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Assessment of E-Learning Readiness in the Primary Education Sector in Libya: A Case of Yefren

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Abstract

Over the last few decades, both developed and developing countries have an increasing trend in technology but with an enormous gap, particularly in the education sector. The e-learning following institutions can achieve benefits by evaluating their e-learning readiness through up-front analysis. Moreover, several models have been introduced to measure e-learning readiness for developed countries but these are not adequate for developing countries. This paper introduced the e-learning readiness evaluation model for the developing country, Libya, by considering the primary education sector. Furthermore, this study examines the e-learning level of readiness in the staff of the primary school. The purpose of this study is to evaluate the e-learning readiness of staff by directing factors of e-learning readiness i.e. cultural readiness, content readiness, and technology readiness. To achieve this objective, this paper collects data through questionnaires, and respondents are 110 staff member of primary schools in Yefren, Libya. Therefore, the multivariate analysis shows that the e-learning readiness factors have e significant relationship with the adoption of e-learning because most teachers are well prepared and ready. Likewise, results indicate that technology is the most significant factor instead of other e-learning readiness factors. According to the views of staff, there should be more content development training required for primary school staff. Thus, the demographic structure is inadequate to enhance the e-learning but the staff is ready for e-

learning. Consequently, this study emphasizes the significance of cultural readiness and its relationship with the adoption of e-learning in primary education sectors' development in Yefren, Libya.

Keywords: Assessment, E-learning, Readiness, Primary education.

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Introduction

In the era of globalization, the assessment of e-learning readiness in educational organizations is crucial. Most educational organizations are unsure of the parameters that must be included when assessing e-learning technology (Ouma, Awuor & Kyambo 2013). In developing countries, e-learning readiness is measured and it has been found that there is a high level of readiness to accept this technology. In developing countries, such as Libya, however, e-learning has been implemented based on models borrowed or adapted from developed countries, such as the United States (US). This has led to the challenges that educational institutions face, especially from the perspective of e-learning implementation (Ouma et al., 2013). Hence, this study is timely, in that it aims to assess the level of e-learning readiness in Libya, to guide the implementation of suitable technologies in the learning institutions.

In Libya currently, there are several ongoing information and communications technology (ICT) projects; these include projects sponsored by UNESCO and the Government of Libya, i.e., the Libyan Higher Education and Research Network, which involves the building of a local area network (LAN) encompassing 149 faculties of several Libyan universities. In Libya, this project aims to create a national ICT center to automate the management system of the universities using ICT (UNESCO, 2005). In other words, the primary objective of this policy is to improve the quality, standards, and status of education by improving overall teaching and learning in the country (Rhema & Miliszewska, 2010). In this regard, a specific level of readiness is needed for learning organizations to coordinate and understand the advantage of technology as an e-learning and teaching tool (Ouma et al., 2014).

To implement e-learning, certain criteria must exist, including physical infrastructure, technical expertise, and psychological requirements (Ouma et al., 2014). In addition, a certain level of technical skills is required to access and manage the e-learning platform in the organizations involved. Besides the level of IT capability that is needed by the teachers, the behavioral perception of the teachers towards the implementation of e-learning has also an important role to play in the implementation (Broadley, 2012). However, some students and

teachers seem to be of the view that e-learning is alien and too simplistic; e-learning technology simply removes the controls teachers have (Mansur & Mupinga, 2007). Accordingly, it has become necessary to examine technology's technical capacity and perception to understand and ascertain their readiness to use e-learning.

Huge investment has been made by the Libyan government and many private organizations to kick-start projects to improve the quality of education (teaching and learning) in Libya. This has drawn the attention of many researchers on e-learning in Libya. An extensive literature review has shown that most research on e-learning in Libya has focused only on the implementation of e-learning in the Libyan higher education sector (Zoghbi, Kumar & Naida 2010; Rhema and Miliszewska, 2010); and its resulting challenges (Kenan & Crinel 2012). Some other studies have focused on the implementation of e-learning in secondary schools; however, there are only a few or in fact, no studies on e-learning in the primary education sector. This is specifically with regards to e-readiness assessment, whereby there is to date and the best of the researcher's knowledge, no published research on the assessment of the readiness of e-learning in Libya. Ouma et al. (2014) affirm that the implementation of e-learning can only be successful when the level of readiness for the implementation is high. Therefore, this study aims to assess the state of readiness for e-learning implementation in the Libyan educational sector and investigate the influence of technological, cultural, and content readiness on e-learning adoption in the Libyan primary education sector.

