to focus on 'certain ways of speaking' that exclude other ways. One needs also to acknowledge the subject positions people must occupy while participating in the discourses. Regarding the cultural context the focus should be on the construction of meanings and identities. Important is to acknowledge that identity is always relational: it is defined in relation to what one is not, and it always has its 'other' from which difference is manifested (Weedon 2004: 19). Interesting is the construction of the notions of 'we' and 'the other'.

RESEARCH DESIGN

We have gathered empirical material related to the process and context of usability work from three product development units (A-C) from three SW development companies during three years time. At the time of the study, units A and B were producing new versions of their existing system, while unit C was involved with the development of a new application with unknown user population. Units A and C are organizational units of large corporations, unit B of a small SW house. We utilized an interpretive case study method assuming our knowledge of the world is gained through social constructions, and attempted to make sense of the world, not to explain in the sense of predicting. In the focus were the meanings attached to the phenomenon studied and aim was to gain thorough understandings of particular cases. (c.f. Klein - Myers 1999.) The research material was gathered while supporting the units in the facilitation of usability work by offering workshops and training. We interviewed the personnel of the units related to their ways of working. The research team had also regular meetings with the personnel of the units. Memos from the meetings and all e-mail correspondence were saved for the purposes of the research. Research team also wrote down field notes after all joint events.

Furthermore, we gathered specifically contextual data from the units. We experimented with different techniques for data gathering - organizational culture surveys, theme interviews and workshop sessions. In the interviews we gathered feedback from the survey results, and discussed the context and process of usability work. In the workshop sessions we discussed and evaluated the interview results. Case study write-ups were produced and commented by the interviewees and by the workshop participants. In the analysis of usability work we went through all the empirical material gathered and listed our findings related to usability work. The workshop participants commented also on that material. Therefore, the technique of member checking was utilized extensively. Afterwards, we viewed the material as discourses adopted, adapted, produced and reproduced by the personnel of the SW development organizations. We searched for recurrent themes on the discursive level of language use related to the construction of usability work and its cultural context. The focus was on subject positions of the speakers and on the 'certain ways of speaking' systematically forming the objects of which they speak.

EMPIRICAL EXPLORATIONS

In unit A there is a team of four usability specialists. The rest of the personnel are SW developers whose responsibilities include designing, coding and testing the SW – in this unit the user interface (UI) SW labeled 'the manager'. Therefore, the SW developers are responsible for 'configuring the user'. However, the main concern of the developers' is that the 'manager' 'functions with the rest of the system':

"A coder is not excited about things like that (usability work). If you have a passion for coding, then you code. And some senior, for example architects, especially here the important things are the functionality of the SW and the interfaces. It is so technical in here. You don't then necessarily think that the most important thing of the UI is that it is usable. The most important thing is that it functions with the rest of the system. It might be difficult to convince some senior people, technologically oriented, that usability is important." (Developer)

"Projects have always limited resources and one must decide whether to invest in the finishing touch (usability) or in bugs and functionality." (Developer)

Even the usability specialists acknowledge that usability work should not be over emphasized:

"If you think of the personnel of our unit, we have SW developers who think that the SW development is the only real job in here. Even our respected usability specialist thinks this way, not to speak of our manager (laughing)." (Manager)

However, the usability specialists identify themselves as a 'mommy mob' (Usability specialist) whose role is 'to control the projects' in 'configuring the user':

"When you bring usability orientation into an organization you have to be a police in the beginning. The developers don't have the knowledge needed in their head, and you have to act as a police. (…) At this moment we can't trust that the projects know at what time they should contact us. We must follow up the situation and control it and push ourselves into the projects." (Usability specialist)

Also the developers have quite a positive perception of this controlling effort:

"If things can be measured one can show how well you have succeeded and where you can improve and what went wrong. All measured things are concrete. It can be bugs in the SW or usability. (…) Things are prioritized and those that are measured and controlled, those can't be left out. (…) Controlling, constant controlling and monitoring, its part of normal project work. (…) If usability work can be measured and controlled, then it's more natural, then its just part of your job." (Team leader)

In unit A 'what is measured that is done', due to which "in the same way as SW metrics are gathered, they should be gathered for usability" (Developer). The measurement and control approach is considered as useful also regarding the 'upper levels: "it is problematic to get money and permission from the projects to do this; it's not easy to get permission to spend money on usability" (Team leader), but "if something can be measured, then also the upper levels take it into account" (Developer).

