Students' Attitudes Toward E-learning in Kuwait's Higher Education Institutions

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Abstract: In developed countries, the delivery of many courses in higher education sectors has changed. New technology has been used inside and outside the classroom to enhance student learning. In Kuwait e-learning is used in the private higher education sector but has not officially been used in the public higher education sector. Strategies for using e-learning in the public sector are needed. This paper presents an overview of students' attitudes towards e-learning in Kuwaiti Higher Education. The investigation was conducted at the College of Business Studies (CBS), a government sector, at which e-learning had not been previously used, and at the Gulf University for Science and Technology (GUST) representing the private sector. A study was carried out to examine students' attitude toward e-learning, and data was collected using a questionnaire which was applied for students in both sectors. The study results indicated that the students in both sectors were keen to use e-learning and there are some significant differences between male and female students in their attitudes to and use of e-learning materials. The results of this study will benefit higher education institutions in Kuwait and other Muslim countries in the region in determining how to use ICT for appropriate e-learning in teaching Information Technology and other subjects in a culturally acceptable way.

Keywords: IT education, ICT, e-learning, Kuwait Higher Education.

1. Introduction

E-learning in the developed countries is a popular phrase, as Anderson (2005) pointed out that if we search for the phrase e-learning in one of the internet search engines, we would receive more than three million hits. E-learning has been defined in a variety of ways in the literature. The most common definition states that e-learning or electronic learning in higher education is a technique to enhance learning and teaching experiences and used to educate students with or without their instructors through any type of digital media (Christie et al 2004) and/or utilizing many ICT information and communication technologies (Laurillard 2004). In recent years the Higher Education sectors are concentrating on the online context of e-learning by using the Internet to enhance education (Arabasz et al 2003).

Information Technology (IT) has emerged as an important component of society. Many private higher education institutions around the world are using e-learning in their education curriculum to compete with others and survive financially. Also many higher education institutions are changing to new technology in education to enhance student learning experiences and to produce better learning outcomes and competencies.

Traditional universities should have a flexible organizational structure to incorporate technology such as e-learning approaches into their education curriculum to improve student learning experience (Singh, O'Donoghue, and Worton 2003, Laurillard 2004).

There are some important factors for the success of e-learning during implementation in Higher Education institutions. Poor preparation can affect the use of e-learning facilities. Poor instructor awareness and training in using e-learning facilities will lead to poor outcomes. The availability of connections to e-learning websites combined with slow downloads discourages students from using e-learning.

With the various facilities of Information and Communication Technology (ICT) and the rapid growth of e-learning, computers are now used by students in many education processes and are valuable tools in learning in higher education. Accessing online learning resources has become flexible and fast without any geographical barriers (Sivapalan and Cregan 2005, Concannon and Campbell 2005**).** The aim of this study is to investigate students' attitudes towards Information and Communication technology ICT in Kuwait's Higher Education.

2. Investigation in Kuwait

Tertiary students in Kuwait can study at either a private or a public higher education institution. Teaching at the private institutions is in English while at the public institutions is it is mostly in Arabic. A survey reported in a previous paper by the authors showed that there are significant cultural differences between the students at the two types of higher education institutions. The survey also showed that there are significant differences in the availability of Information Technology between the public and private sectors. In particular the students at the public institutions use stand alone personal computers in computing laboratories and do not have access to the Internet at their place of study, (Aldoub and Goodwin, 2007).

The Gulf University for Science and Technology (GUST), a private university in Kuwait, established an e-learning center of excellence and started using e-learning to support teaching and in 2005. It was the first university to use e-learning in the region. Students at GUST are taught in English and predominantly come from English and American High Schools. English is the teaching language and computers are widely integrated in the curriculum. At GUST, Male and female students attend separate classes at the same locations. The students are taught by both male and female instructors, and Internet access is available for all of the students in labs and through a wireless network at campus, e-learning, therefore, is accessed anywhere and anytime.

CBS is one of the public colleges that are supervised by the Public Authority of Applied Education and Training (PAAET) in Kuwait. The students are divided into geographically separate male and female colleges. Females are instructed by both male and female instructors but males are instructed by male instructors only. The students do not have access to the Internet in college laboratories and no wireless network is available. Most have access to the Internet at home. They have slightly used computers in their high school education. No e-learning facilities and materials are available at the college.

