Factors Influencing Attitudes towards Information and Communication Technology (ICT) Amongst Undergraduates: An Empirical Study Conducted in Kuwait Higher Education Institutions (KHEIs)

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ABSTRACT

The increasing use of information and communication technology (ICT) in higher education has largely been explored in relation to undergraduates' attitudes to ICT usage at university. However, the success of ICT in any learning institution, including higher education institutions (HEIs), depends on the attitudes of undergraduates to using ICT in their daily learning. Therefore, this paper aims to investigate the critical factors impacting on ICT use amongst undergraduates in their learning at Kuwait universities. The Technology Acceptance Model (TAM) was appliedto achieve this study aim.

A sample of 717 undergraduates was subsequently selected from both a government (state-funded) and private university in Kuwait. The critical factors examined here include the type of university (government or private), the language (medium) of the learning and ICT support. Mixed methods, namely quantitative and qualitative methods, were implemented for the corresponding data collection.

The quantitative results suggested that 'usefulness' and 'ease of use' of ICT are key dimensions of undergraduates' attitudes to its utilisation in learning. Another result showed that the factors examined had a direct impact on undergraduates' attitudes. Moreover, the qualitative results suggested that the factor of 'peer learning' had a strong impact on undergraduates' attitudes to ICT use in their university studies.

Keywords: ICT, undergraduates' attitudes, TAM, type of university, language of learning, ICT support, peer learning, Kuwait universities.

INTRODUCTION

The integration of ICT into education and the intention to positively influence teaching and learning quality has rapidly evolved over the past two decades (Agbo, 2015). However, despite the high living standards generally enjoyed in Kuwait, the country severely lags behind much of the rest of the world in terms of its innovation and production capabilities, which are relatively low. Therefore, there has recently been atrend towards exerting increasing pressure on educational organisations to use ICT, in a bid to improve their capacity and thereby respond to students' learning needs (Alkharang & Ghinea, 2013).

Williams (2003) asserts that undergraduates who use ICT have been found to achieve better results in terms of communication, cooperation and problem-solving in their learning. Graff (2003) and Mikropoulos et al. (2003) further claim that ICT use supports the development of undergraduates' mental and creative ability to undertake activities and assignments. Most importantly, in a study conducted by Kreisel (2003), it was reported that undergraduates themselves rank highly as users of animation software, visual design and design software. Moreover, Sife et al. (2007) point out that any technological change in educational practice necessitates the development of positive user attitudes to new technology.

The majority of the literature reviewed for this study proved to be on the significant association between undergraduates' positive attitudes and successful ICT integration. Rhoda and Gerald (2000), for example, reveal that a positive attitude to ICT is widely recognised as a necessary condition for effective ICT use in learning. Moreover, as further support for the association between attitude and effective ICT use, a Becta (2004) study demonstrated how undergraduates' negative attitudes can act as a barrier to their use of ICT in learning. Furthermore, Selwen (2003) holds that undergraduates' attitudes to ICT are influenced by a range of factors, which can be unpredictable or irregular across different higher education institutes (HEIs).

Ever since the start of ICT integration into the education sector, there have been studies attempting to explore the factors influencing its successful implementation. Comprising a significant determinant and as noted above, undergraduates' attitudes have gained profile in such studies. However, the attitudes of undergraduates towards ICT use in learning will in turn depend on a variety of factors (Khan, Hasan & Clement, 2012). In Kuwait, the type of university, i.e. government or private, will indicate its physical features, the availability of technology, level of technological advancement, policy implications, etc. and these will vary widely according to university type. Moreover, such differences can in turn affect undergraduates' attitudes towards the use of ICT in their daily learning.

Another factor arising in connection with the emergence of private universities in Kuwait is the language of learning. Since Arabic is the national language in Kuwait and the mother tongue of most of its inhabitants, it is also adopted as the language of learning in most departments at government institutions; whereas English is popularly used as the basic language of learning at private institutions and in many cases, of e-learning. The inability of an undergraduate to understand and fully adapt to English can therefore severely hamper the corresponding e-learning process, which will in turn further impact students' attitudes to technological change, as well as to their use of ICT for daily learning.