Literature Review

E-learning readiness is the mental and/or physical preparedness, experience, and action taken by an organization to adopt e-learning. It is seen as the ability of a country to create, propagate and employ digital information to enhance the nation's economy. The conceptualization of e-learning readiness is important; such a conceptualization can provide the indicators and a clear framework for researchers who wish to study this issue (Ouma et al., 2013). Some scholars have outrightly rejected the definition while others have accepted by others. Hence, before implementing e-learning, it is crucial to have a general idea of the concept and establish an e-learning model that provides a plan for technology utilization by the teachers. This is because teachers' attitude and their resistance to change influence the effective use of technology in e-learning. In addition, administrative support, funding, and training have been identified as among the other factors that bring about the required changes in organizations that want to implement e-learning.

The Libyan government has identified ICT as one of the enablers for achieving the educational goals of Libya (El Zoghbi et al., 2010) and providing qualified human resources (UNESCO, 2006). It is therefore vital that educational organizations take on the responsibility of providing leadership in educational technology to enhance students' readiness to learn in the digital era.

The use of ICT, particularly the internet, is growing rapidly; this has promoted the capability to adopt e-learning. The internet is an effective tool for diverse users to access information. It can also ensure the survival and growth of organizations in a competitive global market. The internet enables organizations to build their image and promote themselves internationally. Chan and Ngami (2007) note that the internet provides new dimensions to offer distance learning through the provision of mechanisms to deliver training by using strategic tools. Such training programs can enhance training delivery, improve performance and optimize the efficiency of the organizations.

Several factors have led to the rapid expansion of e-learning, including reduced cost of technologies, increased communication, networking, and infrastructure, and the increasing use of the internet (Chan and Ngai, 2007; Sharma and Mishra, 2007; White, 2007). According to Condie and Livingston (2007), people are now required to gain knowledge by using technologies, including computers and the internet. Although there is evidence of the effective use of ICT for teaching and learning in schools, researchers have found that the adoption and use of ICT are not as widespread as assumed. This certainly underscores the need to exploit the use of ICT for teaching and learning more comprehensively (Oketch et al., 2012).

For the effective implementation of e-learning by the educational sector, certain criteria must be fulfilled, including the acquisition of adequate technological infrastructure, educational content, e-learning skills, and a culture that can encourage learning and sharing. These factors can likely influence the readiness level for e-learning adoption, which may, in turn, determine the extent to which the full potential of e-learning is achieved.

It is, therefore, crucial to assess the readiness of e-learning adoption to successfully implement it in organizations. This should be done by assessing and determining the goals, needs, resources, and hindrances before its implementation. In addition, the assessment should involve all stakeholders. Assessment of e-learning adoption can assist in designing effective e-learning strategies and integrating ICT goals into the education objectives comprehensively. There must also be readiness among the learners, which is vital for enhancing the implementation of clear and effective strategies which can ensure the attainment of e-learning adoption.

In summary, e-learning readiness means there must be the right information required by educational institutions to cater to the needs of their targeted learning groups. Although numerous e-learning readiness models have been previously developed (Chapnick, 2000; Borotis & Poulymenakou, 2000), most of these models have been developed for business organizations and in developed countries. It must be recognized that every country has a unique system and a culture peculiar to it. Therefore, an e-learning readiness model that works perfectly in one country or organization might not function well in another.

