

Investigating the Students' Attitude Toward the use of E-Learning in Girne American University

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Abstract

The development of technology today has impacted many aspects of life and learning is one of those aspects. E-learning is increasingly being used in universities as a new learning technology that helps meet student-centered learning paradigms. In addition, many universities in many countries in the world use the E-learning system but many of them still need to understand at the end the user acceptance process to this technology. This study focuses on the factors that would examine the students' attitude towards E-learning and its effectiveness in successful use. The technology acceptance model (TAM) is used in the analysis as a conceptual research framework of E-learning adoption. This paper intends to investigate factors affecting the student's attitude towards the use of the E-learning system at Girne American University (GAU) in North Cyprus. The responses of 133 students from more than 15 different departments on the online questionnaire are analyzed, and the result shows that students are interested and satisfied to use the E-learning system, in turn, the result suggests increasing the awareness of faculty members about the necessity of integrating E-learning in the educational process.

Keywords: E-learning, Distance learning, Girne American University, TAM, Perceived usefulness, Ease of use, Student attitude, North Cyprus.

Introduction

As technology becomes more integral to the function of educational organizations as whole, the ability of students to integrate a new technology into their learning process becomes an ever-larger determinant of success. This advancement in technology affected the educational environment and helped to develop Electronic learning (E-learning) as a new learning paradigm. These often replace traditional methods that enable students to engage with their learning through various web technologies alongside or instead of face-to-face delivery.

E-learning has started as a new paradigm which uses telecommunications and information technology in the education system. This paradigm makes the educational process easier by using the network. E-learning has made knowledge and learning possible anytime and anywhere by using the Internet and its networks like Wide Area Networks (WANs), or Local Area Networks (LANs) (Ajadi, Salawn & Adeoye, 2008). Furthermore, E-learning is an umbrella for all Internet-based programs that are used in learning environments (Moore, Dickson-Deane & Galyen, 2011). In order to benefit from E-learning, we should have a Personal Computer (PC) and an Internet connection or other network connection. Moreover, many universities that applied E-learning services faced many difficulties in terms of adopting successful scenarios including the acceptance and effectiveness of delivering courses.

Militaru, Suci and Todoran (2012) proposed a quality evaluation method for E-learning environments, using the Online Quality Evaluation tool. They found that E-learning environment has a satisfactory quality. In this case, the E-learning technology factors which should be taken into account include the system, information and services quality. In addition, students' engagement and acceptance must be taken into account; otherwise advanced systems will most likely fail (Al- Adwan, Al- Adwan, & Smedley, 2013).

E-learning is friendly, provides good communication between parties and useful access to information and materials (Rohleder, Bozalek, Carolissen, Leibowitz & Swartz, 2008). Furthermore, students' motivation, satisfaction and self-discipline are the main drivers of E-learning outcomes (Meissonier, Houzé, Benbya & Belbaly 2006). Moreover, the E-learning perceptions and experiences of the students indicates a high level of satisfaction (Bentley, Parkin & Selassie, 2012).

However, E-learning approach still needs more changes in its structure and content, especially, the perceptions of the students about the suggested room for improvement in the following areas: communication and student support; learning support systems; assignment and examination support and feedback (Bentley, Parkin & Selassie, 2012).

Therefore, E-learning proved that it can offer exceptional opportunities for providing learners with rich and educationally powerful learning experiences (Khirwadkar, Hewit & Chaudhari, 2013). Many argue that E-learning; as a new learning technology will definitely and significantly contribute to the learning environment. In fact, technology advances day after day, while traditional methods, such as tutorials and face-to-face lectures, are still strongly dominant in most of the universities, educational arenas and of course, the GAU is one of them. On the other hand, the GAU is intensively investing in learning technologies to facilitate greater quality enhancements in students learning experiences. Consequently, this study intends to investigate factors affecting the attitude towards the use of the E-learning system at GAU.

