

Barriers of Adopting E-Learning in Developing Countries

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Abstract: This research lays out the main research idea in addressing the question as to the purpose of the study and related elements. The initial topics delve into the research idea by introducing it and laying the foundation for research implementation. Besides that, the initial topics also state the problem statement, research objectives, questions, its significance, research framework and its scope. The final sub-topic represents the summary of this research.

Key words: Framework, foundation, e-learning, barriers, implementation

INTRODUCTION

Information Technology (IT) is the application of computer necessary for storing, retrieving and manipulating data across different channels. In the higher education context, IT refers to the variety of software and hardware used to store and access learning resources through e-learning, interactive learning, distance education and mobile learning. Many past studies clarified the potential of having a sufficient IT equipment in promoting learning in different contexts (Kozma, 2008). As such, e-learning is viewed as the medium for learning delivery through various online channels (Khasawneh *et al.*, 2013).

Moreover, e-learning can provide a unique context for students to discuss and share learning materials offered by the classroom instructor. However, various studies recommended examining the suitability and compatibility of the existing IT equipment for running e-learning systems. This led to increase the needs for examining organisational readiness necessary to execute and deploy advance technologies (Tinio, 2003). For instance, the factors that may hinder the utilisation of online systems are always found to be associated with organisations in investing in upgrading their services (Mtebe and Raisamo, 2014). From this context, the researcher, supported by the previous studies, concludes that assessing the actual use of IT equipment in higher education requires a deeper understanding of the current readiness state of an organisation to effectively deploy a system (known as digital framework) (Tondeur *et al.*, 2007). This simply means that replacing an existing learning framework with a digital framework enhances the delivery of education (Altbach, 2015).

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Lara a system for knowledge discovery in e-learning environments within the European Higher Education Area-Application to student data from Open University of Madrid, UDIMA. Computers and Education, 72.

The effective utilisation of e-learning has been addressed by some studies (Dennison, 2014) as a way to offer students the opportunity to have control over their learning. This research therefore looks at determining the main determinants that hinder readiness of current IT components to use e-learning in Iraqi universities. This is necessary to provide higher education in Iraq with evidence for overcoming the current lack in using IT for e-learning.

On the other hand, the use of digital technologies such as computers and the Internet have been found to be powerful mechanism that brings about positive changes to education and learning environment (Tondeur *et al.*, 2007). This is because various IT platforms play a key role in providing students and instructors with the required learning needs and in raising quality of education by making the learning process interactive (Linton and Walsh, 2013). It has, however, been noted that the realisation of educational benefits through the introduction of different IT related equipment in the learning process around the globe is not guaranteed to be capable of running server based applications. Hence, (Lu and Ramamurthy, 2011) assert the importance of assessing the linkage between IT

capability and organisational agility to transcend both space and time in the context of learning. Lim *et al.* (2013) further add that identifying capabilities of IT is necessary to synchronise information in sufficient way. For example, online courses can be accessed around the clock at any particular day.

Bland (2015) also expressed the needs for considering technology capacity based upon usage index of an organisation. Most of these claims are in line with other claims in previous scholars (Ansari, 2006) declared that integrating IT into the learning process of an organization is challenging because it requires the main factors of resource capability, institutional readiness, pedagogy and adequate financing. In addition, identifying these factors can be achieved by exploring the current state of organization to utilize technology. Doing so can help exploring current state of IT for using e-learning in the Iraqi universities by understanding the fit between the utilised technology and use of a system. Therefore, identifying the specific IT sub determinants for use in Iraqi universities is necessary which also requires a look at their readiness, capability and present learning infrastructure.

There are several challenges when it comes to identifying the existing IT resources in terms of readiness, capacity and capability for e-learning process in Iraqi universities in which these are the challenges that Iraqi university authorities must address before making a decision on using a system.

LITERATURE REVIEW

Despite the widespread use IT that many higher learning institutions, Iraqi universities still fall behind assessing its own state of technology utilisation and fitting it to certain usage context (Abaas *et al.*, 2014). For instance, education reforms undertaken in these universities have not integrated and embraced IT as an important tool in delivery of education (Jaber, 2012). With only few research on IT state in Iraq, Janabi and Urban (2011); Semaan and Mark university have to contend with the use of printed materials with less emphasis on the online choice. From this, it can be concluded that providing a reliable access to information can benefit students in these universities to learn effectively (Weller, 2013). This also include the role of organisation (Strong and Volkoff, 2010), communication (Nicholas *et al.*, 2009) and technological resources (Zhou and Wu, 2010) which can be considered as the main antecedents to assess the potential of technology readiness in learning related context.

In addition, higher education institutions have transformed from face to face classroom setting to online learning. Such transformation as a result led to proposing several frameworks and models mainly constructed to help in assessing technology use (Kukulka, 2012). With this in mind, the researcher in this study considered the main determinants within the Iraqi context and how it can contribute to the assessment of IT readiness to use e-learning.