Conceptual Framework

Based on a review of the previous models on the assessment of e-learning readiness, this study presents a conceptual framework for the assessment of e-learning readiness in the Libyan primary education sector. To develop this framework, three main constructs are used: (i) technological readiness (Chapnick,2000; Aydin & Tasci, 2005); (ii) cultural readiness (Borotis and Poulymenakou, 2004; Kaur and Abas, 2004); and (iii) content readiness (Borotis and Poulymenakou, 2004; Psycharis, 2005). These three constructs are integrated to assess e-learning readiness in the primary education sector in Libya as shown in Figure 1:

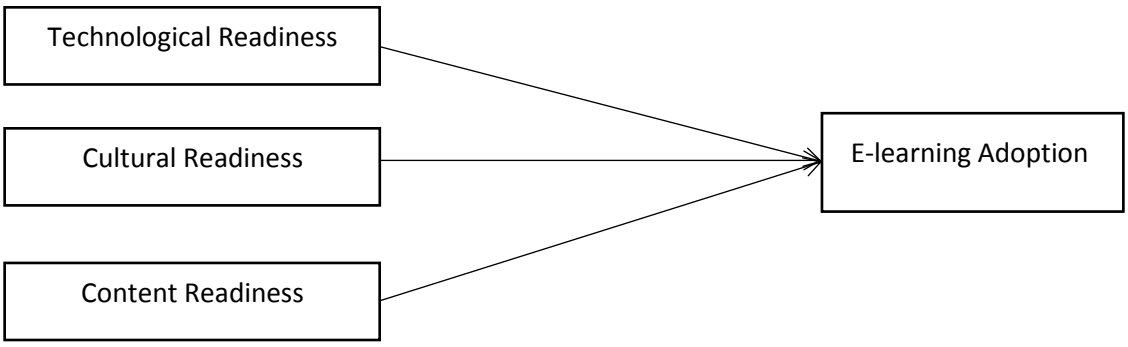

Figure 1. Conceptual Framework for the Assessment of E-Learning Readiness in the Libyan Primary Education Sector

Technological Readiness and E-learning Adoption

To effectively use and adopt an innovation, technology must be adopted by organizations, such as educational institutions (Rogers, 2003). E-learning implementation might be difficult in organizations, like educational institutions, if the required technological infrastructure and easy access to the infrastructure are absent (El Zoghbi et al., 2010; Kenan & Crinel, 2012; Oketch, 2012; Ouma et al., 2013). The users of e-learning initiatives must also have the required technical skills to be familiar with and be able to use the e-learning system, to search ,for and disseminate and acquire knowledge (Oketch, 2012). Technological readiness can be measured by the availability of resources, such as computers, internet facilities, and online teaching tools, which can enhance the skills and abilities of the teachers to adopt e-learning (Oketchi, 2012).

Chokri (2012) shows that a high percentage of learner teachers use internet facilities to learn. Wanyaga, Kamau, & Gikandi (2015), who studied the influence of ICT infrastructure on e-learning adoption in Kenyan public secondary schools, have identified the need for ICT infrastructural facilities for thesuccessful implementation of e-learning. Kosgei (2015) also has identified ICT infrastructure as the basic requirement for the implementation of e-

learning. Mulwa and Kyalo (2011), in their study, found a positive influence of ICT connectivity on the readiness to adopt e-learning. Therefore, this study hypothesizes that:

Hypothesis 1: Technological readiness influences the adoption of e-learning in the Libyan primary education sector.

Cultural Readiness and E-learning Adoption

Educational institutions must focus on providing a conducive environment that truly values learning; this may sometimes involve substantial changes to be made (Ettinger &, Holton, 2006). Therefore, an institution that wishes to implement e-learning must be both culturally and environmentally prepared to be successful in its endeavor (Macpherson et al., 2006).

In terms of e-learning, cultural factors affect the way people learn, including their style of interaction and communication (Al-adwan & Smedley, 2012). When considering the design of a successful e-learning environment, the cultural orientation must be duly considered (Downey et al., 2004). Edmundson (2007) says that the users' cultural characteristics are important for a successful e-learning system. Thus, cultural readiness is an important factor for e-learning adoption (Al-adwan & Smedley, 2012; Oketch et al., 2012). Vrazalic et al. (2010) posit that there is a strong link between culture and tradition and the acceptance of learning practices. While some e-learning systems could be very successful in certain cultural contexts, they might be a total failure in others (Al-adwan & Smedley, 2012). It therefore cannot be over-emphasized that e-learning implementation should consider ther cultural communication styles of its users, such as writing from right to left in the Arabic nations, like Libya (Rhema & Miliszewska, 2010). Based on the above, it is therefore hypothesized in this study that:

Hypothesis 2: Cultural readiness influences the adoption of e-learning in the Libya primary education sector.