Research Framework

According to Davis (1989), the purpose of TAM is to explore the acceptance of information systems after a short term of interaction with the system. The TAM became the most popular model used to measure the acceptance, usefulness and use of technology (Al- Adwan, Al- Adwan, & Smedley, 2013).

Consequently, this research uses TAM (Figure 1), as a base theory to verify the effects of external factors on the attitude towards the use of the E-learning system because of its ability for gauging users' acceptance of technology.

For each independent factor, the relation between its characteristics and the attitude towards the use of E-learning system will be shown. This study divided the independent factors into two main groups according to their characteristics; Technology factors and Student factors.

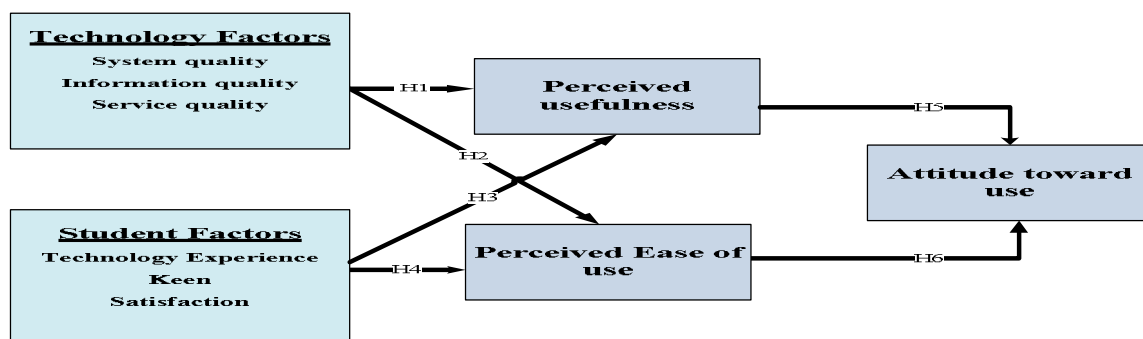


Figure 1: Research Model

The external factors in terms of technology factors study the relationship between perceived quality modelled in terms of information quality, service quality and system quality. The hypotheses for external factors in this group are based on the research of Roca et al. (2006). The hypothesis is shown below:

H1: Technology factors will have significant influence on perceived usefulness towards E-learning.

H2: Technology factors will have significant influence on perceived ease of use towards E-learning.

The second external factor group is student factors. The hypotheses for external factors in this group are based on the research of Roca et al. (2006). The hypothesis is shown below:

H3: Student factors will have significant influence on perceived usefulness towards E-learning.

H4: Student factors will have significant influence on perceived ease of use towards E-learning.

Perceived ease of use and perceived usefulness were found to have significant effect on users' attitude towards the acceptance of technology (Davis, 1989). The hypothesis is shown below:

H5: perceived usefulness will have significant influence on the attitudes toward use of E-learning.

H6: perceived ease of use will have significant influence on the attitudes toward use of E-learning.

Research Methodology

Sampling

The undergraduate students at GAU are served as the target population for the distribution of the final version of the questionnaire. The sample is composed of 133 participants familiar with E-learning.

The participants are invited to fill a questionnaire measuring the variables of the model in Figure1. These individuals come from various backgrounds and they are contacted to fill in an online version of the questionnaire. The authors used convenient sampling technique to a sample size of 133 students. Respondents were given the chance to decide whether to complete a questionnaire or not. Clarifications were sought immediately when the data provided in the questionnaire were not clear.

Instrument

The questionnaire measures the perception on the attitude towards the use of an E-learning environment. Items were added to address the technology factors and student factors as independent variables while perceived usefulness towards E-learning, perceived ease of use towards E-learning and attitudes towards use of E-learning as a dependant variables. This questionnaire written in English is adapted from the questionnaires of Davis (1989) for the dependant variables, and Roca et al. (2006) for the independent variables. All the items utilize a five-point Likert scale ranging from "strongly disagree" to "strongly agree" with a middle neutral point.

