Measuring Student E-Learning Readiness:
A Case about the Subject of Electricity
in Higher Education Institutions in Turkey

Dursun Akaslan and Effie L.-C. Law

Department of Computer Science, University of Leicester, United Kingdom
{info@dursunakaslan,elaw@mcs}.le.ac.uk

Abstract. Today e-learning is embraced for delivering education and training as it offers various potential benefits. However, successful uptake of e-learning depends on a cluster of personal, technological, institutional and domain-specific (content) factors. Based on our literature review and empirical results of our previous work, we have identified specific attributes subsumed by each of these factors and integrated them into our model of student e-learning readiness. To validate the model, we have conducted a web-based survey to investigate the extent to which students in the Higher Education Institutions (HEIs) in Turkey offering the subject of electricity are ready for e-learning. 704 responses from the students of 417 departments in the related HEIs have been collected; 425 were complete responses. Whilst the findings revealed that the students were sufficiently ready for e-learning, training for e-learning is considered essential for enhancing student e-learning readiness.

Keywords: E-learning readiness, electricity, higher education.

1 Introduction

Today many organizations and individuals embrace e-learning for delivering education and training as it potentially offers different benefits. However, successful integration of e-learning into an organization, be it academic or industrial, is deemed challenging. An ever-increasing number of research studies have investigated factors pertaining to the integration of e-learning in academic institutions in developing countries. The aim of the paper is to understand whether students in the Higher Education Institutions (HEIs) offering the subject of electricity (e.g. departments of electrical and electronic engineering) in Turkey are ready for e-learning in terms of successful integration. To meet this aim, we investigated the extent to which students believe that e-learning would be free of effort and would enhance their learning. This is important to understand the needs of students before embarking on e-learning. We addressed these issues by adapting the conceptual model we had previously developed for measuring teachers' e-learning readiness [2]. The adapted model has then been validated with students from some of the HEIs which had been involved in the corresponding survey with their teachers.

2   Literature Review

E-learning offers many benefits for individuals and organizations First, organizations can save their training budget [6]. Second, it provides flexibility for delivering education and training from anywhere and at anytime. Third, the cost of commuting from residences to colleges may be reduced [1]). Another obvious importance of e-learning is that students can study at their own pace in their own preferable environment, given that students do not have to be together with their teachers [8]. A number of papers have described the benefits of e-learning in detail. Specifically, Akaslan, Law & Taşkın [3] conducted in-depth interviews with a number of academic staff to identify issues for applying e-learning to the subject of electricity in Turkey. The results indicate that e-learning is perceived as a solution for some of the issues and is deemed useful for enhancing education and training in the institutions surveyed.

Akaslan and Law [2] argue that e-learning may not have the same effect for every individual, institution, organization or country. To ensure that the actual benefit of e-learning is valid in different situations, there is a need to measure organizations' or individuals' readiness for e-learning appropriately. E-learning readiness is defined as the ability of an organization or individual to take advantage of e-learning [13]. Furthermore, it is the mental and physical preparedness of users to gain some learning experience or action [5]. It is therefore important to investigate whether individuals and organizations are ready to succeed in e-learning [7, 11,12]. Besides, it is deemed relevant to analyse the factors that may affect the readiness of organizations and individuals for e-learning. Such factors should be included in a structural model describing their relationships.

The often-cited model of e-learning readiness is Chapnick's, which informed the development of items for measuring e-learning readiness [7]. Chapnick defined measuring e-learning readiness as a process for determining the gap between what students know and what they need to know. She grouped different factors identified into eight categories (i.e. psychological, sociological, environmental, human resource, financial, equipment, content and technical skill readiness), thereby enabling practitioners to use the same process to assess different types of stakeholders. Besides, there are other models of e-learning readiness for some general as well as specific situations [2, 4,7, 12].

3   A Model for Measuring Readiness for E-Learning

Akaslan and Law [2] developed a model to measure teachers' readiness for e-learning in HEIs offering the subject of electricity in Turkey (Fig. 1, the underlined factor 'Traditional Skills' is only included in the model for students' e-learning readiness). This model is basically appropriate for measuring students' e-learning readiness, because the core factors and their subsuming attributes (or sub-factors) remain relevant. Presumably the model is generalizable for assessing e-learning readiness in developing countries such as Turkey, albeit some fine-tuning may be required for specific socioeconomic attributes.