Information and Knowledge Management
ISSN 2224-5758 (Paper) ISSN 2224-896X (Online)
Vol.7, No.1, 2017


# Evaluating Students' Attitude Toward the Use of E-Learning: A Comparative Study Between a Private and Public Universities in Jordan

Asst. Prof.Dr. Mohammad Musa Al-Momani
Faculty of economic and administrative science, MIS, Zarqa University, Zarqa-Jordan

**Abstract**
Based on the huge development in the field of telecommunications and information technology and the effectiveness of this development in many different fields especially in education, this research aims to make a comparative study between private and public universities in Jordan by investigating the factors that affect the student's attitude towards the use of E-learning system. The study sample consisted of (489) students selected randomly cluster from University of Jordan (JU) and Zarqa University (ZU). The technology acceptance model (TAM) is used in the analysis as a conceptual research framework of E-learning adoption. According to that, a questionnaire distributed to281 students in more than 15faculties at University of Jordan as a public university. The same questionnaire distributed to 208 students in more than 15 faculties at Zarqa University as a private university for the academic year 2015-2016. The results showed that the percentage of students who indicated positive attitude towards the use of the E-learning system in both universities is high.
**Keywords:** E-learning, Distance learning, Zarqa University, University of Jordan, TAM, Perceived usefulness, Ease of use, Student attitude, Private University, Public University, Comparative study, Jordanian students

## 1. Introduction

Technology has become an integrated part of our lives, and hence, modern communities face many challenges that affect the life style and many sectors, like communication and information technology sectors. The development in this kind of sectors has influenced the education sector and made E-learning come to exist as a new generation in education (Reis, Escudeiro, & Escudeiro, 2012).

Because of this new generation in education, E-learning becomes a new technology which uses internet and smart devices like personal computers (PCs) in educational process. per that, E-learning as a new learning technology start to be a part of modern learning in universities that helps students to get a knowledge anytime and anywhere. In addition, most of universities in different countries are using the E-learning system and Jordan one of them, but there is still misunderstanding for the user acceptance process to this technology.

Therefore, Al-Adwan et al. (2013) investigated the students' intention to use e-learning in Jordanian Universities. The researchers used the Technology Acceptance Model (TAM) to measure Perceived ease of use, perceived usefulness, and Attitude towards use and its influence the students' intention to use e-learning system. The result showed that e-learning helps students to improve their performance and effectiveness in learning at Jordanian universities.

In addition, In order to determining the factors influencing the effectiveness of e-learning management systems, Nair, Paril and Singh (2012) studied the _factors students' Involvement with LMS, Convenience of Course Activities, Improvement of Learning Skills by Using LMS and Overall Satisfaction of Using LMS_ to measure the effectiveness of this factors in learning management system (LMS). University of Stirling and Muscat College students were the target of this study. According to the results, students from University of Stirling are very much satisfied with the LMS being used more that the students from Muscat College. The reason of these results is that the majority of Muscat College students do not access LMS very frequently.

Moreover, Puteh and Hussin (2007) analyzed the development of the e-learning strategies that used at Malaysian private universities. The result showed that the Malaysia's private universities are committed to E-learning as a teaching method. In addition, the result showed that the private universities are considered the learning management systems (LMS) that presented in E-learning become a main part of the educational process in the modern universities. Thus, the aim of this paper is to investigate factors that influence the student's attitude towards the use of E-learning system at private and public universities in Jordan.

## 2. Research Framework

Along with the aim, the technology acceptance model (TAM) is used. According to Davis (1989), TAM is helpful to explore the acceptance of information systems after a short term of interaction with the system, according to the figure 1 the independent variables are divided into two main factors; Technology factors and Student factors. In addition, the dependent variables are perceived usefulness towards E-learning, perceived ease of use towards E-learning and attitudes towards use of E-learning.