Date analysis

Characteristics of the Sample

Table (1) shows the sample distribution according to demographic variables. The table shows that there are more males than females. There are (83) males with a (62.4%) percent while the females are (50) with a (37.6%) percent from more than 15 different departments.

Table (1): Sample's Distribution According to Demographic Information

Category	Frequency	Percentage%
Gender		
Male	83	62.4%
Female	50	37.6%
Total	133	100%
Age		
Less than 20	32	24.1%
Between 21-25	74	55.6%
More than 25	27	20.3%
Total	133	100%
Using computer per week for non-educational purposes		
From 1 to 5 hours	31	23.3%
From 10 to 15 hours	21	15.8%
From 15 to 20 hours	19	14.3%
From 5-10 hours	23	17.3%
More than 20 hours	39	29.3%
Total	133	100%
Using computer per week for educational purposes		
Between 1-3 hours	34	25.6%
Between 3-5 hours	26	19.5%
Between 5-7 hours	27	20.3%
Between 7-9 hours	8	6.0%
Less than 1 hour	13	9.8%
More than 9 hours	25	18.8%
Total	133	100%

The table above indicates that 29.3% of the sample spent more than 20 hours at the computer per week for non-educational purposes while 25.6% of the sample spent between 1-3 hours at the computer per week for educational purposes. Finally, it is found that more than half of the sample (55.6%) is between 21-25 years old.

Reliability Test

Cronbach Alpha (α) test was used to find out instrument reliability. The value was = 96.3% for the questionnaire. All values are accepted since they are more than 60% (Malhotra, 2004).

Also it is found that alpha for each variable is greater than accepted percent 0.60, as shown in the following table:

Table (2): Cronbach Alpha results

Variable	α
Technology Factor	0.927
Student Factor	0.859
Perceived Usefulness	0.934
Perceived ease of use	0.911
Attitude toward Use	0.90

Statistical results

Table (3): Means and Standard Deviations of sample's responses regarding perception of the variables

Questions	Mean	STD. Deviation
Steps to complete a task in the E-learning system follow a logic sequence.	3.44	1.069
Performing an operation in the E-learning system always leads to a predicted result.	3.35	1.101
The organization of information on the E-learning system screens is clear.	3.44	1.170
The E-learning system has natural and predictable screen changes.	3.35	1.243
The E-learning system responds quickly during the busiest hours of the day.	3.20	1.270
The E-learning system provides relevant information for my course.	3.75	1.196
The E-learning system presents the information in an appropriate format.	3.66	1.121
The information content in the E-learning system is very good.	3.12	1.200
The information from the E-learning system is up-to-date enough for my purposes.	3.34	1.167
The reliability of output information from E-learning system is high.	3.66	1.107
The E-learning system provides the information I need in time.	3.83	1.074
The E-learning system has a modern looking interface.	2.91	1.288
The E-learning system has visually appealing materials.	2.57	1.245
The E-learning system provides the right solution to my request.	3.28	1.124
The E-learning system gives me prompt service.	3.56	1.124
The E-learning system has a good interface to communicate my needs.	3.00	1.219
Technology Factor	3.3407	.81037
I have experience to use handled device (Laptops, tablets, smart-phones,).	4.70	.798
I have experience to use internet.	4.70	.853
Time flies when I am using the E-learning system.	3.16	1.114
Most times when I get on to the E-learning system, I end up spending more time than I had planned.	2.86	1.256
While using the E-learning system, I am absorbed in what I am doing.	3.02	1.206
I have fun interacting with the E-learning system.	2.89	1.201
I enjoy using the E-learning system.	2.67	1.272
I am satisfied with the performance of the E-learning service.	3.23	1.273
I am pleased with the experience of using the E-learning service.	3.47	1.203
My decision to use the E-learning service was a wise one.	3.43	1.233
Student Factor	3.4120	.76476
Using the E-learning enhanced my effectiveness in learning.	3.45	1.184
Using the E-learning improved my course performance.	3.41	1.219
Using the E-learning increased my productivity in my coursework.	3.49	1.139
Using the E-learning enabled me to accomplish tasks more quickly.	3.47	1.197
I found using the E-learning useful.	3.44	1.240
Perceived Usefulness	3.4511	1.06448
Overall, I found the E-learning interface easy to use.	3.40	1.279
Learning to use the E-learning interface was easy for me.	3.92	1.142
My interaction with the E-learning interface was clear and understandable.	3.55	1.228
It was easy for me to become skillful at using the E-learning interface.	3.74	1.134
I found the E-learning interface to be flexible to interact with.	3.32	1.215
Perceived ease of use	3.5835	1.03134
I have a generally favorable attitude toward using the E-learning System.	3.67	1.140
I believe it is a good idea to use the E-learning System for my coursework.	3.92	1.142
I like the idea of using the E-learning System.	3.88	1.174
Using the E-learning System provided me with a lot of enjoyment.	3.20	1.228
Overall, I enjoyed using the E-learning System.	3.45	1.252
Attitude toward Use	3.6226	1.00473