3. Research Methodology

3.1 Subjects

The preliminary survey was conducted in teaching year 2006/7 in both the private and public sectors. The number of students who completed the survey at GUST was 85, 40 female and 45 male, their ages between 18 and 26. All participants at GUST have used e-learning facilities in/outside the university.

3.2 Learning Materials

The students at GUST have a range of online and offline facilities available through IBM Lotus Workplace learning management system (LMS). These facilities are self-paced and include online course materials, online assessments, online library materials, online discussion with peers and instructors, and E-mail (GUST, 2007). All the materials were made available on CD ROM and the college web site to enable the students to use the materials at home.

The e-learning materials were prepared and developed for CBS students using Microsoft Office 2003 applications Word, Excel, Power Point, and Producer. The materials were accessed with Internet Explorer. The course materials were lecture slides with and without voice annotation and assessment with immediate feedback. The content included Input devices, Output devices, the Central Processing unit, and Secondary Storage.

Power Point was used to prepare the lecture materials. Producer was used to voice annotate the slides in Arabic. Voice annotation in English was not used as in a previous survey the students had indicated that they preferred to study in Arabic. The slide shows were divided into 4 topics; Processing, Input, Output, and Secondary Storage.

Excel was used for the multiple choice assessment. The multiple choice questions were constructed based on the cognitive domain of Bloom's Taxonomy. Two files were prepared. The first file contained questions for the knowledge category and the second file contained question for the comprehension category of the taxonomy. The immediate feedback for each question included the mark for each question whether the answer was correct or wrong, and if wrong indicated where to find the answer on the lecture slides.

Word was used to write the HTML course material home page. The home page provides links to the lecture slide shows in two formats, HTML and PowerPoint, assessment materials, and links to the course text book web site. Home pages in English and in Arabic were written with the Arabic home page the default home page, the learning materials were in Arabic.

3.3 Procedure

The e-learning facilities were available for all the students at GUST to use anytime and from anywhere. At end of the semester the students were asked to complete a questionnaire to investigate their attitudes to e-learning and which types of e-learning they found most useful.

As there were no e-learning facilities at CBS and there were no e-learning materials written in Arabic available, e-learning materials for a section of a computer science topic

were produced. The learning materials were installed on stand alone PCs in two dedicated computer laboratories at each of the male and female campuses of the college for student use. The materials were also installed on the instructors' PCs in all computer laboratories at both colleges; 9 laboratories at the female student college and 6 laboratories at the male student college. Two instructors, a male instructor at the male student college and a female instructor at the female college, coordinated the experiment.

The course instructors at CBS taught the hardware topic from the prepared course slideshow material using a stand alone computer in lectures. The students were introduced to the prepared e-learning course materials by their instructors. The materials included slide shows of the lecture materials with and without voice annotation and multiple choice assessment materials for revision purposes. Links to other materials via the internet were provided for students who had access to the internet at home. Students and instructors participated on a voluntary basis.

After the midterm exam, all students who used the e-learning course materials were invited to complete the questionnaire to examine their attitudes to e-learning.

3.4 Evaluation Tool

A questionnaire was constructed for the purpose of this study using the Likert Scale; 5 "Strongly Agree", 4 "Agree", 3 "Undecided", 2 "Disagree", 1 "Strongly Disagree", and 0 "Not Applicable".

3.5 Results

Responses to the survey questions at both GUST and CBS are summarised in tables 1, 2, 3 and 4.

Table 1. Gulf University & Business College students' responses, answered by students who used e-learning

No	Questions	GUST (%)		CBS (%)	
		Agree	Disagree	Agree	Disagree
1	Resources on the web are useful	88	2	50	20
2	Resources on CD or DVD are useful	49	4	65	12
3	External resources were useful	75	4	63	19
4	Availability of resources anytime were valuable	79	4	56	12
5	Using online assessment to prepare was valuable	80	6	62	18
6	Immediate feedback was useful in online assessment	75	5	74	10
7	Online assessment enhanced my learning experiences	77	6	59	16
8	I will use e-learning in other courses	85	5	67	8
9	My ability to work independently has increased	77	7	78	6
10	Learned more about ICT facilities	60	10	66	8
11	I will use computers for learning	93	2	77	6
12	Overall satisfaction with e-learning	87	5	77	10