 

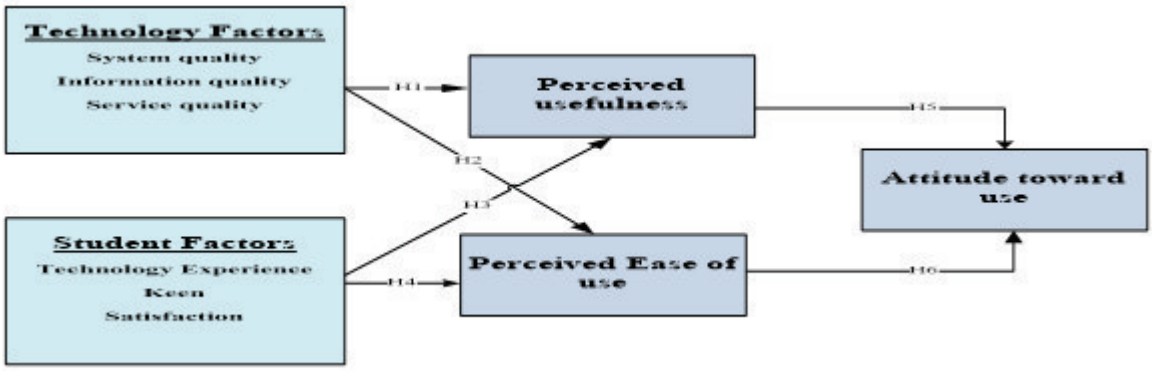


Figure1. Research Model

Thus, this survey has six hypotheses are based on the research of Roca et al. (2006) as following:

- 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.
- 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.
- 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.

## 3. Research Methodology

### Sampling

The undergraduate students at University of Jordan (JU) and Zarqa University (ZU) are served as the target population for the distribution of the final version of the questionnaire. The sample is included 489 from both universities, where selected from more than 30 faculties. A questionnaire distributed to 281 students in more than 15faculties at University of Jordan as a public university. The same questionnaire distributed to 208 students in more than 15at Zarqa University as a private university for the academic year 2015-2016.

### Instrument

The questionnaire amounts the awareness on the attitude towards the use of an E-learning environment. All the questionnaire 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 the results of both Universities. According to the results, JU responses show that there are more females than males. There are (215) females with a (76.5%) percent, while the males are (66) with a (23.5%) percent from more than 15 different departments. On the other hand, ZU responses show that there are more males than females. There are (138) males with a (66%) percent, while the females are (70) with a (34%) percent from more than 15 different departments.

 

Table 1. Sample's Distribution According to Demographic Information

| Category | Frequency | | Percentage% | |
|---|---|---|---|---|
| **Gender** | | | | |
| | **University of Jordan (JU)** | | **Zarqa University (ZU)** | |
| Male | 66 | 23.5% | 138 | 66% |
| Female | 215 | 76.5% | 70 | 34% |
| Total | 281 | 100% | 208 | 100% |
| **Age** | | | | |
| | **University of Jordan (JU)** | | **Zarqa University (ZU)** | |
| Less than 20 | 187 | 66.5% | 27 | 13% |
| Between 21-25 | 88 | 31.3% | 157 | 75% |
| More than 25 | 6 | 2.2% | 24 | 12% |
| Total | 281 | 100% | 208 | 100% |
| **Using computer per week for fun** | | | | |
| | **University of Jordan (JU)** | | **Zarqa University (ZU)** | |
| From 1 to 5 hours | 147 | 52.3% | 96 | 46% |
| From 5-10 hours | 21 | 7.5% | 56 | 27% |
| From 10 to 15 hours | 54 | 19.2% | 17 | 8% |
| From 15 to 20 hours | 26 | 9.3% | 19 | 9% |
| More than 20 hours | 33 | 11.7% | 20 | 10% |
| Total | 281 | 100% | 208 | 100% |
| **Using computer per week for education** | | | | |
| | **University of Jordan (JU)** | | **Zarqa University (ZU)** | |
| Between 1-3 hours | 78 | 27.8% | 77 | 37% |
| Between 3-5 hours | 141 | 50.2% | 82 | 39% |
| Between 5-7 hours | 39 | 13.9% | 20 | 10% |
| Between 7-9 hours | 9 | 3.2% | 10 | 5% |
| Less than 1 hour | 4 | 1.4% | 8 | 4% |
| More than 9 hours | 10 | 3.6% | 11 | 5% |
| Total | 281 | 100% | 208 | 100% |

