

## Chapter 2.14

# Different Levels of Information Systems Designers' Forms of Thought and Potential for Human-Centered Design

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### **ABSTRACT**

This article describes a study clarifying information systems (IS) designers' conceptions of human users of IS by drawing on in-depth interviews with 20 designers. The designers' lived experiences in their work build up a continuum of levels of thought from more limited conceptions to more comprehensive ones reflecting variations of the designers' situated knowledge related to human-centred design. The resulting forms of thought indicate three different but associated levels in conceptualising users. The separatist form of thought provides designers predominantly with technical perspectives and a capability for objectifying things. The functional form of thought focuses on external task information and task productivity, nevertheless, with the help of positive emotions. The holistic form of thought provides designers with competence of human-

centred information systems development (ISD). Furthermore, the author hopes that understanding the IS designers' tendencies to conceptualise human users facilitates the mutual communication between users and designers.

### **INTRODUCTION**

As information systems (IS) increasingly pervade all aspects of everyday life, of utmost importance is how applications of IS are adjusted to human action. In particular, in current information systems development (ISD) it is essential to take into account human characteristics and behaviour; that is, to humanise IS (Sterling, 1974). In the same vein, Checkland (1981) argues that ISD should be seen as a form of enquiry within which IS designers' understandings regulate an operationalisation of their intellectual framework into a set of guidelines for investigation that require

particular methods and techniques for building the system. Regarding the humanisation of IS, a notion concerning the nature of the human being is a crucial element of the intellectual framework. As a consequence, within this kind of enquiry, the way humans are taken into account in ISD is dependent on the operationalisation of the IS designers' conceptualisations of users. With respect to human-centeredness, attention should be paid to the fundamental qualities of people without any explicit or implicit domination of the other elements of IS, such as data, formal models and technical appliances, or managerial belief systems that treat humans instrumentally. This is necessary in order to conceptualise humans in their own right, and thus avoid the reduction of humans to something that exists only in relation to particular instrumental needs and purposes (cf. Buber, 1993).

Of essential importance is the nature of IS designers' insights into human characteristics and behaviour that are essential with respect to the IS-user relationship. The most crucial insight regarding human-centred design is to be able to conceptualise users as active subjects comprised of physical, cognitive, emotional, social and cultural qualities, an insight which is the prerequisite for design that promotes subsequent user acceptance and satisfaction. Yet conspicuously absent from contemporary IS literature are empirical studies investigating IS designers' conceptions of the human users, which have been studied more intensively two decades ago when the systems designers' inadequate view of the user has been stated to be one reason for the behavioural problems often experienced while implementing IS (Bostrom & Heinen, 1977; Dagwell & Weber, 1983). Also, the lack of knowledge of human needs and motivation on the part of the systems designers has been claimed to cause IS implementation failures (Hawgood, Land & Mumford, 1978). Further, Hedberg and Mumford (1975) have defined the nature of the view of human being held by systems designers as an essential factor

in the IS design process. The systems designers' view of the user is also included in some studies as one of the targets of value choices during the ISD process (Kumar & Bjørn-Andersen, 1990; Kumar & Welke, 1984) and is therefore defined as a value rather than an insight in these studies. Dagwell and Weber (1983), in their replication study, rely on Hedberg-Mumford's definition of the concept but also refer to Kling (1980). "we know very little about the perceptions that computer specialists have of the users they serve and the ways in which they translate these perceptions into concrete designs (p. 47)." Bostrom & Heinen (1977), in turn, define systems designers' assumptions of people as one of the system designers' implicit theories or frames of reference. These previous works do not take an explicit stance toward the definition of the concept "conception," and do not align the nature of conceptions in detail. For instance, from where do conceptions derive their origins, and what is the nature of those conceptions? In a more recent study, Orlikowski and Gash (1994) discuss their definition of the IS designers' views. They elaborate the concept "*frame of reference*" by comparing it to the concept "*schema*" (Neisser, 1976, pp. 9-11), "*shared cognitive structures*" or "*cognitive maps*" (Eden, 1992, pp. 261-262), "*frames*" (Goffman, 1974, pp. 10-11), "*interpretative frames*" (Bartunek & Moch, 1987, p. 484), "*thought worlds*" (Dougherty, 1992, p. 179), "*interpretative schemes*" (Giddens, 1984, pp. 29-30), "*scripts*" (Gioia, 1986, p. 50), "*paradigms*" (Kuhn, 1970, p. 43), and "*mental models*" (Argyris & Schön, 1978). They end up by defining their own meaning for the concept frames as a general concept of shared cognitive structures, not especially regarding humans.

This article describes a study which aims to clarify IS designers' conceptions of users of IS by drawing on in-depth interviews with 20 IS designers. The analytical choices carried out in this study regard IS designers' conceptions of users as experiences inherent in their lifeworlds, particularly during the different phases of ISD.

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