Content Readiness and E-learning Adoption

Content is the driving engine of any system. From an educational perspective, e-learning readiness is determined by the measurement of content readiness. In other words, questions center on whether the content is easily available; whether it iswell structured; and whether it is reusable (Psycharis, 2005). This study's model assesses the availability of e-learning content to the teachers and how satisfied they are with the content, in addition to assessing if they need training on e-learning content development. Therefore, for e-learning implementation, training on e-learning should be considered for theeffective delivery of the e-learning system (Agbool, 2006). Lee (2006) empirically found content quality has a significant effect on the perceived usefulness of e-learning. As such, this study hypothesizes that:

Hypothesis 3: Content readiness has a significant influence on the adoption of e-learning in the Libyan primary education sector**.**

Research Methodology

This study employs a cross-sectional quantitative research approach to assess the readiness of e-learning in the Libyan primary education sector. A cross-sectional approach enables the collection of data at one particular point in time (Creswell, 2010). This method is often used to determine the prevalence of a concept within a specific population. This study conducted three phases, processes, and activities to enhance the achievement of the research objectives as demonstrated in Figure 2 below:

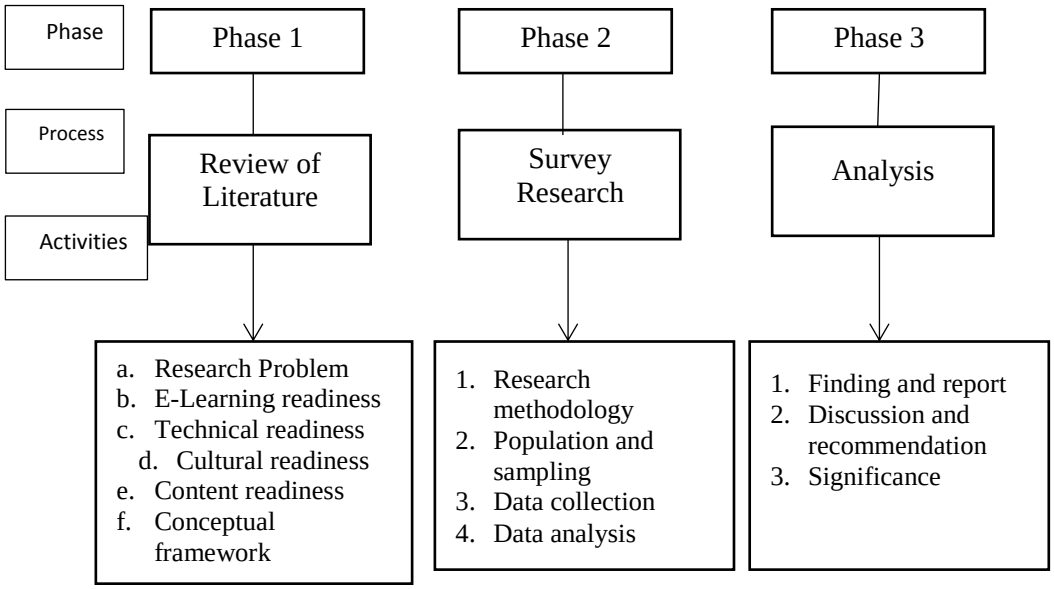

Figure 2. Research process

The population of this study is the primary school teachers in Yefren, Libya, comprising a total sample of 110 teachers who were selected using a simple random sampling technique to give each respondent an equal opportunity to be selected for the study. Computation of the sample size indicates that 85.7 respondents are necessary for the analysis.