Moreover, a crucial factor affecting undergraduates' attitudes at HEIs is the level of ICT support they receive at their respective universities. This support could simply be in the form of encouragement from tutors, while the studentsare using the technology. Another form of support is the availability of ICT in an institution. This helps promote ICT usage amongst undergraduates.

The present paper consequently aims to investigate the critical factors influencing undergraduates' attitudes tousing ICT in their learning at Kuwait's higher education institutions (KHEIs). The study therefore focuses on three critical institutional factors, namely the type of university, the language of learning and the amount of ICT support available.

RESEARCH QUESTIONS

1. Does the type of university influence undergraduates' attitudes towards using ICT at KHEIs?
2. Does the language of learning influence undergraduates' attitudes towards using ICT at KHEIs?
3. Does the availability of ICT support influence undergraduates' attitudes towards using ICT at KHEIs?

LITERATURE REVIEW

Selim (2007) found that factors such as instructors' and undergraduates' characteristics, technology, and technical support are crucial determinants of ICT success. Brummelhuis (1995) proposes that researchers continually endeavour to identify influential factors across the different phases of development. This is because these variables are claimed to fluctuate in their impact throughout the stages of the innovation process, with regard to ICT usage in learning (cited in Agbo, 2015). However, ICT usage in HEIs not only involves evolution in terms of hardware and software, but also extends to many other different issues, such as actual accessto ICT, interactive learning, communication, instructional delivery enhancement, etc. (Dias &Atkinson, 2001). The present study consequently focuses on three influential factors

determining undergraduates' attitudes towards ICT in learning, particularly at KHEIs. These are outlined below.

Type of University

Kuwait's higher education sector comprises private as well as government institutions. Some studies have shown that these two sectors differ drastically in their culture, ICT availability and quality, language of learning, Internet access, etc. (Al-Doub, Goodwin andAl-Hunaiyyan, 2008). They further claim that the fact of Arabic being the language of learning at government institutions, while English prevails in the private sector, gives rise to varied attitudes amongst undergraduates towards the perceived advantages to be gained from ICT usage in their respective universities.

Another significant difference between the two kinds of university described above relates to Internet access in the homes of the respective students and at the institutions they attend, combined with their resultant attitudes. In the private sector, it may be assumed that undergraduates have access to the Internet in both the above-mentioned environments and so their preferred e-learning resources are likely to be accessible via the Internet and on the Web. However, in comparison, undergraduates in government universities tend to favour CDs/DVDs, external resources and personal computers in a laboratory, due to the lack of Internet access or absence of a wireless network at their institution (Al-Doub, Goodwin and Al-Hunaiyyan, 2008). The difference in undergraduates' attitudes to ICT therefore arises from discrepancies in the ease of Internet access.

Language of Learning
In a study conducted by Alkharang and Ghinea (2013) among undergraduates, it was found that 60% of those interviewed reported the language barrier as being the most discouraging factor of ICT adoption in their everyday learning. They further state that this is intensified by the fact that English is the only language adopted for e-content. Ali and Magalhaes (2008) also identified the language of learning as a major hindrance to the adoption of the technology in its most benign form amongst undergraduates. Meanwhile, Bernárdez (2003) recognised language problems as a personal issue in the adoption of ICT, along with the problem of time management and undergraduates' different learning styles and preferences.

Here, it is interesting to note the findings produced by AL-Doub, Goodwin and Hunaiyyan (2008) in a study on undergraduates at the College of Business Studies (CBS), a government institution, and the Gulf University for Science and Technology (GUST), a private institution. This explored the effect of the language of learning on undergraduates' attitudes towards ICT; reporting that 50% of the undergraduates at the above-mentioned government institution declared that they would only support ICT adoption, if it was available in Arabic - their mother tongue.

