Assessing eLearning Systems in the Kingdom of Saudi Arabia’s Higher Education Sector: An exploratory analysis

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Abstract—A new challenge for universities in the Muslim world, including the Kingdom of Saudi Arabia (KSA), is the need to develop suitable eLearning systems to facilitate distance learning and culturally acceptable mixed gender collaboration. This paper is a work-in-progress report on research being conducted on the assessment of eLearning systems in KSA. Our conceptual framework is the IS Success/Impact Measurement framework pioneered by DeLone & McLean (1992) and extended by Gable, Sedera & Chan [1]. We propose a range of indicators/items to measure the four dimensions of success and impact of an eLearning system as modelled by this framework.

Keywords—eLearning; IS success; IS impact; Kingdom of Saudi Arabia

I. INTRODUCTION

According to the Communications and Information Technology Commission (CITC), the Kingdom of Saudi Arabia (KSA) is one of the fastest growing countries in the world in terms of eLearning [2]. CITC data shows an explosive growth in the number of internet users generally, from a mere 200,000 in 2000 to 4.8 million in 2006. The number of students enrolled in institutions of higher education has also increased significantly in recent years [2]. As a result, many of these institutions have turned to eLearning systems as a means to help broaden and enhance access to their courses and subjects [3].

Reflecting this trend, a growing number of research studies have been conducted on eLearning in KSA. Many of these studies have focused on identifying the key factors that differentiate online education from face-to-face learning, analysing the in-principles advantages and disadvantages of online courses, or developing strategies to achieve a suitable online learning environment [4]. To date, however, little attention has been paid to the issue of assessing the eLearning environments that have been set up in the country. Indeed, it would appear that relatively little research has been done regarding the evaluation of e-Learning systems in general [5-6]. Responding to this gap in the literature, this paper is a work-in-progress report on some research which is being carried out on evaluating eLearning systems in KSA.

II. BACKGROUND

Interest in eLearning has grown rapidly during the past decade or so in KSA, for a number of reasons [7]. First, the demand for higher education has far outstripped supply, such that institutions are faced with overcrowding and insufficiency of facilities and human resources for the delivery of traditional-style education to all of the nation’s qualified applicants for admission. E-learning has been suggested as a means to overcome these limitations.

Second, KSA is a large country in terms of geographical area, with a significant number of communities being isolated from major population centres. E-learning offers the potential to deliver educational services to remote locations, thereby reducing disparities across the various regions and areas.

Third, in KSA’s higher education, men and women receive their instruction in separate classes, for cultural and religious reasons. This puts further strains on the limited facilities and human resources available. It has been observed, accordingly, that women are often among the strongest supporters of eLearning, which potentially facilitates their access to higher education [8-10].

In 2008 the KSA Ministry of Higher Education established a National Centre of E-learning & Distance Learning to promote and facilitate the spread of eLearning systems in Saudi universities [11]. It has been estimated that by 2008, annual turnover of the eLearning industry in KSA had already reached US$ 125 million, with further expected growth of about 33 percent per year over the following 5 years [12]. It is timely, therefore, to investigate the issue of assessing the success or impact of the eLearning systems that have been set up to date.
III. CONCEPTUAL FRAMEWORK AND MEASUREMENT DIMENSIONS

The IS-Success/Impact Measurement framework was selected because it comprehensively takes into account four dimensions of success/impact in the context of IT systems [13]. The IS-Success Model [14] is one of the most cited models in IS research [15]. More recently it has been supplemented by the IS-Impact Measurement Model [1]. As illustrated in Figure 1, within the IS-Success/Impact framework, the success and impact of an IS system can be measured in terms of:

- the quality of the information produced (information quality),
- the performance of the system from a technical perspective (system quality),
- the impact on individual users (individual impact), and
- the impact on the relevant organisation (organizational impact).

For eLearning systems, the third and fourth dimensions are probably the most important ones, as they represent the end-goals of the system.

![Figure 1: The IS Success/Impact Measurement Model [1]](image)

A. Information Quality (Quality of Learning Material)

In practice, this dimension can be measured through a number of specific indicators/items. Following an extensive review of the literature regarding the quality of online teaching material in particular, and of teaching material in general, we have selected and developed the following items to be used in our research.

IQ1: (Comprehensiveness) The e-learning system provides learning material that covers the learning needs of all students.