In unit B, on the other hand, there has been a team of usability specialists and graphical designers, but currently there is only one usability specialist left. However, both a team leader and a manager are former usability specialists. The unit is divided into two teams: development and service teams. Usability specialists are in the service team, related to which it is complained that: "the developers outrank us, the servants, who serve the developers (Usability specialist). The development team consists of SW developers focusing on UI or 'motor' development. Most of the personnel are responsible for the development of the 'motor': "it (the motor) is there at the bottom. It of course needs to be okay. Almost all of our developers work with (the motor)" (Developer). A couple of developers focus on UI development. However, 'motor' development is more valued than UI development: "UI development is less valued, because our core competence is in the hard-core, it is in the motor" (Team leader). Furthermore: "these java coders, quite many of them have a strong opinion that they don't touch the UIs. Someone else has to do that" (Team leader). The goal of this unit is to be 'in the cutting edge of technological development' (Team leader). Especially respected is an architect team: "they are this kind of trio, technology trio. They have actually implemented the motor" (Team leader). Altogether, 'cutting edge technological development' (Team leader) is constructed as the goal of this unit, and services related to the 'configuring the user' are perceived of being of secondary importance.

However, the usability specialists maintain that extensive cooperation is needed between developers and usability specialists in 'configuring the user'. Earlier the usability specialists were to 'alone' 'make the decoration over the top of technology':

"Our team got into a rut because usability specialists and graphical designers cannot alone affect anything. People thought that our team could do everything. But we ran out of steam, because it is the developer who actually implements everything. (…) Like our team could do it, like it could just make a decoration over the top of the technology." (Manager)

This is one of the reasons the team of usability specialists and graphical designers doesn't exist anymore; "the fact that the team existed created an illusion that usability issues are taken care of. There were people who took care and had knowledge of these issues, but it didn't necessarily have any contact with the product or how it was developed" (Graphical designer). Related to this, the usability specialists highlight cooperation with developers and graphical designers as essential. They view themselves as 'humanists cooperating with technical people' (Manager), who rely on a strategy of 'sneaking in, in secret':

"This user-centered viewpoint kind of affects other things in secret. (…) There should be a developer and usability specialist doing things together all the time. (…) I think that it is very important for the point of view of user centeredness that our manager is a usability specialist, that there is this kind of competence. (...) She can affect that usability is considered among other things." (Team leader)

The 'sneaking in, in secret' is the most efficient way, since: "we do what we want" (Team leader). "Doing things together, it is the most effective way to teach. (…) Some people might be good in following written work descriptions, but those are quite rare here. (…) I have been doing this job so long that the utopia has disappeared. You understand the realities. I have

spent here ten years with engineers and worked with them. You learn to take new perspectives and don't fancy vain things. (…) Earlier, when we began this job, we though that usability would save the world from the evil" (Manager).

However, in this unit usability work is emphasized a lot at the managerial level: "I think it (competence in usability work) has been a selling argument and a thing that we have had, but not necessarily the competitors. We have been the most progressive in this respect." (Team leader) "And in SW development companies of this size, there might not be even what we have. You should always proportion these things. Here it has a clear position at least" (Executive).