ICT Support
The ICT support provided for undergraduates during their learning at HEIs is considered to be important for successful ICT implementation in such contexts. According to Warschauer (1998), tutors are the primary agents of motivation for undergraduates (Liu, 2009) and so poor preparation and low awareness of the benefits of e- learning on their part, together with a lack of training in the use of such facilities, will have a profound negative impact on their students' attitudes to ICT for learning. This will be further aggravated by poor Internet access, slow download speeds, etc., eventually discouraging undergraduates from using e-learning all together (AL- Doub, Goodwin andAL-Hunaiyyan, 2008).

Hence, it has rightly been argued that adequate technical support forms a vital component in the implementation and integration of ICT into an education system (Rhema and Miliszewska, 2013; Sife et al., 2007). There is a body of literature presenting numerous examples of ICT support affecting undergraduates' interest in the incorporation of ICT into their learning, thereby shaping their attitudes in this regard. For example, Rhema and Miliszewska (2010) reportthat Libyan HEIs lack access to adequate network facilities, adding that technical support is almost completely unavailable, resulting in delays in the installation, operation and maintenance of equipment. The above authors consequently argue that these hindrances to ICT support severely discourageundergraduates from using ICT at their respective universities.

A few studies also indicate that the three above-mentioned influential factors may be inter-related. One study conducted by Liu (2009), in contrast to earlier studies, found no correlation between ICT competence and the respective attitudes of undergraduates. The explanation put forward by the above authorwas that in order to test this relationship, it is a must to consider the effect of the language of learning, rather than merely considering the level of technological adoption in the first place. Moreover, Rhema and Miliszewska(2013), in their study on Libyan HEIs, found that the reason for limited educational software use in institutions was the unavailability of products on the market with Arabic as the language of learning.

RESEARCH METHODOLOGY

The present study was carried out at two Kuwaiti universities: one government-funded and the other, private. The study sample consisted of a total of 717 undergraduates from their first and final year of study. This sample was collected from three academic departments at each of the universities, namely the Department of Computer Science, the Department of Computer Engineering and the Department of Administration Science. Mixed methods were used for the data collection, with quantitative and qualitative approaches being applied. A structured questionnaire was distributed to a sample of 900 students, but only 717 were completed and delivered. Moreover, 17 participants from the same sample accepted to be interviewed. The distributed questionnaire was constructed on the basis of previous ICT literature, whereby this study benefited from Edmunds, Thorp and Conole (2012) and Davis (1986), with some of their questions being adapted to fit the current study objectives.

The questionnaire for the present study was constructed in two parts; the first consisted of demographic questions about the type of university, the main language of learning and the ICT support received. On the other hand, part two consisted of 20 paragraphs relating to TAM variables and the attitude variable. At the end of the questionnaire, approval was requested from the students for their participation in an interview, following thecollection of the questionnaire data.

For measuring attitude, a 5-point Likert scale was used to give the participants a choice of answer for each paragraph (McLeod, 2008). Moreover, to ensure the reliability and consistency of the questionnaire before conducting the actual study, the Cronbach's alpha was measured. It consequently yielded a value of .941, which is acceptable. After distributing the questionnaire and collectingthe quantitative data, it was found that 17 students accepted to participate in an interview. This was derived from their responses to the request for interview participation. Therefore, seven questions were prepared and put to the participantsto collectqualitative data, with deeper explanations of their attitudes toICT usein learning.After finishing the interviews, the qualitative data were organised in an NVivo programme, which arranged the interview data according to the study aims, facilitating access and ease of use. At the same time, the SPSS programme was used to analyse the questionnaire data.

