

Chapter 4

Interface Design for Social Interaction in E-Learning Environments

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ABSTRACT

This chapter concerns the contribution of the interface design to social interaction in e-learning environments. More specifically this chapter focuses on the design of social facilities in the interface that are intended to motivate and sustain the process of communication among students. Although there are design constraints in creating an environment capable of supporting social interaction, previous research findings indicate that social presence is a key factor for social interaction. In addition, previous research has pointed out that social presence is affected by individual, social response and media variables, suggesting that an interface design might enhance social presence. This chapter explores the interface design by investigating how placing an emphasis on interaction facilities and incorporating text, images and animation affects students' experiences of interacting with each other. The overall conclusion is that the interface design can increase the number of interactions and enhance the perceived social presence in e-learning environments.

INTRODUCTION

The wide use of computer networks to deliver education and the emergence of people-centred online education have dramatically increased the demand for systems that support social interaction (Anderson, 2003a; McInnerney & Roberts, 2004). Much work has been done to support e-learning

successfully by understanding the interdependence of social and technical elements in a design space. Developments in social collaborative-based learning theories (Slavin, 1990; Vygotsky, 1984; Wenger, 1998) have linked the e-learning environments with online communities. By valuing the importance of people's relationships, e-learning environments are now at a new and important stage in design development. Yet much of the effort to enhance the participation and interaction of people has focused

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on tools (e.g., chat tools, bulletin boards, instant messaging) rather than on the interface design that is crucial for the success of any computer application (Jung & Lee, 2000). Without specialised interfaces, acceptance rates of computer applications will remain low, use will be difficult, and gains and benefits will fall short of their potential. Frequently, e-learning environments are little more than web pages. They are based on management tools that provide a means to sequence content and create a manageable structure for instructors (Siemens, 2004). These environments are designed as a management tool and not as a learning environment tool. Therefore the interface is designed to the instructor's needs, and not for what the students want to do.

In particular, the user interfaces of many e-learning systems suffer from their web page origins. The interface design for e-learning applications, however, offers many more challenges than the design of web pages (Kreijns, Kirschner, & Jochems, 2002). The interface must provide information about others to efficiently support social interactions – it must enhance social presence (Lee, Danis, Miller, & Jung, 2001). Social interactions are actions of two or more people with mutual orientation; in other words, people attach meaning to a situation, interpret what others are meaning, and respond accordingly (Argyle, 1976; Wagner, 1994). We define social presence as the extent to which virtual entities that represent others are perceived as real in an e-learning environment. The perception comes through interactions between participants and the virtual representations of others. Interactions use text, and are considered to be messages exchanged between students. In addition, e-learning refers to undergraduate courses delivered through a computer network. Thus, the interface for these courses is conceived not as a transparent layer in the communication process through the computer, but as an active contributor to this process.

In this chapter we explore the design of social facilities that enhance social presence in e-learning

applications. Social facilities here refer to interaction facilities, to social information facilities and to the system feedback facility. In this context, interaction facilities refer to chat, forum, web mail and instant mailing. Social information denotes information about the presence, location and connection duration of the online users. The system feedback facility refers to the alerting system for incoming messages and system updates. We assume that the design of the social facilities must involve, engage and motivate the students to explore the e-learning environment by creating opportunities for exploration, discovery, and communication. Thus, to create an optimal education experience, the design of the e-learning environment should consider social presence as an affective factor in e-learning interactions.

The sections below clarify terminology to be used in this chapter and provide background material for those unacquainted with social presence theory. We start by addressing the challenges of defining and measuring social presence.

BACKGROUND

The term social presence was defined by Short, Williams and Christie (1976, p. 65) as 'the degree of salience of the other person in the interaction and the consequent salience of the interpersonal relationships'. They relate social presence to the concepts of intimacy and immediacy. Short, Williams and Christie (1976) hypothesize that individuals are aware of the degree of social presence of the medium, and they may avoid a certain medium depending on the kind of interaction they want to have. In addition, the degree of social presence of the medium depends on how much information it can transmit, and how the person who receives this information perceives it. Variations in social presence may be influenced by the capability of the medium to transmit information about facial expression, gestures, direction of gaze, tone of voice, and much more.

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