A self-administered survey questionnaire was distributed to the participants to collect primary data. This survey questionnaire has two sections: Section A collected data about the demographic profile of the respondents and their schools; while Section B involved data on the variables (technological readiness, cultural readiness, content readiness, and e-learning adoption). The survey questionnaires were deposited at the respondents' places of work during the first visit and an appointment with regards to the pick-up date was set for the collection of the questionnaires.

Statistical Package for Social Science (SPSS) version 22 software was utilized to analyze the data collected. The readiness of e-learning (technological, cultural, and content readiness)

in the Libyan primary school sector was determined through the mean values of the constructs. Multivariate analysis was conducted to determine the effect of technological readiness, cultural readiness, and content readiness on the adoption of e-learning in the Libyan primary school sector.

Findings and Discussions

In this study, the males represent 61.2% of the respondents; while the females represent 38.8%. With regards to theage distribution of the respondents, the majority of the respondents (40%) are between 31 – 40 years old; 32.9% of the respondents are between 20 – 30 years of age; 10.6% of the respondents are less than 20 years; while 9.4% and 7.1% of the respondents are between 41-50 years of age and older than 51 years, respectively. In terms of educational qualifications, the majority of the respondents have a bachelor's degree (41.2%); followed by the other degrees (38.8%) ranging between diploma and other degrees; while 20% are master's degree holders. For occupation, 76.5% of the respondents are class teachers; 49.4% are heads of departments; while the remaining 23.5% are school principals. Table 1 shows the demographic profile of the respondents which indicates the diversified backgrounds of the respondents, making this study a suitable and feasible one.

The descriptive statistics result reveals that a high percentage of respondents agree that they are ready to adopt e-learning in the primary schools in Yefren. In addition, the result indicates a moderate level of technological readiness among the primary schools in Yefren. Furthermore, the descriptive analysis of content readiness reveals that there is a high level of content readiness among the primary schools in Yefren. For cultural readiness, the result indicates that there is a high level of cultural readiness among the primary schools in Yefren.

Pearson product-moment correlation result reveals that content readiness (CR) and e-learning (EL) adoption has a strong and positively significant relationship with a coefficient of correlation value (r) = 0.906. The hypothesized relationship between cultural readiness (CLR) and EL adoption is strongly and positively significant with a coefficient of correlation value (r) = 0.925; while technological readiness (TR) also has a strong and a significantly positive relationship with EL adoption, with a correlation coefficient value (r) = 0.891.

In addition, the multiple regression analysis in this study shows that R-squared (R2) = 0.904, indicating that 90.4% variance in EL adoption is explained by TR, CR, and CLR.

Table 1. Model Summary

Model	R	R Square	Adjusted R Square	The Std. the in error Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.951[a]	.904	.900	.25703	.904	253.649	3	81	.000
a. Predictors: (Constant), TR, CR, CLR									

Furthermore, the result of the analysis in Table 2 reveals a statistically significant relationship between TR, CR, CLR, and El adoption.

Table 2. ANOVA

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.728	.521		3.316	.001
	CR	.325	.066	.362	4.904	.000
	CLR	.399	.090	.406	4.456	.000
	TR	-.184	.065	-.225	-2.829	.006

Dependent Variable: EL Adoption

The equation of the analysis is ($F(3, 82) = 253.649$, $P < 0.05$). The significance value of 0.000 for CR and CLR; and 0.06 for TR, which is lesser than the threshold value of 0.05, indicates a significant effect of CR, CLR, and TR on EL adoption. Therefore, the hypothesized relationships of H1, H2, and H3 in this study are supported

The first hypothesis in this study posits that technological readiness influences the adoption of e-learning in the Libyan primary education sector. The regression analysis result shows a significantly positive influence of technological readiness on the adoption of e-learning in the Libyan primary education sector. This result indicates that the higher the technological readiness, the greater the adoption of e-learning in the Libyan primary education sector. This finding concurs with the previous findings of Oketchi (2012), that users of e-learning initiatives must possess the necessary technical skills to be able to use the e-learning system and search for, disseminate and acquire knowledge. Similarly, Chokri (2012) reveals that technological facilities are required by a high percentage of learners of e-learning. Hence, technological infrastructure readiness influences the adoption of e-learning and is also a basic requirement for e-learning adoption, where its readiness has a positive influence on the adoption of e-learning (Kosgei, 2015).