The table above indicates that 52.3% of the JU sample and 46% of the ZU sample spent from 1 to 5 hours at computer per week for non-educational purposes while 50.2% of the JU sample and 39% of ZU sample spent between 3-5 hours at computer per week for educational purposes. Finally, it is found that the more than the half of the JU sample (66.5%) is less than 20 years old, while more than half of the ZU sample (75%) is between 21 to 25 years old.

**Reliability Test:**

To find out instrument reliability, Cronbach Alpha ($\alpha$) test was used. The value was = 93.9% 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.Cornbach Alpha

| Variable | $\alpha$ | |
|---|---|---|
| | JU | ZU |
| Technology Factor | .854 | .834 |
| Student Factor | .871 | .838 |
| Perceived Usefulness | .915 | 0883 |
| Perceived ease of use | .913 | .858 |
| Attitude toward Use | .889 | .818 |

 

**Statistical results:**

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

| Questions | JU | | ZU | |
|---|---|---|---|---|
| | Mean | STD. Deviation | Mean | STD. Deviation |
| 1. Steps to complete a task in the E-learning system follow a logic sequence. | 3.80 | .8210 | 3.76 | .8150 |
| 2. Performing an operation in the E-learning system always leads to a predicted result. | 3.30 | .8770 | 3.34 | .9400 |
| 3. The organization of information on the E-learning system screens is clear. | 3.63 | .9630 | 3.58 | .9390 |
| 4. The E-learning system has natural and predictable screen changes. | 3.23 | .8970 | 3.08 | 1.101 |
| 5. The E-learning system responds quickly during the busiest hours of the day. | 2.78 | 1.160 | 3.28 | 1.151 |
| 6. The E-learning system provides relevant information for my course. | 3.90 | .9110 | 3.78 | .9100 |
| 7. : The E-learning system presents the information in an appropriate format. | 3.60 | .8600 | 3.58 | .8360 |
| 8. The information content in the E-learning system is very good. | 3.61 | .8210 | 3.65 | .9090 |
| 9. The information from the E-learning system is up-to-date enough for my purposes. | 3.40 | .8570 | 3.37 | 1.003 |
| 10. The reliability of output information from E-learning system is high. | 3.39 | .9200 | 3.32 | 1.024 |
| 11. The E-learning system provides the information I need in time. | 3.52 | .9490 | 3.62 | .9240 |
| 12. The E-learning system has a modern looking interface. | 3.53 | .8490 | 3.56 | .9100 |
| 13. The E-learning system has visually appealing materials. | 3.35 | .9520 | 3.36 | .9870 |
| 14. The E-learning system provides the right solution to my request. | 3.12 | .8640 | 3.20 | .9770 |
| 15. The E-learning system gives me prompt service. | 3.09 | .9870 | 3.31 | .9980 |
| 16. The E-learning system has a good interface to communicate my needs. | 3.28 | .8870 | 3.31 | .9180 |

 

