Chapter 15
Engaging Learning Models with Information and Communication Technologies in Advancing Electronic Learning

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ABSTRACT

Emerging information and communication technologies and learning models have triggered a new wave of educational innovation: electronic learning (E-learning). This study employs a hypercube innovation model to analyze the differences in technology and learning models in conventional (face-to-face) classroom learning and E-learning environments. The results of the analyses indicate that the innovation from traditional classroom learning to E-learning is radical for both the learner and instructor, leading to drastic changes in the technology and learning model. For education institutions, the technology is a fundamental change, while the learning model is reinforced. From the dynamic capability perspectives, a set of core capabilities needed for successfully exploiting E-learning is identified. These results provide insight for learners, instructors, and education institutions for enhancing their understanding of E-learning innovation and provide guidelines to help E-learning stakeholders adapt from conventional classrooms to E-learning environments.

INTRODUCTION

Developments in the field of information and communication technology (ICT) offer new instructional paradigms for education. Internet technology is presently enabling humankind to communicate with anyone, anywhere, and anytime globally, instantaneously and yet inexpensively. Such a rich communication tool can be put to use in education in the form of electronic learning (E-learning). The application of ICT in E-learning is now making it possible for education to transcend space, time, and political boundaries.

The literature on distance education shows how technological, economic, and scientific factors are contributing to the development of a new educational panorama which would offer different teaching contexts to meet different learners' preferences and needs, and which could produce outcomes for students which go beyond simple subject learning (Francescato et al., 2006). For example, distance learning programs are offered worldwide. The situational application of E-learning distance education programs is distinct in different countries. Trends in the USA suggest that E-learning will increase from 31% in 1998 to 90% by 2008 (Cheong, 2002). Currently, totally online degree-seeking students in the USA exceed 350,000 and the students are from all over the world.

A rather large body of literature indicates the dramatic changes in the higher education instructional system caused by the diffusion of new ICTs, as well as the need for schools to radically change in order to stand both the social pressure and the competition from online universities (Bates, 2000; Hazemi et al., 1998). The advantage of E-learning is clear. For instance, Tennyson and Jorczak (in press) write that E-learning matches the needs of nontraditional students, increases the educational facilities available to traditional students, provides companies with cost efficient yet effective training options, and gives students and researchers in developing nations an invaluable means of gaining a first-world education tempered by third-world experience.

E-learning has created unprecedented virtual learning environments, offering new educational models that impact the learning industry (Piccoli et al., 2001). These innovative learning environments may impact the traditional education system and render the capabilities of the stakeholders in the system obsolete. From the dynamic capability perspectives (Teece et al., 1997), in such a new setting, the stakeholders must constantly reconfigure, renew, or learn new capabilities rather than protect their capabilities along with technology, content, and education delivery expertise to embrace emerging educational innovations, such as E-learning.

Understanding the nature of innovation is the crucial first step in managing the change associated with any innovation. In order to apprehend the nature and scope of the opportunities that accompany E-learning innovations, it is necessary to organize them categorically and see them fully. It is necessary for E-learning participants to recognize and evaluate changes in the education and technological landscape and speculate on what extent each stakeholder meets the emerging capability gaps in a timely way. Possessing this knowledge is crucial for stakeholders to successfully adapt from traditional classroom to an E-learning environment. However, research on these issues is extremely limited. Therefore, this study utilizes an E-learning hypercube innovation model, adopted from Afuah and Bahram (1995), with secondary data analysis and comparative analysis to evaluate the differences in two dimensions: technological components and learning model between traditional classroom and E-learning and then explore the core capabilities that are necessary for E-learning stakeholders to successfully adapt and exploit the E-learning innovation.

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