TECHNOLOGY ACCEPTANCE MODEL (TAM)

The Technology Acceptance Model (TAM) was used to reveal individuals' attitudes and their actual technology use(see Figure 1). It was thus applied to obtain an explanation of the determinants of computer acceptance. This was made possible by the capacity and simplicity of the framework for understanding individuals' attitudes totechnology. TAM and its extensions have been widely used in numerous studies conducted on ICT (King& He, 2006).Therefore, the original TAM model was chosen as the basic
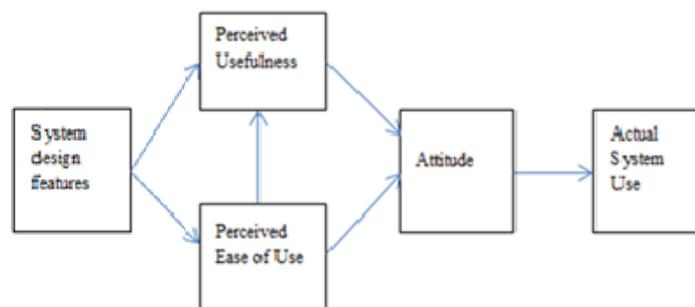
framework for the present study, due to the compatibility of each of its components with the current objectives. However, the factors investigated in relation to undergraduates' attitudes to ICT use are considered as external factors of TAM in this instance.

Figure 1: Technology Acceptance Model (TAM) (Davis, 1986)

RESULTS

The quantitative data gathered from the study sample at the private and government KHEIswere tabulated and analysed. In addition, the qualitative data obtained from the interviews with undergraduates were analysed using NVivo software. It was subsequently noted that the results from the analyses quantitative and qualitative corroborated each other.

The Factor, 'Type of University'

To understand whether the type of university influencesundergraduates' attitudes towards using ICT at KHEIs, a T-test was used to analyse the participants' responses at both universities (private and government). Table 1 shows the meanand standard deviations of these responses. According to the results, all the 'T' values appear significant at the level α<0.01. However, the undergraduates from the government

university demonstrated a higher mean value than their counterparts at the private university, with respect to 'usefulness', 'ease of use 'and general attitudes towards ICT in learning.

Table 1: Mean and standard deviations of participants' responses with regard to the use of ICT in learning

Content of the	(			)	T	P value
	Mea	SD	Mea	SD		
Ease of use	4.37	0.51	4.25	0.5	2.83	**0.005**
Usefulness	4.31	0.55	4.16	0.6	3.42	**0.001**
General	4.34	0.49	4.21	0.5	3.36	**0.001**

The Factor, 'Language of Learning'
To understand whether or not the language of learning influences undergraduates' attitudes tousing ICT at KHEIs, the meanand standard deviations of the responses given by the undergraduates from the government and private universities, in relation to ICT use in learning, were analysed for different languages of study. The mean of the responses from the participants at both universities, wherever English was the sole medium of study,

indicated a greater level of 'ease of use', 'usefulness' and general attitude than was the case amongst those studying inboth Arabic and English at the two universities (see Table 2).

Table 2: Mean and standard deviations of participants' responses regarding the use of ICT in learning, relative to differences in the language of learning

Content of attitude	Arabic (n =				English (n = 431)				Arabic & English			
	pubi		priv ate		publi		privat		publi		Priva te	
	M	SD	M	SD	M	SD	M	SD	M	S	M	SD
Ease of use	4.21	0.5	4.45	0.4	4.39	0.5	4.2	0.53	4.36	0.5	4.0	0.71
Usefulness	3.96	0.7	4.03	0.6	4.34	0.5	4.1	0.62	4.31	0.5	3.9	0.80
General attitu	4.09	0.6	4.24	0.4	4.36	0.4	4.2	0.53	4.34	0.4	3.9	0.73

The Factor, 'ICT Support'
To understand whether or not ICT support influences undergraduates' attitudes tousing ICT at KHEIs, the meanand standard deviations of the responses from undergraduates at both the government and private universities as regards this ICT use and towards the attitude componentwere calculated to examine different levels of ICT support, as shown in Table 4. The mean of the undergraduates' responses from the government university, with regard to 'usefulness', 'ease of use'and general attitudewas higher than was found for the private university undergraduates. Table 3 shows the results of this analysis.