| | | | | |
|---|---|---|---|---|
| Technology Factor | 3.4088 | .489760 | 3.44375 | 0.958875 |
| 17. I have experience to use handled device (Laptops, tablets, smart-phones, ….). | 4.16 | .9480 | 4.33 | .8790 |
| 18. I have experience to use internet. | 4.12 | .9310 | 4.20 | .8710 |
| 19. Time flies when I am using the E-learning system. | 3.68 | .9910 | 3.74 | .9580 |
| 20. Most times when I get on to the E-learning system, I end up spending more time than I had planned. | 3.52 | 1.102 | 3.56 | 1.182 |
| 21. While using the E-learning system, I am absorbed in what I am doing. | 3.43 | 1.057 | 3.75 | .9310 |
| 22. I have fun interacting with the E-learning system. | 3.26 | .9190 | 3.30 | 1.067 |
| 23. I enjoy using the E-learning system. | 3.32 | .9580 | 3.41 | .9790 |
| 24. I am satisfied with the performance of the E-learning service. | 3.23 | .8970 | 3.27 | .9860 |
| 25. I am pleased with the experience of using the E-learning service. | 3.58 | .9190 | 3.62 | .9700 |
| 26. My decision to use the E-learning service was a wise one. | 3.59 | .8980 | 3.64 | .9220 |
| Student Factor | 3.5890 | .62030 | 3.682 | 0.9745 |
| 27. Using the E-learning enhanced my effectiveness in learning. | 3.64 | .9570 | 3.74 | .9590 |
| 28. Using the E-learning improved my course performance. | 3.63 | .9010 | 3.57 | .9600 |
| 29. Using the E-learning increased my productivity in my coursework. | 3.65 | .8910 | 3.63 | .9170 |
| 30. Using the E-learning enabled me to accomplish tasks more quickly. | 3.67 | .9260 | 3.87 | .9070 |
| 31. I found using the E-learning useful. | 3.80 | .8910 | 3.88 | .8950 |
| Perceived Usefulness | 3.6797 | .743100 | 3.738 | 0.9276 |
| 32. Overall, I found the E-learning interface easy to use. | 3.53 | .9300 | 3.74 | 0.858 |
| 33. Learning to use the E-learning interface was easy for me. | 3.54 | .9020 | 3.83 | .7730 |
| 34. My interaction with the E-learning interface was clear and understandable. | 3.52 | .8620 | 3.72 | .8450 |
| 35. It was easy for me to become skillful at using the E-learning interface. | 3.56 | .8850 | 3.70 | .8670 |
| 36. I found the E-learning interface to be flexible to interact with. | 3.47 | .9560 | 3.69 | .9180 |
| Perceived ease of use | 3.5224 | .73589 | 3.736 | 0.8522 |
| 37. I have a generally favorable attitude toward using the E-learning System. | 3.55 | .8490 | 3.54 | .9670 |
| 38. I believe it is a good idea to use the E-learning System for my coursework. | 3.68 | .8970 | 3.68 | .9250 |
| 39. I like the idea of using the E-learning System. | 3.64 | .9420 | 3.70 | .9630 |
| 40. Using the E-learning System provided me with a lot of enjoyment. | 3.41 | .9790 | 3.61 | .9320 |
| 41. Overall, I enjoyed using the E-learning System. | 3.55 | .9850 | 3.45 | 1.058 |
| Attitude toward Use | 3.5658 | .722280 | 3.596 | 0.969 |

Table (2) indicates negative attitudes toward question (5) in the side of JU since their means are less than virtual mean (3), whereas there are positive attitudes regarding statements that measure above the rest of questions since their means are more than the virtual mean (3). In addition, the grand mean of each variable reflects positive attitudes toward them since each of them is greater than virtual mean (3).

 

**Collinearity statistics test**

Collinearity statistics is used to test the multicollinearity between the two independent variables: Technology and Investment. The minimum acceptable cutoff value for tolerance is typically (0.10) and not be less than (0.10). The maximum acceptable cutoff value for the VIF is (10) and not be more than (10) (Mason, 1987).

Table 4. Collinearity Statistics

| Model | Collinearity Statistics | | | |
|---|---|---|---|---|
| | JU | | ZU | |
| | Tolerance | VIF | Tolerance | VIF |
| Technology Factor | .6040 | 1.656 | .7100 | 1.409 |
| Student Factor | .6040 | 1.656 | .7100 | 1.409 |

**Hypothesis Testing**

**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 |
|---|---|---|---|---|---|---|
| JU | 0.313 | 0. .560 | 0.000** | 11.283 | 0.000** | 127.316 |
| ZU | 0.244 | 0.494 | 0.000** | 8.150 | 0.000** | 66.422 |

** Significant at (0.01) level

Simple Regression is used to test the hypothesis. The table 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 Pearson correlation (**r**) 0.560 and 0.494; also 31.3% and 24.4% of the variance (R-Square) 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.