The current organizational reforms undertaken by Iraqi universities made it apparent that e-learning in these universities cannot be realised without proper implementation of IT. Moreover, the integration of IT in Iraqi universities has also been observed to be different (Clark and Mayer, 2016), for example while universities with financial capability have embraced IT by basically establishing IT department and those without financial capability have adopted other approaches for ensuring a successful IT integration. Although, those universities have adapted IT utilisation approaches, it is not always compatible with current needs which leads to constant breakdowns (Beetham and Sharpe, 2013).

The review of the literature led the researcher to consider the organisational related factors such as policy (Brook and Oliver, 2003) and hardware availability which are commonly considered to be the key factors that affect organisational use of online systems. Despite the huge benefits of e-learning in teaching and learning processes, the use of e-learning and IT in general by Iraqi universities has not been up to the expected level. This can be attributed to the fact that policy makers have viewed higher education as a preserve for the elite in the society rather than for the whole society.

As for communication related factors, studies have shown that slow internet access (Johnson, 2001; Zhang, 1998) acts as one of the main factors to be addressed, Many institutions and users in developing countries may not be able to afford the cost of the necessary IT infrastructure and Internet, even with donor funding (Welsh *et al.*, 2003). In addition, different researchers have emphasised on the need to connect with universities for the purpose of enabling learners, faculty members academics to participate in global research (Pardo and Hrdinova, 2009). This call has not been enforced in Iraqi universities.

Moreover, there is no doubt that the adoption of technological related tools can effectively enhance exchange of information, which leads to enhanced teaching, learning and research (Zhang *et al.*, 2004). Moreover, many educational institutions have found the integration of IT to be very beneficial as it makes it possible to allow learners to access quality education

(Garrison, 2011). Hence, information and software quality are demonstrated to offer a conventional driver for long life learning (Chiu *et al.*, 2007).

Overall, in view of the differences in technological adoption, various levels of organisational development and varying infrastructure development have led to different states of IT by the Iraqi universities even at the basic level. While there are universities that have gone a step further and integrated IT in teaching and learning processes and experimented with such course management software as Black-Board, others are still struggling to embark on IT integration (McGarr and O'Brien, 2007). Besides that, different levels of challenges affect levels at which Iraqi universities have integrated IT. Based on these observations, this research study therefore sets out to investigate the key determinants of technology (in terms of software quality and information quality), communication (in terms of internet connectivity, cost, share ability and technical support) and organisation (in terms of hardware availability, human resources, policy) and its effect on the current IT readiness (in terms of IT capability and capacity) to use e-learning in Iraqi universities.

ISSUES FACING E-LEARNING IN DEVELOPING COUNTRIES

Although, a good number of Iraqi universities have made positive efforts by investing in computers and networks, the latest comprehensive information on the status of IT integration is not readily available. This means that there is a noticeable lack of incentives for data collection and dealing with IT related issues within the Iraqi context (Miles, 2013). Although, such organisations like the Association of Iraqi Universities have tried to address the key challenges of current IT state, the complexities involved have rendered the exercise impossible. For instance, this situation can be attributed to the lack of assessment method of IT readiness in most Iraqi universities which appears to be not ready and not having the capacity to provide data related to their level of IT integration.

According to Brill and Galloway (2007), it would simply be difficult to decide the level of IT readiness in a certain university. Such aspect is reasoned by other scholars to the lack of current assessment methods in accordance to proper organisational conditions to provide the necessary hardware and human resources for a certain policy standard (Powell and Dent-Micallef, 1997). Meanwhile, Gorla and Lin (2010) state that technological elements such as software quality and information quality are the main antecedents that promote one's utilisation of

technology. According to Gubbi *et al.* (2013), the limited consideration of communication related to internet connectivity is the core aspect in effecting institution to adapt and use technology. With this in mind, it seems impossible to present a general overview on IT integration. Perhaps, how much Iraqi universities value IT can only be understood through a qualitative analysis of their presence on the Internet.

Based on these assumptions, Iraqi universities appear to face continuous lack in assessing their readiness when it comes to integrating IT related elements to use the online systems. This was clearly addressed from the preliminary interview conducted by the researcher with 14 academicians from seven departments in three universities in Iraq. They acknowledged that the current assessment practices of technology readiness lack of considering qualified IT technicians, lack of political will to drive IT integration and have limited financial resources and inadequate capacity to implement IT projects. They also highlighted other issues related to quality of computers, the Internet speed and unreliable power supply. Thus, the situation is made worse with current lack of national policies that are found to be not supporting the current demands for IT growth in most Iraqi universities. Other than that, the United Nations Economic and Social Commission for Western Asia (UNESCWA) acknowledges that the unsuitability of readiness assessment methods has led to a great weakness in all of the universities' infrastructures with lack of computers expertise (Amer and Rozhan, 2010). There is, therefore, very little evidence that shows the readiness level of IT in the Iraqi universities in using the e-learning systems. Such level was explained by some researchers like Amer and Rozhan as the lack of good assessment mechanism to reflect the current needs for integrating and implementing technology. Harb (2008) points out that although the universities received both international and local assistance after the invasion, there is a serious need for reform of current assessment programs for the universities to reclaim their past glory and to participate in national reconstruction.

