Chapter 3.39
An Expert-Based Evaluation Concerning Human Factors in ODL Programs:
A Preliminary Investigation

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ABSTRACT

In this chapter we describe the expert-based approach in evaluating open and distance learning (ODL) environments. Our study is mainly concerned with the domains of human-computer interaction (HCI) and human factors (HF), and the synergy between them in the field of ODL. The most promising approach to evaluating ODL is one which attempts to frame the ideas from distributed cognition research in a way that is more usable by HCI designers. Though the distributed cognition framework acknowledges a vast majority of cases suited to HCI designers and evaluators, it has never been tried before as a framework for the evaluation of the cognitive work that is distributed among people, between persons and artifacts, across time and between abstract resources of information in the ODL domain. So, the main contribution of this chapter is on one hand to present the contemporary research on the domain, and, on the other hand to pinpoint the main concerns and to propose trends for further research on this complicated field that combines ODL, HCI and HF in such a holistic manner.

INTRODUCTION

Most contemporary organizations spend enormous amounts on education and training in order to enhance the abilities of their human resources. A clear tendency in this direction is to utilize some alternative educational approaches, like computer based training (CBT), distance learning or another technology-enhanced variation that better suits the needs of the particular organization.

Contemporary research on human factors has been concerned with participation and skill in the design and use of computer-based systems. Collaboration between researchers and users on this theme, starting with the pioneering work of Donald Norman (Norman, 1986) and Alan Newel (Card et al., 1983), has created a shift from the idea that Human Factors is a passive observation of users to the idea of Human Actors, where you create models for the interactions between actors, artifacts and the settings in which interaction occurs (Preece et al., 1994).

THE COMMUNICATION CHANNEL

Apart from its theoretical foundation as a research field, open and distance learning still carries its "childhood diseases": the isolation of the student and the subsequent inactivity and loss of interest. Many solutions have been proposed, with varying levels of success, however, we believe the roots of this problem lie with an issue that almost any researcher of the field pinpoints: the transition of the traditional class to its distant counterpart breaks the personal contact between the participating parts and leads to the isolation of the student. However, the interaction between the members of the class has been proven to be of paramount importance in every educational environment and must not be underestimated. In terms of the scientific domains involved, the communication channel described here is the fusion of human factors, ODL and HCI. Rogers and Ellis (1994) argue that traditional task analysis is ineffective for modeling open distance learning and instead argue that a more appropriate unit of analysis is the network of people and technological artifacts involved in the work. In this approach, analysis focuses on the transformation of information representations as they are propagated around the network, and also how shared representations are used to coordinate learning through the communication channel. This so-called distributed cognition (DC) perspective has been used to describe a range of activities from navigating warships to solving children's puzzles, and DC has been discussed as one component of a theory to bridge research in CSCW, ODL and HCI (Nardi, 1996). Yet, despite this claim and despite the fact that the DC perspective is so obviously relevant to HCI theory and design, the ideas from distributed cognition research have not really gained visibility in the HCI community. So, we can argue that similarities and differentiations of traditional education and ODL emerge from the *fact* of granting knowledge, and from the *method* of granting it as well. The definition we prefer to follow here is that *"the communication channel is the modes, the methods and the tools that realize the communicative interaction between the participants and the instructional environment."*

To clarify this definition, we also attempt to describe it schematically. In the following diagrams, the whole set of arrowed lines constitutes the communication channel. The thickness of the line indicates the potential of the interaction, i.e., a thicker line indicates a stronger interaction, while a dotted line means a weaker interaction.

In the traditional approach, we experience the pattern in Figure 1.

The instructor belongs to the educational organization and has a strong interaction with the educational material, which is produced by him/her (lectures, exercises, etc.) and by the educational organization (printed material, etc.). The "class" comes into contact with the educational material via the instructor, while the students