Table 2. Questions answered by Gulf University students ONLY

No.	Question	Agree (%)	Disagree (%)
13	Resources on video tape were useful	46	6
14	Resources on online library were useful	44	5
15	Using wireless network on campus was valuable	72	4
16	Using online discussion was valuable	61	7
17	Instructor online feedback was useful	73	5

Table 3. Questions answered by Business College students ONLY

No	Question	Agree (%)	Disagree (%)
18	Resources on a stand alone PC were useful	56	19
19	Prefer other type of questions as well as multiple choice questions	37	39
20	Lecture slides without voice on CD, stand alone PC, and Web were useful	57	22
21	Lecture slides with voice on CD, stand alone PC, and Web were useful	68	8
22	Other resources (course book site) available on the web were useful	63	14
23	Slides used in lectures were valuable	74	5
24	I will use online discussion with a male instructor if the facility is available	53	17
25	I will use online discussion with a female instructor if the facility available	49	17

Table 4. Answers from Business College Students' who did not use the e-learning materials

No	Questions description	Agree (%)	Disagree (%)
26	Did not use e-L materials, prefer to use the Web	55	10
27	Did not use e-L materials, prefer to use CD or DVD	40	20
28	Did not use e-L materials, prefer to use stand alone PC in college	70	5

At GUST, all students (85) completed the evaluation survey. At CBS, 146 students completed the questionnaire, 126 of them had used the e-learning resources. The results indicated that the students at GUST used e-learning material more than the students at CBS with an average difference of 14%. There are four possible reasons for this: First the availability of e-learning course materials for all IT topics at GUST, but at CBS, only one section of one course was delivered with e-learning support. Second, the availability of internet services on campus for students in GUST but not at CBS. Third, the students prior experience in using computers in GUST 98% more than in CBS 89% and GUST students had used e-learning materials at high school whereas CBS students had not used e-learning materials).

In regard to Gender differences, answers to the questions by male and female students in both sectors were compared to determine the effect of cultural issues. As the data is quantitative and involves independent samples, the Mann Whitney U-test was used, see tables 5, 6, and 7.

Table 5. Gulf University and Business College students' responses by gender

	Question	GUST Agree and Strongly agree (%)			CBS Agree and Strongly agree (%)		
		Fem.	Male	Sig Diff	Fem.	Male	Sig Diff
1	Using resources on the web	98	80	0.253	51	46	0.709
2	Using resources on CD or DVD	48	51	0.879	69	50	0.145
3	Using external resources	73	64	0.633	67	46	0.051
4	Availability of resources anytime anywhere	88	71	0.072	57	54	0.984
5	Use online assessment to prepare for the exams	83	78	0.029	58	77	0.271
6	feedback was useful in online assessment	90	62	0.003	75	69	0.936
7	Online assessment enhanced my Learning	85	69	0.160	61	50	0.697
8	I will use e-learning in other courses	85	84	0.246	69	63	0.926
9	My ability to work independently has increased	85	69	0.060	79	73	0.577
10	Learned more about ICT facilities	65	56	0.327	68	61	0.668
11	I will use computers for learning	98	89	0.198	82	66	0.259
12	Overall satisfaction with e-learning	95	80	0.038	82	63	0.145

Table 6. GUST only

No	Question	GUST Agree and Strongly agree (%)		Sig Diff
		Female	Male	
13	Using resources on video tape	48	44	0.744
14	Using resources on online library	38	49	0.719
15	Using wireless network on campus	80	64	0.027
16	Using online discussion enhanced my learning experiences	68	56	0.228
17	Useful instructor online feedback	78	69	0.105