Table 3: Mean and standard deviations of participants' responses regarding the use of ICT for learning, relative to differences in the level of ICT support provided

Content of attitude	AgreeStrongly agree - (n						Neutral (n =						Disagree - Strongly disagree (n					
	KU (n=		AUK (n=1		Total (n		KU (n =		AUK (n =		Total (n		KU (n=7		AUK		Total	
	M	SD	M	SD	M	SD	M	S	M	SD	M	SD	M	SD	M	SD	M	SD
Ease of	4.4	0.4	4.3	0.5	4.3	0.4	4.2	0.5	4.1	0.6	4.1	0.5	4.1	0.6	3.8	0.7	4.1	0.6
Usefulne	4.3	0.5	4.2	0.6	4.3	0.5	4.1	0.5	4.0	0.6	4.1	0.6	4.1	0.6	3.6	0.7	4.0	0.7
General	4.4	0.4	4.2	0.5	4.3	0.4	4.2	0.5	4.0	0.6	4.1	0.5	4.1	0.6	3.7	0.7	4.0	0.6

DISCUSSION
This discussion section elaborates on the entire study. The focus here is to identify the critical factors influencing undergraduates' attitudes toICT use in learning at KHEIs.

Impact of the Factor, 'Type of University' on Undergraduates'Attitudes towards ICT Use in Learning From the results, a significant difference was observed

between the attitudes of undergraduates from the private university,as regards their use of ICT in learning, and the attitudes of their counterparts to such use at the government university. The mean calculated for general attitude, 'ease of use' and 'usefulness' in relation to ICT implementation amongst undergraduates at the government university amounted to 4.34, 4.37 and 4.31, respectively. On the other hand, the mean value for general attitude, 'ease of use' and 'usefulness' amongst the undergraduates at the private university amounted to 4.21, 4.25 and 4.16, respectively. This indicates that the attitudes of government university undergraduatestowards using ICT were strongly positive. Moreover, this was more pronounced than in the private university. When projected onto the TAM framework, the results for this question were as expected. Moreover, the qualitative results obtained from the interviews with the undergraduates at both universities illustratethat all the undergraduates agreed on the 'usefulness' of ICT for learning. The results also indicated that the government university conducted training courses and workshops by implementing ICT in learning processes. This encouraged the undergraduates and enhanced their positive attitudes towards using ICT.

Selwyn, Potter and Cranmer (2009) state in their research that undergraduates' attitudes towards using ICT are greatly influenced by the respective school authorities and corresponding provision. The above study revealed that the educational use of ICT depends on the nature of the school concerned. The results of the present study are therefore consistent with previous research, since it was discovered here that ICT usage is promoted in government universities, but not at private universities in Kuwait and this affects the attitudes of undergraduates.

Impact of the Factor, 'Language of Learning' on Undergraduates' Attitudes to ICT Use in Learning
From the results, it was observed that the language of study had a positive impact on the undergraduates' attitudes to using ICT. It was found that those undergraduates (in both government and private universities), who learned solely through the medium of English had a more positive attitudeto the use of ICT than those studying in Arabic or in both the above languages. The most positive mean value for general attitude, 'ease of use' and 'usefulness' was for undergraduates studying English at the government university. As for the qualitative analysis, the results indicated that the undergraduates did not consider the English language to be a barrier to using ICT in their studies. Moreover, it was observed that using ICT for educational purposes enhanced the undergraduates' language skills at both the above-mentioned types of university.

According to AL-Doub, Goodwin and AL-Hunaiyyan (2008), who conducted research to try and understand the role of language in ICT usage among undergraduates, 50% of the undergraduates surveyed supported the adoption of ICT, but only if it was made available to them in Arabic, their first language. Hoque and Alam (2010) state that the international language of ICT is English; therefore, a lack of skills in this language isconsidered to be an obstacle to theuse of ICT for learning. The results of the current study are consistent with those of previous studies, as English is regarded as the international language of ICT. Therefore, it will either negatively or positively affect undergraduates' attitudes, depending on their knowledge of the language.