Finally, in unit C usability work has been part of the development from the establishment of the unit: "we have this general rule that specification is to be carried out by using user centered methods. (…) This should be our bread and butter." (Usability specialist) The goal of this unit is to produce "a vision and direction where the world is to go" (Usability specialist). In this unit the personnel are all 'specialists', but there are different kinds of specialists: usability specialists are labeled as *'staid researchers'*, who carry out the 'burdensome and dull' usability work:

> "It is allocated in the projects in a way that in some projects there are 'staid researchers', research oriented people, and in other projects there are these 'careless designers'. (…) This 'research gang' questions existing things and wants to examine things. These designers like to do things that are fun. They don't have, like arguments, behind their decisions. Designers produce designs from a very creative point of view, not from the point of view of the user." (Usability specialist)

The 'careless designers' have condemned usability work as burdensome, dull and delay:

> "(Usability specialists are) delayers, who fuss over minor issues and pay attention to irrelevant issues." (Project manager)

> "Usability activities are perceived to be burdensome and dull. (…) Brainstorming sessions are their (designers) favorite sessions; those sessions in which relatively lightweight methods are used. (…) Ideating is fun, but systematically using certain methods seems to be unappealing to some of these 'ideators'" (Usability specialist)

The designers 'configure the user' 'from a very creative point of view' by relying on 'brainstorming' and 'light-weight methods'. The usability specialists, on the other hand, advocate 'burdensome and dull' research.

Altogether, in this context there is not much control of work: "we have a lot of freedom to do things in new ways. (...) Everything is informal. (…) I have to say out loud that project work is chaotic. (…) I think the motive behind this is that we do creative work. And creative work necessitates freedom" (Usability specialist). However, the usability specialists wish for more control: "this should be our bread and butter, user centered design methods and usability. However, they don't play any role in here. They are used only as buzzwords. (…) We have been wondering about this bragging related to user centeredness. (…) Probably it is more important to get the design out. It doesn't matter whether proper methods have been used. Or it matters only spuriously" (Usability specialist). "We have bad quality measures. (…) They are always quantitative. It is always certain document: whether it is produced. But the question should be: how has the content been produced, what methods have been used, and are they rational and generally acknowledged methods?" (Usability specialist) "Management has not understood to demand for quality, which, together with the lowering of the competence level has resulted in the degradation of usability" (Usability specialist). "Earlier usability studies were in a better position. You can say that the level of the research has deteriorated. Last year I felt personally that it went totally wrong. We didn't have any systematic research, it was like 'well, we'll do this if we bother and have time'" (Usability specialist). The usability specialists, however, have been active in initiating improvements in this unit: "management doesn't initiate any improvements; they all come from the employees. Especially (usability) specialists have done these things, for example things to do with strategic planning. And they have initiated these process improvement efforts. Those have come from bottom up rather than top down. Probably too much. And the specialists demand that there should be more quality and improvement." (Usability specialist).

SUMMARY AND DISCUSSION

Table 1. summarizes the findings related to the construction of usability work and its cultural context in the discourses the personnel of the case units participated in. *'We'* describes the collective identity constructed by the personnel of the units: who are we and what are we up to? In every unit there also emerged a discourse of the usability specialists: an individual participating in the discourse had adopted a subject position of 'a usability specialist' and constructed usability work in a specific, coherent manner. On the other hand, this position implies 'the other', a group from which difference is manifested. 'The other' differed in the units; it was 'the developers', 'the designers' and/or 'the managers'. The discourse of the 'other', nevertheless, also constructed usability work in a specific and clearly divergent way from that of the usability specialists.