The statistical analysis of the data finds a positive effect of cultural readiness on -e learning adoption in the primary education sector in Yefren, Libya. This indicates that the more culturally ready the institution is, the more ready it is to adopt e-learning. This result is consistent with the findings of Macpherson et al. (2006) that to implement a successful e-learning system, educational institutions must be both culturally and environmentally prepared. In addition, cultural factors affect the way people learn, including the style of interaction and communication related to the basics of e-learning (Al-adwan & Smedley, 2012). Therefore, before designing a successful e-learning system, cultural readiness must be considered. Edmundson (2007) contends the integration of the users' cultural characteristics is regarded as one of the features of a successful e-learning system. Thus, cultural readiness is an important factor in the e-learning adoption process (Al-adwan & Smedley, 2012; Oketch et al., 2012).

Vrazalic et al. (2010) posit there is a strong link between culture and tradition and the acceptance of e-learning practices. However, there may be serious barriers when implementing e-learning. While certain types of e-learning could be very successful in certain cultures, there might be atotal failure in other scenarios (Al-adwan & Smedley, 2012). The interface of any e-learning should therefore give due consideration to thecultural communication of its users, such as writing from right to left in the Arabic nations, like Libya (Rhema & Miliszewska, 2010).

Content is the driving engine of any system. From the educational perspective, e-learning content readiness indicates the easy availability and reusability of the contents (Psycharis, 2005). The third hypothesis posits a significant influence of content readiness on the adoption of e-learning. The findings of the study reveal a significantly positive influence of content readiness on the adoption of e-learning, thus, indicating that e-learning initiatives will be better adopted if the content of the e-learning system is readily available. The findings of this study support the assertion of Agbool (2006) that the delivery of quality content is important in e-learning systems. Lee (2006) also found that the content readiness of an e-learning system has a significant effect on its use of the e-learning system. It can therefore be concluded that thecontent readiness of an e-learning system significantly influences the adoption of e-learning.

Conclusions

This research theoretically benefits the primary education sector in several ways. Firstly, it has identified technological readiness, cultural readiness, and content readiness as factors that influence the adoption of e-learning in the primary education sector. Hence, based on the findings, the study recommends that it is more likely for an e-learning system to be adopted in the primary education sector when the educational organizations put in place the necessary technological infrastructure and provide adequate training for the primary school staff to ensure comprehensive functioning of the e-learning initiatives. In addition, the cultural orientation of the organization must be considered to ensure the successful implementation of the e-learning system. Furthermore, to ensure the sustenance of the initiative, the content of the e-learning system must be made readily available and accessible.

This study contributes to the body of knowledge by adding to the literature and research on the adoption of e-learning. Previous studies have shown that research on the adoption of e-learning has been conducted mostly in the developed countries and only a few studies have been undertaken in the higher institutions of learning in the developing countries with little or limited consideration being given to the primary education sector. Therefore, conducting this study in the primary education sector increases the number of studies on the concept of e-learning adoption in the primary education sector in developing countries, like Libya.

The findings of this study demonstrate that technological, content and cultural readiness influences the adoption of e-learning in the primary education sector. Hence, this study provides a platform for researchers and practitioners to identify the factors that influence the adoption of e-learning and the impact of these factors on the Libyan primary education sector. The study is beneficial to the primary education board of authorities of Libya as it highlights the influence of technological readiness in adopting e-learning and emphasizes ICT implementation as an influential factor for e-learning adoption. The study is beneficial to the primary education policymakers as it emphasizes the influence of cultural readiness is another factor that must be considered in e-learning adoption in the primary education sector in Libya. Overall, this study sheds more light on the importance of culture and its relationship with e-learning adoption in the development of primary education in Yefren, Libya.

Conflict of Interest

The authors declare no potential conflict of interest regarding the publication of this work. In addition, the ethical issues including plagiarism, informed consent, misconduct, data fabrication and, or falsification, double publication and, or submission, and redundancy have been completely witnessed by the authors.

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