Table 7. CBS only, questions by gender

No	Question	CBS Agree and Strongly agree (%)		Sig. Diff.
		Female	Male	
18	Using resources on a stand alone PC	64	27	0.001
19	Prefer other type of questions besides multiple choice questions	42	19	0.256
20	Lecture slides without voice on CD, stand alone PC, and Web helped me	59	50	0.665
21	Lecture slides with voice on CD, stand alone PC, and Web helped me	69	62	0.349
22	Other resources (course book site) available on the web helped me	64	58	0.836
23	Slides used in lectures were valuable	80	59	0.037
24	I will use online discussion with male instructor if the facility available	52	56	0.428
25	I will use online discussion with female instructor if the facility available	49	49	0.771

The GUST results indicated that there are some significant differences between male and female for students' replies to the questions about using online assessments (Q5) and the usefulness of immediate feedback (Q6). Most of the female students said that the

wrap-up and popup quizzes with immediate feedback helped them to prepare/practice for the exams and many of the female students indicated that it was the most useful aspect of e-learning. The male students did not make similar comments. Also there are significant differences between genders in using wireless network on campus and in the overall satisfaction with e-learning. Female students use the wireless network more are satisfied with e-learning than male students. These differences were supported by results that 98% of females are using the web and 73% are using external resources compared with males' usage of 80% and 64%. It seems that culture appears to be an issue at in the private sector. E.g. female students are only allowed to socialise at home. They can not socialise in public areas and they cannot leave the campus between classes. The female students use their free time to study and used the e-learning course materials on the stand alone PCs in the computer laboratories. The male students are free to leave the campus and spent less time using the e-learning materials.

The CBS results indicated that there are also some significant differences between female and male students in the public sector. CBS Q18 "The resources on the stand alone PC in the computer laboratory were usable and valuable for my understanding of the topic". Due to the cultural issues, the students have different restrictions placed on them according to whether they are male or female same reason as above.

There was very little difference between the number of male and female students using the external resources (Q3). Also there was a large difference between genders for the students' replies to the questions about the value of the slides that are used in lectures. 80% of females compared with 59% of males. This is likely to be because female students are more consistent than males in attending the classes and hence used the slides more.

4. Discussions

The results in this investigation (to how ICT should be used for e-learning in teaching information technology in Kuwait) indicated that culture appears to be an issue in both sectors in students' attitudes to and use of e-learning materials. There were some differences between male and female found in using e-learning materials in both sectors as assumed.

The result indicated that the female students use and value e-learning more than the male students. Also female students use e-learning resources on campus more than male students whether by stand alone PC's at CBS or by the wireless network at GUST. This is due to the Kuwaiti culture. Female students spend their free time using the e-learning materials at the college/university but male students are free to leave the campus and spent less time using the e-learning materials.

Al-Doub and Goodwin (2007) found in their study, that GUST students use laptop computers more than CBS students and in addition they have used them for learning via the wireless network on the GUST campus. If CBS provides a wireless network on campus, then students are more likely to access the resources on the web via their laptops similar to GUST students.

It was surprising in CBS that the percentage of female students who would use online discussion with male instructors exceeded the percentage who would use online discussion with female instructors as the culture would not allow it. Both genders are willing to use online discussion if it is available in the future. These results contradict what is assumed and allowed by the culture of Kuwait (Al-Doub and Goodwin, 2007).

5 Conclusion

The results indicated that there are a number of differences between students in the public and private higher education sectors in Kuwait which must be taken into account when implementing an e-learning program. Culture plays an important role in these differences.

In the private sector e-learning materials can be provided via the Internet and can be written in English as indicated in the survey's result that the majority of students preferred English. It can be assumed that students have access to the Internet at home and have the technology to use the campus wireless network. There are some significant cultural or gender issues to be considered. In the public sector e-learning materials must be provided in Arabic and cultural issues must be taken into account.

The web is mostly suitable e-learning facility to the students of the private sector e-learning but in the public sector; CD/DVD, external resources, and PC's in laboratory are the students' preferable e-learning facilities. Also the students at both sectors indicated that the online assessment with immediate feedback helped them to prepare for exams and for revision and most of them stated that the online assessment is the most useful aspect of e-learning.

Almost half of the male and female students in the public sector have declared that they were willing to use online discussion regardless the gender of instructors if it is available in the Arabic language. This may be difficult to implement as it is not culturally acceptable. The outcome of this study indicate that the students of both sectors were satisfied with the provided e-learning course materials and willing to continue using the e-learning facilities if available in other courses in the future.

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