Impact of the Factor, 'ICT Support' on Undergraduates' Attitudes to ICT
From the results, it was also observed that the factor of ICT support had a positive impact on undergraduates' attitudes to the use of ICT in their learning. The mean value of this 'agreement' amongst these undergraduates(at a government university), with respect to ICT support and its influence on general attitude, 'ease of use' and 'usefulness' were found to be 4.40, 4.43 and 4.37, respectively, which was higher than for the participants expressing 'disagreement'or remaining 'neutral' in this regard.Similarly, in the case of the undergraduates at the private university, the mean value for their 'agreement' was also highest. These results clearly indicate that individuals' attitudes were influenced by the ICT support offered, which is in line with the TAM framework. In addition, the interviews indicated that the undergraduates from the government university received support for ICT use from their tutors and friends within the university. With respect to the undergraduates from the private university, however, the results indicated that they only received limited ICT support from their tutors, communicated with them solely via their university's email service, and only did so during working hours.

According to Fu (2013) and Selwyn, Potter and Cranmer (2009), ICT support at educational institutions is the most significant and fundamental external factor influencing undergraduates' attitudes to and use of ICT for learning. Tutors' attitudes

and their beliefs about ICT use can therefore greatly impact undergraduates' attitudes. The factor of support from tutors and parents thus contributes to the formation of positive attitudes to the use of ICT amongst undergraduates. As the results of this study align with those derived from previous studies, the implications of this research are justified.

CONCLUSION

The integration of ICT into education is considered as an asset for encouraging technological growth. Its use not only changes traditional ways of teaching, but also requires tutors to be more creative in adapting and customising their own teaching materials and strategies, with the aim of encouraging undergraduates to adopt this new form of learning. However, the success of ICT in any learning institution, including at KHEIs, will depend on the attitudes of undergraduates towards using ICT in their daily learning processes. For this purpose, it is essential to understand the factors potentially influencing ICT usage among undergraduates. In this current paper, the factors explored includethe type of university, language of study and amount of ICT support available at KHEIs.

For this purpose, the TAM model was used as a framework for critically investigating undergraduates' attitudes to the use of ICT in their daily learning. To examine these factors, quantitative and qualitative data were collected from undergraduates at KHEIs and then analysed using SPSS software. The study thus helps gain a better understanding of the position of ICT in learning at both government and private KHEIs. The results indicated that all the factors examined had a strong impact on undergraduates' attitudes towards and use of ICT

tools for learning. Besides, these results helped generate a new model for ICT use at KHEIs. This model gives a clear perspective of the position of ICT and its applications in undergraduate learning at both private and government universities in Kuwait, as well as revealing the most important factors influencing undergraduates' attitudes toICT during their university studies (see Figure 2).
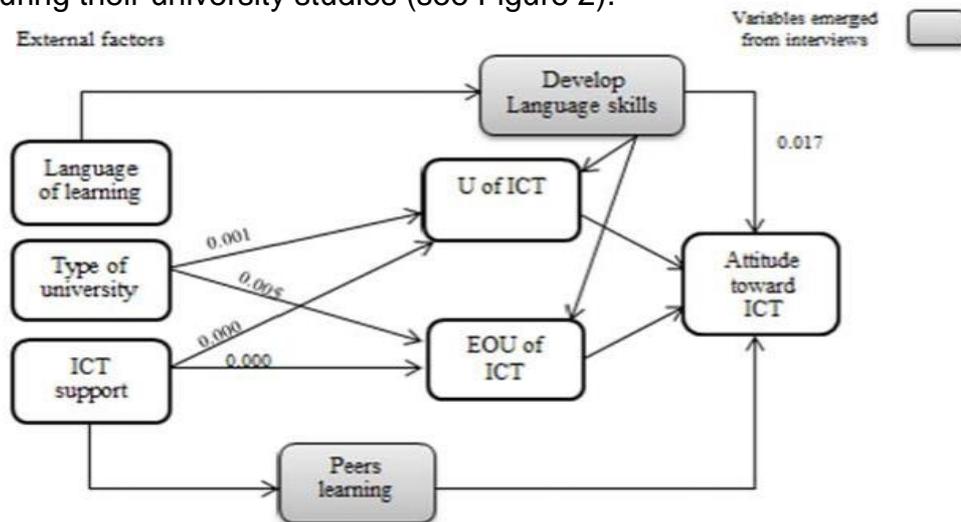

