Chapter IV

Quality Models of Online Learning Community Systems: Exploration, Evaluation and Exploitation

Effie Lai-Chong Law, Swiss Federal Institute of Technology, Switzerland

Ebba Thora Hvannberg, University of Iceland, Iceland

Abstract

The main goal of this chapter is fourfold: to review key theoretical models underpinning the design of online learning community systems (OLCSs); to identify and evaluate quality models for OLCSs; to better understand the feedback loop between evaluation of OLCSs and their redesign; and to develop a generic framework for user interface quality models for OLCSs. Specifically, we have reviewed a set of software quality standards, quality models, and literature on human-centered design, usability, information technology quality assurance, accessibility, security, and trust. Several empirical case studies are described to illustrate our arguments and views. We have developed the generic framework that comprises four levels—factors, criteria, guidelines, and metrics.
“Where technology separates us from challenges, meaning, purpose and alignment with nature, it brings a type of death.”

—paraphrased from W. Brian Arthur (2005)

Introduction

It is a well-recognized fact that there are two major critical success factors for online communities (OCs)—high usability and good sociability (Preece, 2000)—with each of them comprising a set of attributes and corresponding measures. Whereas usability is primarily concerned with how users interact with technology, sociability is concerned with how members of a community interact with each other through the supporting technology. Another well-recognized fact is that there are a variety of OCs, being defined by their specific goal, composition of membership, and technological support. In particular, OCs for learning (or online learning communities, OLCs) are distinct from other OCs in a way that learning objects or knowledge resources are essential elements that coalesce, mediate, and sustain interactions and communications among members. In contrast, OCs grounded in economic relationships (e.g., eBay) are bound by members’ bargaining power.

Presumably, easy, effective, and flexible access to quality learning objects is imperative for the advancement of an OLC whose members collaboratively build knowledge. Sociotechnical systems (Mumford & Beekman, 1994) that enable online exchanges of knowledge resources are basic infrastructures for knowledge-building community. OLC members range from students, teaching and administrative staff of primary schools as well as of higher education institutions, to professionals in different workplaces of public as well as private sectors. Given the broad scope and complexity of issues pertaining to OLCs and the limited space of this chapter, it is very difficult, if not impossible, to take into account all relevant issues of OLCs. Consequently, we selectively focus on addressing usability issues of software systems that support the development of OLCs in the context of higher education institutions and of workplace learning. Specifically, members of these OLCs archive, retrieve, reuse, and more importantly discuss as well as reflect on learning objects per se and on associated problems arising from their usages. These learning activities can lead not only to the enrichment of knowledge of individual members, but also to the consolidation of the community built on topics of interest. Put concisely, the focus of the chapter is on the technicality of OLC systems. Nevertheless, we are fully aware of the very significance of sociability of OLCs and the interdependence between these two dimensions. Whereas other chapters in this volume address sociability issues of OLCs thoroughly and insightfully, this chapter presents complementary as well as supplementary views on intriguing issues pertinent to design and evaluation of OLC systems.
Constructivism, Technology, and Meaningful Learning
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