Table (3) indicates negative attitudes towards questions (12,13,20,22,23) since their means are less than virtual means in (3) , whereas there are positive attitudes regarding statements that measure the rest of questions since their means are more than the virtual means in (3). In addition, the grand means of each variable reflects positive attitudes toward them since each of them is greater than the virtual means in (3).

Collinearity statistics test

Multicollinearity between the two independent variables was checked by using the Collinearity statistics: Tolerance and Variance Inflation Factor (VIF). Tolerance is the amount of variance in an independent variable that is not explained by other independent variables. VIF measures to what extent the variance of the regression coefficient is inflated by multicollinearity. The minimum acceptable cut-off value of tolerance is typically (0.10). The maximum acceptable cut-off value of the VIF is (10). In other words, this indicates that the multicollinearity tolerance value should not be less than (0.10) while VIF value should not be more than (10) (Mason, 1987).

Table (4): Collinearity Statistics

Model	Collinearity Statistics	
	Tolerance	VIF
Technology Factor	0.382	2.617
Student Factor	0.382	2.617

Hypothesis Testing

The hypotheses are tested by the Statistical Package for Social Sciences (SPSS) software.

First hypothesis: Technology factors will have significant influence on perceived usefulness towards E-learning.

Table (5)

Test of hypothesis (1)

r^2	r	Sig t	t	Sig F	F
0.346	0.588	0.000**	8.328	0.000**	69.362

** Significant at (0.01) level

Simple Regression is used to test the hypothesis. The table (5) indicates that F calculated value is significant at (0.01) level. Therefore, Technology factors will have significant influence on perceived usefulness towards E-learning with moderate r 0.588; also 34.6% of the variance r^2 in the perceived usefulness towards E-learning has been significantly explained by the technology factors.

Second hypothesis: Technology factors will have significant influence on perceived ease of use towards E-learning.

Table (6)

Test of hypothesis (2)

r^2	r	Sig t	t	Sig F	F
0.421	0.649	0.000**	9.764	0.000**	95.337

** Significant at (0.01) level

Simple Regression is used to test the hypothesis. Table (6) indicates that F calculated value is significant at (0.01) level. Therefore, Technology factors will have significant influence on perceived ease of use towards E-learning with high r 0.649; also 42.1% of the variance r^2 in the perceived ease of use towards E-learning has been significantly explained by the technology factors.

Third hypothesis: Student factors will have significant influence on perceived usefulness towards E-learning.

Table (7)

Test of hypothesis (3)

r^2	r	Sig t	t	Sig F	F
0.537	0.733	0.000**	12.337	0.000**	152.214

** Significant at (0.01) level

Simple Regression is used to test the hypothesis. Table (7) indicates that F calculated value is significant at (0.01) level. Therefore, Student factors will have significant influence on perceived usefulness towards E-learning, with high r 0.733; also 53.7% of the variance r^2 in the perceived usefulness towards E-learning has been significantly explained by the student factors.