Figure 2: Suggested model for ICT use in KHEIs

The above Figure shows the main factors emerging from the study, concerning influences on undergraduates' attitudes to ICT use in their daily learning at KHEIs. The model retains the basic structure set out by Davis (1986), namely external factors, perceived usefulness, perceived ease of use and attitudes to ICT. However, the present model includes other factorsemerging from the qualitative results, such as the advantages of peer learning and the development of language skills as factors motivating undergraduates to use ICT in their learning. It was therefore evident from this current research that peer learning plays a significant role in improving attitudes to ICT amongst undergraduates.Therefore, this study proposes enhancing the IC facilities and services through which peer learning is made feasible. In addition, it endeavours to make a significant contribution, which could be relevant for tutors and educators at KHEIs, as they strive to provide undergraduates with more fruitful and appropriate educational opportunities and learning options, namely by developing undergraduates' English language skills. In the final analysis, the current research demonstrates that using English language medium ICT (e.g. software applications) for daily learning will help undergraduates to develop their English language skills. It is consequently suggested that universities focus on these two aspects when integrating modern technology into education and endeavouring to promote successful learning at undergraduate level.

RECOMMENDATIONS

Based on the above results and in conclusion to this research paper, various factors were found to influence undergraduates' attitudes towards using ICT in their daily

learning. Apart from the suggested model, the following recommendations are made here for improving the position of ICT as a learning medium at KHEIs:

1. The peer learning factor should be reinforced amongst undergraduates by providing modern ICT facilities in an appropriately equipped environment, whereby undergraduates can exchange their experience and skills, and share ICT activities at both types of university established in Kuwait, namely government and private.

2. Tutors at government universities in Kuwait shoul medium ICTs, in order to encourage their undergraduates to use English enhance their language skills.

3. Tutors at both types of university in Kuwait should be actively motivated to use ICT for teaching and learning at undergraduate level and these incentives could take the form of training sessions and workshops on the use of ICTs. This will develop their experience and skills in this area, consequently building their confidence in utilising ICT as part of undergraduate teaching andlearning.

4. An important lesson for institutions/decision-makers is that they need to emphasise cultural specifications, as well as the primary language used at specific institutions, rather than merely adopting a standard framework for e-learning.

REFERENCES

Abdullah, A.M. (2011). Factors affecting business students' performance in the Arab Open University: The case of Kuwait. *International Journal of Business and Management, 6*(5), 146.

Agbo, I.S. (2015). Factors Influencing the Use of Information and Communication Technology (ICT) in Teaching and Learning Computer Studies in Ohaukwu Local Government Area of Ebonyi State-Nigeria. *Journal of Education and Practice, 6*(7).

Ali, G.E. & Magalhaes, R. (2008). Barriers to implementing e-learning: A Kuwaiti case study. *International Journal of Training & Development, 12*, 1, 36-53.

Alkharang, M.M. & Ghinea, G. (2013). E-learning in higher educational institutions in Kuwait. Experiences and challenges. *International Journal of Advanced Computer Science and Applications, 4*(4).

Bernárdez, M. (2003). From E-Training to E-Performance. Putting Online Learning to Work. *Educational Technology, 43*(1), 6-11.

British Education Commission & Technology Agencies (Becta) (2004). A Review of Research Literature on Barriers to the Uptake of ICT by Tutors. Available at:http://www.becta.org.uk. (Accessed: 3 September 2012).

