Chapter 1
Online Learning Support in a Ubiquitous Learning Environment

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ABSTRACT

The ubiquitous learning environment (ULE) is both an ontological and epistemological problem. For most scholars, ULE provides an interoperable, pervasive, and seamless learning architecture to connect, integrate, and share three major dimensions of learning resources: learning collaborators, learning contents, and learning services. Furthermore, ULE is described as an educational paradigm that mainly uses technology for curriculum delivery. Through reflection and exploration, this chapter argues that online learning support has a symbiotic relationship with ULE because the student, at some point, should move beyond the "text" level into concepts and conceptual organization schemes (ontologies). In line with this viewpoint, this chapter problematizes the gap created by real-world and digital-world resources—and argues that online learning support for teaching and learning processes have not yet emulated ULE as an important pedagogical resource.

INTRODUCTION

The Ubiquitous Learning Environment (ULE) has become a central issue for curriculum delivery in the 21st century and remains most instrumental in the digital world. Notwithstanding the fact that ULE enables learning at any time and place, it is a pre-condition for the student to be familiar with languages like Hypertext Markup Language revision 5 (HTML5), Structured Query Language (SQL), Resource Description Framework (RDF), and Web Ontology Language (OWL), to name a few. Furthermore, the student at some point should move beyond the 'text' level into concepts and conceptual organization schemes (ontologies). Once the student has moved into the conceptual processing realm (Artificial Intelligence), very important and exciting functionalities like knowledge inference (reasoning) can then be provided—functionalities which will mark a true technological turning point in the student's learning (Mikelloydtech, 2013).

Against this background, it can be argued that ULE places varying demands on delivery and feedback methods and relies on different levels of knowledge and skills. That being the case, this chapter aims to

1. Delineate the importance of planning online learning support when managing and designing online courses in the ULE;
2. Explore the prominence of online learning support in the ULE; and
3. Reflect on the symbiotic relationship between online learning support and ULE in order to close the gap created by real-world and digital-world resources.

BACKGROUND

The ULE is described by Calimag, Miguel, Conde, and Aquino (2014: 119) as "being any setting wherein students can become totally immersed in the learning process". Researchers with a similar view include Chin and Chen (2013), who consider ULE as being a complementary teaching technique that reduces both time and location constraints within the learning environment. Previous studies (such as Jones & Jo, 2004; Calimag et al., 2014) have considered ULE as being a new hope for the future of education. Nevertheless, as new technologies have evolved—and as more ubiquitous forms of technology have emerged—the need for online learning support has become evident in order to achieve core capabilities of ULE. There are six core capabilities of ULE (as described by Kwon, 2011):

1. Cognitive capability,
2. Relational capability,
3. Emotional capability,
4. Adaptability,
5. Technology literacy, and
6. Effective learning ability.

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