Chapter I

User-Centered Design of Online Learning Communities

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Abstract

This chapter aims to introduce user-centered design and its basic concepts associated with online learning communities. Another aim is to search for guidelines to ensure quality in online learning. Human-computer interaction for education provides the missing holistic approach for online learning. Functioning in a sociotechnical framework, online learning communities combine information and knowledge stores situated in shared social spaces using social learning software. In recent years, educational technologists linked theory and systems design in education. However, several disciplines combine in online learning. User-centered design provides the cross-disciplinary approach that appears to be essential for quality in online learning design and engineering. Thus, seven guidelines for experts’ evaluation are proposed as signposts: intention, information, interactivity, real-time evaluation, visibility, control, and support.
Introduction

As computers invaded our lives, education adapted a protean nature moving into time and space. Technology and culture have co-evolved, and computer professionals catalysed this process (Bruckman, 2004). Technology in the workplace and at home needed to be different from the provision of a raw technology that could be used only by computer experts. The shift from machine-centered automation to user-centered services and tools is enabling users to be more creative and achieve more. In other words, this shift to human factors is redirecting the focus from what machines can do to what users can do (Shneiderman, 2002). The human-computer interaction (HCI) community searched for common places between behaviourally and technically oriented research that might lead to more productive end results for every user (Karat & Karat, 2003). The concept “education with computers for all” drives some major research centres nowadays (e.g., $100 dollar laptop—see http://laptop.media.mit.edu/).

In 1963, in the Lincoln Labs MIT, Sutherland (1980) designed the Sketchpad, a revolutionary computer program written in the course of his PhD thesis, changing the way people interacted with computers. One of his colleagues, Baecker, paved the way of modern HCI involving trained animators in the development and testing process in 1969. Xerox PARC furthered the work in Lincoln Labs suggesting sociotechnical implications for design and utilities to date (Buxton, 2005). HCI considers the interaction between the human and the computer within a complex multidisciplinary framework; HCI is “concerned with the design, evaluation and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them” (ACM SIGCHI, 1992, p. 6). While engaging with computers, users, especially the younger ones, juggle more than one task simultaneously to achieve their goals, for example doing homework, listening to Mp3s, and chatting with friends (Dede, 2005). Technology provided the users with flexible ways to learn (flexible learning) by managing their tasks and freeing them in terms of time and space. Flexibility and learners’ control were related to critical thinking, enhanced by comparison of multiple sources of information, individually incomplete and collectively inconsistent. Dede (2005) defined the new ways of learning as the neo-millennial learning (NL). NL is found in multi-user learning environments and augmented realities that are supported by the physical plant, technology infrastructure, and research, inducing learning. Personalisation of educational products and services tailored to individual needs insists on equal responsibility between all involved stakeholders. NL styles promoted cross-age social learning styles in:

• fluency in multiple media and simulation-based virtual settings;