Davis, F.D., Bagozzi, R.P. & Warshaw, P.R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management Science, 35*(8), 982-1003.

Al-Doub, E., Goodwin, R.D. and Al-Hunaiyyan, A. (2008).Students' Attitudes Toward E-learning in Kuwait's Higher Education Institutions, *Proceedings of the 16th Conference on Computers in Education,* Taipei, Taiwan, June 7-27, Asia-Pacific Society for Computers in Education. Available at: http://www.apsce.net/icce2008/contents/proceeding_0841.pdf (Accessed: 12 February 2012).

Fančovičová, J. & Prokop, P. (2008). Undergraduates' attitudes towards computer use in Slovakia. *Eurasia Journal of Mathematics, Science & Technology Education, 4*(3), 255-262.

Fu, J. (2013). ICT in Education: A Critical Literature Review and Its Implications. *International Journal of Education and Development Using Information and Communication Technology (IJEDICT), 9*(1), 112- 125.

Graff, M. (2003). Cognitive style and attitudes towards using online learning and assessment methods. *Electronic Journal of e-Learning, 1*, 2128.

Hoque, S. & Alam, S. (2010). The Role of Information and Communication Technologies (ICTs) in Delivering Higher Education – A Case of Bangladesh. *International Education Studies, 3*(2).

Khan, S.H., Hasan, M. and Clement, C.K. (2012). Barriers to the introduction of ICT into education in developing countries. The example of Bangladesh. *International Journal of Instruction, 5*(2).

King, W.R. & He, J. (2006). A meta-analysis of the technology acceptance model. *Information & Management, 43*, 740-755.

Kreisel, K. (2003). Evaluation of a computer-based nutrition education tool. *Public Health Nutrition, 7*, 271-277. Liu, J. (2009). A survey of EFL learners' attitudes toward information and communication technologies. *English Language Teaching, 2*(4).

Merisotis, J. & Phipps, R. (1999). What's the difference? *Change, 31*(3), 12-17.

Mikropoulos, Katsikis, A., Nikolou, E. & Tsakalis, P. (2003). Virtual environments in biology teaching. *Journal of Biological Education, 37*, 176-181.

Rhema, A. &Miliszewska, I. (2012). The potential of e-learning in assisting post-crisis

countries in rebuilding their higher education systems: The case of Libya.*Informing Science and Information Technology, 9,*149-160. Available at: http://iisit.org/Vol9/IISITv9p149-160Rhema033.pdf. (Assessed at: 14 March 2012) Rhema, A. &Miliszewska, I. (2010) Towards E-learning in Higher Education in Libya, *Journal of Informing Science and Information Technology*, (7), 423-438.

Rhoda, C. & Gerald K. (2000). Internal Consistency Reliabilities for 14 computers. Attitude scale. *Journal of Education Technology, 14.*

Selim, H M. (2007). Critical success factors for e-learning acceptance: Confirmatory factor models. *Computers and Education*, *49*(2), 396-413.

Selwyn, N. (2003). *Why students do (and do not) make use of ICT in university*. Available at: http://www.leeds.ac.uk/bei/index.html. (Accessed at: 20 March 2012).

Selwyn, N., Potter, J. & Cranmer, S. (2009). Primary pupils' use of information and communication technologies at school and home. *British Journal of Educational Technology, 40*(5), 919-932.

Sife, A.S., Lwoga, E.T. & Sanga, C. (2007). New technologies for teaching and learning: Challenges for higher learning institutions in developing countries. *International Journal of Education and Development Using ICT, 3*(2), 57-67.

Warschauer, M. (1998). *Electronic Literacies: Language, culture, and power in online education.* Mahwah, NJ: Lawrence Erlbaum Associates.

Williams, J. (2003). *Computers and project-based learning*. Available at:www.media-methods.com. (Accessed: 14 February 2012).