Chapter 16
Transition From E-Learning to U-Learning:
Basic Characteristics, Media, and Researches

Alaattin Parlakkılıç
Ufuk University, Turkey

ABSTRACT

E-learning systems have increased the prevalence of information and computer technologies in education. U-learning is a modern teaching system based on the use of computer technologies (ubiquitous computing technology) everywhere in the environment of existing wired, wireless, mobile, and sensor systems. The interaction between information, object/device, and user/learner/student is formed at any time, anywhere, and form in the communication environment called u-environment. In u-learning, the presence of information in objects (embeded) and mobility is the highest. Training services are among mobile systems and sensors that can move independently in the environment. The status of the learners is followed due to the characteristics of the server systems and objects. Researches on u-learning are ongoing. Especially u-learning system theory and application methods are being investigated. Most of the researches are about u-learning applications rather than u-learning framework. This chapter focuses on basic features, media, and research in the transition from e-learning to u-learning.

INTRODUCTION

With the increasing use of computer technologies in all areas of society, lifelong learning and universal education became indispensable needs of societies. Nowadays, the functions of devices and computers that use mobile technologies continue to increase. Individuals in need of learning are trying to meet their learning needs at any time, anywhere and in accordance with their own learning situations by using the means of communication technologies. Learning activities can be carried out with wireless, mobile and sensor systems that are available everywhere using Ubiquitous Learning (U-learning), which is accepted as an advance of e-learning and spreading rapidly (Yumei, 2010).

OVERVIEW OF U-LEARNING

Many e-learning systems have been developed from the past to the present and the studies are still continuing. Most of these systems work on a client-server architecture structure or on a central server logic. In this environment, the learner is dependent on the system and the teacher and often uses the specific resources provided to him or her (Sung, 2009).

E-learning can be defined as the distribution and use of information in the network environment in education and training. The system in this structure is sometimes called distributed learning, online learning, virtual learning, and web based learning. In fact, these terms do not adequately describe the e-learning system. E-learning covers all of these and is conducted online, offline, synchronously and asynchronously with networked wired devices and systems (Naido, 2006). As an extension of e-learning, m-learning is used today, but m-learning is considered a new level of development as a subset of e-learning. M-learning is a wireless and internet-based e-learning system and requires a permanent commitment to the physically existing network. The advantages of m-learning over e-learning are elasticity, cost, ease of use and use in time-dependent applications. The devices used in the m-learning system are PDA, mobile phones, laptop, notebook and tablet computer devices (Sung, 2009).

The idea behind the u-learning covers all kinds of electronic systems, space and time. Learning is considered as part of the activity being performed and includes feeling, touching and accessing all possible communication beyond text-based instruction and auditory-processed courses. U-learning can be defined as the realization of learning through uninterrupted access to information and learning resources at any time (Junqi and Yumei, 2010).

E-learning reduces the limitations of traditional education, but u-learning offers more opportunities by reducing it further. U-learning is a system based on the concept of Ubiquitous Computing Technology. Ubiquitous Computing Technology allows the learning environment to be used anywhere and in any form, and any time the learner wants.

With the development of wireless and mobile technologies, e-learning will begin to give way to u-learning over time. The aim of U-learning is to provide learning services in the right place and time. For a better understanding u-learning, e-learning, u-learning, pervasive plearning (p-learning) methods are shown in Figure 1 for mobility and embedding. Here, mobility and ease of transport and computer systems in large information are shown in storage space and memory. While e-learning shows the lowest burden and mobility, u-learning shows the highest level of mobility. In this case, u-learning provides more benefits to learners (Boyinbode and Akintola, 2009).

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