IQ2: (Customisability) The e-learning system provides learning material that can be quickly overviewed by students, thus allowing them to move directly to sections or areas of most relevance to them.

IQ3: (Content Accuracy) The e-learning system provides learning material that is correct and consistent.

IQ4: (Understandability) The e-learning system provides learning material that is easy to understand.

IQ5: (Style & Presentation) The e-learning system provides learning material that is presented in an interesting and attractive way.

IQ6: (Currency) The e-learning system provides learning material that is up-to-date.

IQ7: (Cultural Sensitivity) The e-learning system provides learning material that takes into account the cultural backgrounds and requirements of the students.

B. System Quality (Performance of Technical System/Design)

Based on a review of the literature on the performance of IT systems (especially eLearning systems) from the technical and design perspectives, we have selected and developed the following indicators/items to measure this dimension.

SQ1 (Access) The e-learning system provides a high level of availability

SQ2 (Reliability) The e-learning system functions smoothly with few problems.

SQ3 (User-friendliness) The e-learning system is easy to learn initially.

SQ4 (Ease of use) The e-learning system is easy to use on a regular, on-going basis.

SQ5 (Support service) The e-learning system provides effective online assistance for technical issues.

SQ6 (Learning support) The e-learning system provides effective online assistance for learning-related matters.

SQ7 (Class interactions) The e-learning system facilitates appropriate intellectual interactions among students.

C. Individual Impact (Impact on Individual Students)

It is important to note that this dimension needs to be measured in relative terms, i.e., the impact must be expressed in terms of how the outcomes, from the student’s point of view, differ from what he or she would expect from a typical traditional learning and teaching system. On the basis of an extensive review of the literature regarding the advantages and disadvantages of e-learning relative to traditional learning, we have selected and developed the following indicators/items to measure this dimension.
D. Organizational Impact (Impact on Academic Institutions)

We have selected and developed the following indicators/items to measure this dimension, which typically also needs to be measured in relative terms.

**III** (Convenience) Compared with traditional learning, this eLearning system is more readily available when and where the student wants it.

**II1** (Customisation of pace) Compared with traditional learning, this eLearning system better accommodates each student’s own learning pace.

**II3** (Interest) Compared with traditional learning, this eLearning system makes the student more interested in learning.

**II4** (Depth of learning) Compared with traditional learning, this eLearning system promotes deeper learning.

**II5** (Student satisfaction) Compared with traditional learning, the student is more satisfied with this eLearning system.

**II6** (Student performance) Compared with traditional learning, this eLearning system helps students to achieve better performance in assessment items.

**II7** (Future learning) Compared with traditional learning, this eLearning system encourages students to continue to learn after completing the present course/subject.

E. System Success

We have selected and developed the following indicators/items to measure this dimension, which typically also needs to be measured in relative terms.

**OI1** (Costs) Compared with traditional learning and teaching, this eLearning system allows the institution to make overall savings in costs, even after allowing for initial setup costs.

**OI2** (Enrolment) Compared with traditional learning and teaching, this eLearning system allows the institutions to cater for larger numbers of students, and from a wider range of locations.

**OI3** (Quality) Compared with traditional learning and teaching, this eLearning system allows the institution to offer a wider range of educational services and/or to produce better trained graduates.

**OI4** (HRM) Compared with traditional learning and teaching, this eLearning system involves more work and stress for academic staff.

**OI5** (Strategic competitiveness) This eLearning system helps the institution to enhance or maintain competitiveness or strategic advantages.

IV. NEXT STEPS

Using the above items/indicators, we are developing questionnaire instruments to obtain feedback from students, academic staff, and senior administrators who have had first-hand experiences with eLearning systems in KSA. In-depth interviews and focus groups will also be used to obtain supplementary information.

The data collected can be used in at least three ways.

Simple descriptive statistics and aggregation procedures (such as calculating weighted averages of individual items or dimensions) can be used to provide an indication of the impact or level of success achieved by each of the eLearning systems studied.

Statistical analysis can be undertaken to determine whether certain personal or institutional characteristics systematically influence the quality or impact dimensions.

Statistical analysis can be undertaken to determine whether the quality dimensions systematically influence the impact dimensions.

Our research in this area is on-going.

REFERENCES