	Unit A	**Unit B**	**Unit C**
'We'	A unit producing the 'manager': functionally correct SW in a controlled way within the schedules	A unit producing the 'motor': cutting edge technological development through innovating	A unit producing 'visions where the world is to go' – creative work within the schedules

Discourse of the usability specialists	Mommy Mob - Submissive, but controlling – 'controlling is the way we do things around here', but 'usability should not be over emphasized'	Realist Humanists - Submissive and manipulating – 'sneaking in, in secret' necessary since 'people do what they want' and 'usability doesn't save the world'	Staid Researchers - Subjugating and controlling – 'project work chaotic', 'bad quality measures', but therefore 'the specialists demand quality and improvements'. Authority since 'usability work our bread and butter'
Discourses of 'the other'	Developers - 'Manager development' only real job. Usability work over empha-sized, pedantic decoration, to be carried out in the last phase of the project in case one has time Management - Usability a cost and delay factor	Developers - 'Motor development' most important job. Usability work and service devel-opment of secondary importance, us-ability work decoration to be done by the 'servants' 'on top of technology' Management - Usability a buzzword	Designers - 'Creative design' most important job, and schedules set the pressures. Usability work pedantic, burdensome, delaying and dull research carried out in case one has time Management - Usability a buzzword

Table 1. Construction of Usability Work in the Cultural Context of SW Product Development

The discourses of the usability specialists illustrate that usability work has been constructed in divergent ways in the SW product development organizations. Usability work can mean measuring, monitoring and controlling 'the other', but it can also mean subtle 'sneaking in, in secret' through involving 'the other' and through usability specialists employing influential positions in their organization. One might argue that in units A and B usability work is constructed in a compatible manner related to the cultural context. The 'mommy mob' advocates controlling, measuring and monitoring that is 'normal project work' in the unit. The 'realist humanists', on the other hand, 'sneak in, in secret', since 'people do what they want'. However, the situation in the case unit C is different. The 'staid researchers' are not content with 'everything being informal' and 'pro-ject work being chaotic'. They have instead adopted an authoritative discourse demanding for more quality and control. This observation can be related to the notion of power. In case units A and B the discourses of the usability specialists are submis-sive, assigning a dominant position to the discourse of 'the other', who 'does the real job in here'. In unit C, on the other hand, the discourse of the usability specialists has a contemptuous tone offering the 'careless designers' and 'not enough de-manding managers' a morally subordinate position. The notion of 'usability work as our bread and butter' offers the usability specialists an influential position in this unit.

Existing literature warns us that user involvement might be used only as a buzzword. The discourses of the management evi-dent in units B and C might be viewed as indicating the same problem. Usability is used as a spurious selling argument and imago factor. However, from the viewpoint of more participative tradition advocating empowerment of the skilled worker (e.g. Greenbaum – Kyng 1991), the results altogether are quite alarming. Especially the discourses of 'the other' downplay the importance of usability work in every case unit. Usability refers to the 'decoration in the end' and usability work is 'de-laying, dull, pedantic and burdensome' that doesn't concern the ones 'configuring the user'. Furthermore, neither do the us-ability specialists advocate participative user involvement – their concern seems to revolve around involving 'the other' and around further facilitating the position of usability work in their unit. Empowerment of the skilled user is not articulated in the discourses of the usability specialists. Altogether, the discourses can all be criticized of advocating technological colonial-ism dressed in the gown of user involvement (Asaro 2000). The developers (and the usability specialists) - like anthropolo-gists who were serving the interests of colonial control while producing representations of 'the other', who was not able to contribute to these authoritative representations (Clifford – Markus 1986) – are serving the interests of technological coloni-alism while producing representations of users ('representing the users') and at the same time disempowering them for the sake of management goals. Users are never equally equipped in participating in the discourses on technological development, due to which the 'technological elites' – like the anthropologists – ultimately have the authority to produce the representa-tions of the technologically illiterate, 'primitive', exotic other (cf. Asaro 2000). In the units the users were not even allowed to participate in the production of the representations. The usability specialists 'represented them', and in doing so also clearly utilized the 'rhetoric on representing the user' for legitimizing their existence in the SW development (Cooper – Bow-ers 1995). Related to this, even though in this paper designers/developers/managers are constructed as the 'primitive, exotic other', they are by no means the marginalized group in the SW product development. This position is employed by the us-ability specialists, who, due to this, are also in a desperate need of this rhetoric legitimizing their existence.

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