Fourth hypothesis: Student factors will have significant influence on perceived ease of use towards E-learning.

Table (8)
Test of hypothesis (4)

r^2	r	Sig t	t	Sig F	F
0.378	0.615	0.000**	8.917	0.000**	79.518

** Significant at (0.01) level

Simple Regression is used to test the hypothesis. Table (8) indicates that F calculated value is significant at (0.01) level. Therefore, Student factors will have significant influence on perceived ease of use towards E-learning, with high r 0.615; also 37.8% of the variance r^2 in the influence on perceived ease of use towards E-learning has been significantly explained by the student factors.

Fifth hypothesis: perceived usefulness will have significant influence on the attitudes towards the use of E-learning.

Table (9)
Test of hypothesis (5)

r^2	r	Sig t	t	Sig F	F
0.505	0.711	0.000**	11.57	0.000**	133.871

** Significant at (0.01) level

Simple Regression is used to test the hypothesis. Table (9) indicates that F calculated value is significant at (0.01) level. Therefore, perceived usefulness will have significant influence on the attitudes towards the use of E-learning, with high r 0.711, also 50.5% of the variance r^2 in the influence on attitudes toward the use of E-learning has been significantly explained by the perceived usefulness.

Sixth hypothesis: perceived ease of use will have significant influence on the attitudes towards the use of E-learning.

Table (10)
Test of hypothesis (6)

r^2	r	Sig t	t	Sig F	F
0.212	0.46	0.000**	5.936	0.000**	35.231

** Significant at (0.01) level

Simple Regression is used to test the hypothesis. Table (10) indicates that F calculated value is significant at (0.01) level. Therefore, perceived ease of use will have significant influence on the attitudes towards the use of E-learning, with moderate r 0.46; also 21.2% of the variance r^2 in the influence on attitudes towards the use of E-learning has been significantly explained by the perceived ease of use.

Discussion and conclusion

The goal of the present study is to investigate the students' attitude towards the use of the E-learning system. The study has examined the effects of technology factors, student factors, perceived usefulness, and perceived ease of use on students' attitude towards the use of E-learning.

The results of the analysis provide strong support for our hypothesis. In addition, this study has found that the influence of technology factors- including the system quality, service quality and information quality- on perceived usefulness was strong. At the same time, the result is showed that the influence of student factors - including the technology experience, keen and satisfaction- on perceived usefulness was stronger. This is consistent with previous researches which found that there is an influence of the system quality and student satisfaction on perceived usefulness towards E-learning (Roca et al., 2006).

Moreover, the study has found that perceived usefulness has high significant influence on the attitudes towards the use of E-learning, while perceived ease of use has a moderate significant influence on the attitudes towards the use of E-learning. Nevertheless, the result has found that the influence of perceived usefulness and perceived ease of use on the attitudes towards the use of E-learning was strong and this is consistent with Davis (1989) who claimed that the perceived usefulness has a strong influence on the attitudes towards the use of E-learning. Al-Adwan et al. (2013) and Davis (1989) claimed that perceived ease of use has a significant effect on the attitudes towards the use of E-learning.

As a result, this study has indicated that TAM can be used as a useful theoretical base to predict and understand users' acceptance to use E-learning. In order to get the satisfaction of students to use new technology in education like E-learning, it will be useful to give importance to the different variables that were used in this study which are critical to the success of the E-learning system. The findings of the present study have various implications for research. First, the technology factors and student factors play a main role on perceived usefulness and perceived ease of use of the E-learning system. Second, there is a direct strong influence of the perceived usefulness and perceived ease of use on the attitude of use of the E-learning system.

Thus, based on the previous results, it can be concluded that the students of GAU are interested to use the E-learning system that provides good information and makes them more productive in their tasks. Finally, the students are satisfied to use the E-learning system, and this leads to increase the awareness of faculty members about the necessity of integrating E-learning in the educational process which in turn may lead to enhance students' academic achievements, especially those who wish to enjoy using modern technology in their educational life in order to get knowledge anytime and anywhere.

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