On the other hand, the Iraqi public universities have no options but to implement e-learning based on the existing IT infrastructure that they currently have. As such, Davenport (2013) explains the potential of identifying the key determinants of information technology to help increase users' use or adoption of technology. This statement is also supported by other scholars (Alhawari *et al.*, 2012) that look into improving IT effectiveness and increasing the probability of success in innovative information. This is because using other IT assessment frameworks is not recommended, since it

implies different needs that make it difficult to fit certain cultural or geographical conditions as it is in Iraq. Therefore, the researcher aims at developing assessment framework for IT readiness based on determining the key factors that contribute to the use of e-learning systems in the Iraqi higher education institutions.

THE AIM OF THE RESEARCH

Adopting and implementing IT infrastructure has been found to be very important for the success of any modern education institution. Therefore, proper identification of IT factors that influences the implementation of certain tools is therefore very critical for any university to realise its goals. It is noted that, the implementation of e-learning in Iraqi universities requires a set of varied IT mechanisms; organisation structure, communication structure and technological structure. Iraqi universities must however ascertain which of the three structures are of utmost important in implementing e-learning. Hence, this study addresses these challenges by presenting three components for the purpose of assessing the current IT state to use e-learning in Iraqi universities in terms of both IT capability and IT capacity. This study's main objectives are categorised into the following:

- To model an IT Readiness Assessment Framework (ITRAF) for Iraqi higher education institutions
- To investigate the effect of software quality and information quality on IT readiness in terms of IT capability and IT capacity to use e-learning in Iraqi higher education institutions
- To investigate the effect of Internet connectivity, cost, technical support and share ability on IT readiness in terms of IT capability and IT capacity to use e-learning in the Iraqi higher education institutions
- To investigate the effect of hardware availability, policy and human resources on IT readiness in terms of IT capability and IT capacity to use e-learning in the Iraqi higher education institutions
- To investigate the effect of IT readiness in terms of IT capability and IT capacity on the actual use of e-learning in Iraqi higher education institutions

Importance of the study: This study provides both theoretical and practical elements relating to providing effective IT utilisation in several ways. The work goes a step further to examine individual IT mechanisms and covers a wide range of factors that are related to perceived IT capability and capability within

organisations. This study seeks to prepare recommendations to build decisions currently and in the future in the Iraqi higher education by applying e-learning as a sustainable aspect in education. It also develop an IT readiness framework to assess the effects of different key factors on the current IT level to use e-learning in Iraq. In addition, there are several significant aspects for investigating the readiness, capability and capacity of IT in the Iraqi higher education such as preparing and establishing learning bases to ensure sufficient use of e-learning in the Iraqi higher education; addressing shortcomings in the Iraqi higher education learning process by giving solutions to students to overcome obstacles in lack of use of IT in learning; providing actual examples as a macro-target for all countries that suffer from IT deficiencies, especially for those higher education institutions that are concerned with using e-learning.

CONCLUSION

This research has introduced the current challenges associated with the Iraqi universities in using e-learning systems. Based on the research background and unstructured interview with experts in these universities, the researcher was able to address the main domains that may affect IT readiness in these universities (organisational, communication and technological). Then, the factors associated with these domains were identified. The scope of which this study focus on was introduced in terms of factors, context and sample. Since the main aim of this study is to construct ITRAF for Iraqi universities, the main determinants and its associated factors were introduced from the preliminary study's perspective that was conducted by the researcher in order to provide in depth understanding of current issues related to IT state for utilizing e-learning. From the available literature, the universities can achieve a lot by identifying key determinants associated with these dimensions to effectively use e-learning. The research framework and its components are introduced. Other major aspects related to current state of IT in Iraqi organization are introduced in contrast with the evidence from previous studies within the context of this study.

LIMITATION

This study is focused on examining the main antecedents of organisational, communication and technological related factors to which the Iraqi higher education institutions were found to be lacked of. The formation of IT readiness in this study is based on the capacity and capability of IT resources to allow effective

use of e-learning. Furthermore, the evaluation is also limited to three public universities in Iraq: THI-QAR University, Al-Technology University and Baghdad University that cover both urban and remote areas. This research captured students' opinion about the current utilisation of IT to use e-learning at the university level. The respondents were undergraduate students. This study focused on the students' perceptions to identify the key factors because of their familiarity with the environment and its characteristics for learning purposes. Another limitation that needs to be addressed here is the need to determine a definite set of IT readiness factors that will provide a certain formula for to use e-learning. In the context of this study, the researcher considered the application of IT capacity and capability based on the mentioned observations. After all, the lack of existing model for assessing IT readiness in Iraqi university makes it difficult to adapt certain learning practices. Therefore, this study is assumed to provide the insights necessary to address the IT factors necessary in the use of e-learning systems. Exploratory Factor Analysis (EFA) was used in this study to verify the correlational aspects between the constructs for each domain. It was utilized to help extract and identify micro aspects associated with the tested domain. After all, an IT Readiness Assessment Framework (ITRAF) was generated and validated.

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