KEY PRINCIPLES FOR USER-CENTRED SYSTEMS DESIGN

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Abstract

The concept of user-centered systems design (UCSD) has no agreed upon definition. Consequently, there is a great variety in the ways it is applied, which may lead to poor quality and poor usability in the resulting systems, as well as misconceptions about the effectiveness of UCSD. The purpose of this chapter is to propose a definition of UCSD. We have identified 12 key principles for the adoption of a user-centered development process, principles that are based on existing theory, as well as research in and experiences from a large number of software development projects. The initial set of principles were applied and evaluated in a case study and modified accordingly. These principles can be used to communicate the nature of UCSD, evaluate a develop-
ment process or develop systems development processes that support a user-centered approach. We also suggest activity lists and some tools for applying UCSD.

2.1 PURPOSE AND JUSTIFICATION

This chapter describes the results of our current research on UCSD and our experiences of applying UCSD in software development projects. Our purpose has been to compile knowledge and experiences of UCSD, in order to give the concept a more precise meaning and to increase its power. The main point in our chapter is that applying UCSD requires a profound shift of attitudes in systems development, and our main goal is to promote that attitude shift.

2.2 BACKGROUND

Our main concern has been the lack of an agreed upon definition of UCSD, turning it into a concept with no real meaning. UCSD was originally coined by Norman and Draper, 1986. They emphasized the importance of having a good understanding of the users (but without necessarily involving them actively in the process):

‘But user-centered design emphasizes that the purpose of the system is to serve the user, not to use a specific technology, not to be an elegant piece of programming. The needs of the users should dominate the design of the interface, and the needs of the interface should dominate the design of the rest of the system.’ (Norman and Draper, 1986)

Several other definitions and understandings have been proposed over the years. The lack of a shared understanding of the meaning of UCSD (or User-Centered Design, UCD) has actually been pointed out as a quality in its own right by Karat:

‘For me, UCD is an iterative process whose goal is the development of usable systems, achieved through involvement of potential users of a system in system design.’ (Karat et al., 1996) ‘I suggest we consider UCD an adequate label under which to continue to gather our knowledge of how to develop usable systems. It captures a commitment the usability community supports—that you must involve users in system design—while leaving fairly open how this is accomplished.’ (Karat, 1997)

The consequence of such general and non-specific definitions of user-centered design is that it, in practice, becomes a concept with no real meaning. We have therefore identified a set of key principles\(^1\) for UCSD.

The principles summarize our research results and experiences from software development projects in a large number of organizations and projects. They are based on principles specified elsewhere (Gould et al., 1997; ISO/IEC, 1999), and on our experiences made from trying to apply UCSD in systems development projects using processes such as the Rational Unified Process (Kruchten, 1998). Our principles also take into account the Scandinavian tradition of extensive user involvement in the development process (Greenbaum and Kyng, 1991) in some communities known as par-

\(^1\) A principle is a commonly accepted fundamental rule or law that can be used to define other principles.