Chapter 12
Accumulation and Erosion of User Representations or How is Situated Design Interaction Situated

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ABSTRACT
The design process is predominantly presented as the primordial site where creativity of highly talented people flows into material form and results in novel solutions for human concerns. Design-critical views equally place event of design on the pedestal even as they question whether designers’ intuition, creativity, and aesthetic sense is enough and, particularly, whether considerations of the implications of the new technology have sufficiently permeated the process and, through that, determined its outcomes. This latter view has often been condensed into whether designers are guided by appropriate values and/or understandings in their work. There is, however, relatively little detailed research on what actually does take place in the complex and uncertain considerations wherein “design decisions” are made or whatever “design values” are followed. This chapter will contribute to this through the analysis of in-depth video-recorded ethnography of the design process of a monitoring and alarm device for the elderly. At the same time, it aims to raise questions about the centrality of the design process by examining what comprises the situated action taking place in design and examining how design interaction is situated within design-use relations.

INTRODUCTION
The design process is predominantly presented as the primordial site where creativity of highly talented people flows into material form and results in novel solutions for human concerns (e.g., Cross, 2000; Schon, 1983; Ulrich & Eppinger, 1995). Design-critical views equally place event of design on the pedestal even as they question whether designers’ intuition, creativity, and aesthetic sense is enough and, particularly, whether considerations of the implications of the new technology have sufficiently permeated the process and, through
that, determined its outcomes (e.g., Papanek, 1972; Schuler & Namioka, 1993). This latter view has often been condensed into whether designers are guided by appropriate values and/or understandings in their work (Noble, 1984; Woolgar, 1991; Stewart & Williams, 2005). There is, however, relatively little detailed research on what actually does take place in the complex and uncertain considerations wherein “design decisions” are made or whatever “design values” are followed. This is what we aim to contribute in this chapter through the analysis in-depth video-recorded ethnography of the design process of a monitoring and alarm device for the elderly. At the same time, we hope to open up the question about the centrality of design process by examining what comprises the situated action taking place in design, in other words, examining how design interaction is situated within design-use relations that are temporally more long-term and spatially more distributed.

To facilitate this enquiry, we use the concept of “user representations” (Vedel, 1987; Akrich, 1995) to focus our attention on how usage is handled during design and where the ideas about future usage emerge. “User representation” and its various kin concepts link the multiple modalities a design of usages takes on prior to actual use: visions, claims, assumptions, ideas, pictures of user-practices, sketches, prototypes, the artifact wrapped for sales, and the technology entering hands of users (Hyysalo, 2004). Far from being solely an up-front ‘user needs and requirements capture’ process, creation of user representations can continue throughout multiple generations of product development. Recent research reveals how representations of use, users and usages tend to stem from multiple sources, and that there is considerable variation which one of these provide most actionable and adequate understandings of use in each particular case (Akrich, 1995; Oudshoorn, et al., 2004; Williams, et al., 2005; Hyysalo, 2010). But in some contrast to well known dichotomy between explicit and implicit representations (Akrich, 1995; Oudshoorn, Rommes & Stienstra, 2004), identified sources of user-representation yield at least eight major source areas with sub-categories (see Figure 1), and our research suggest that much of this range of significant inputs for designing usage is not a matter of a range of different projects but a matter of variety even within single projects (Hyysalo, 2010).

The user-representations circling around an innovation project are many. Some of these are complementary and can have mutually reinforcing relations. Others have more conflicting relation and yet other representations of use concern such different areas in the product that they tend to remain unconnected: representations related to the visual image and marketing; those resulting from engineering details of, say, reliability considerations; and representations about adequate usability tend to fall into domains of different professionals, require different expertise, and also take shape in different ways (Norman, 1999; Kotro, 2005). The fascinating thing about design is that all these considerations have to be accommodated in the limited physical and cognitive space of the product and hence their mutual relations become more urgent. Naturally, design and engineering do not stand helpless in the face of such difficult interdependencies; separation of concerns through compartmentalization, modularization, et cetera is one of the principal activities involved. But how this factually takes place, and how exactly are user representations raised to the fore in situated design action and interactions connected to other situations in time and space is a question that has been more assumed than established as yet.

**BIOGRAPHIES OF TECHNOLOGIES AND PRACTICES APPROACH**

There are some rather pressing methodological issues involved, however, in attempts to accomplish the above research interests. Many relatively recent studies stress methodological issues that