Table6.Test of hypothesis (2)

| | $r^2$ | r | Sig t | t | Sig F | F |
|---|---|---|---|---|---|---|
| JU | 0.191 | 0. 437 | 0.000** | 8.124 | 0.000** | 65.994 |
| ZU | 0.246 | 0.496 | 0.000** | 8.203 | 0.000** | 67.292 |

** Significant at (0.01) level

Simple Regression is used to test the hypothesis. The table 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 Pearson correlation (**r**) 0.437 and 0.496; also 19.1% and 24.6% of the variance (R-Square) 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 |
|---|---|---|---|---|---|---|
| JU | 0. 442 | 0. 665 | 0.000** | 14.867 | 0.000** | 221.013 |
| ZU | 0.326 | 0.571 | 0.000** | 9.973 | 0.000** | 99.466 |

** Significant at (0.01) level

Simple Regression is used to test the hypothesis. The table 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 Pearson correlation (**r**) 0. 665 and 0.571; also 44.2% and 32.6% of the variance (R-Square) 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 on perceived ease of use towards E-learning.

Table 8. Test of hypothesis (4)

| | $r^2$ | r | Sig t | t | Sig F | F |
|---|---|---|---|---|---|---|
| JU | 0. 377 | 0. 614 | 0.000** | 12.984 | 0.000** | 168.575 |
| ZU | 0.262 | 0.512 | 0.000** | 8.561 | 0.000** | 73.293 |

** Significant at (0.01) level

Simple Regression is used to test the hypothesis. The table 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 Pearson correlation (**r**) 0. 614 and 0.512; also 37.7% and 26.2% of the variance (R-Square) 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 toward use of E-learning.

Table 9. Test of hypothesis (5)

| | $r^2$ | r | Sig t | t | Sig F | F |
|---|---|---|---|---|---|---|
| JU | 0. 410 | 0. 640 | 0.000** | 13.928 | 0.000** | 194.001 |
| ZU | 0.424 | 0.651 | 0.000** | 12.318 | 0.000** | 151.744 |

** Significant at (0.01) level

Simple Regression is used to test the hypothesis. The table indicates that F calculated value is significant at (0.01) level. Therefore, perceived usefulness will have significant influence on the attitudes toward use of E-learning, with high Pearson correlation (**r**) 0.640, also 41% of the variance (R-Square) in the influence on attitudes toward 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 toward use of E-learning.

Table 10. Test of hypothesis (6)

| | $r^2$ | r | Sig t | t | Sig F | F |
|---|---|---|---|---|---|---|
| JU | 0. 627 | 0. 394 | 0.000** | 13.459 | 0.000** | 181.133 |
| ZU | 0.337 | 0.580 | 0.000** | 10.231 | 0.000** | 104.680 |

** Significant at (0.01) level

Simple Regression is used to test the hypothesis. The table indicates that F calculated value is significant at (0.01) level. Therefore, perceived ease of use will have significant influence on the attitudes toward use of E-learning, with moderate Pearson correlation (**r**) 0.394 and 0.580; also 62.7% and 33.7% of the variance (R-Square) in the influence on attitudes toward use of E-learning has been significantly explained by the perceived ease of use.

## Discussion and conclusion

The main aims to make a comparative study between private and public universities in Jordan by investigating the factors that affect the student's attitude towards the use of E-learning system.

The results of the analysis provide strong support for our hypothesis. Moreover, this study has found that the impact of independent variables was strong. Which mean that the students are accepted this kind of learning, and this results consistent with previous researches which to examined the students' acceptance for E-learning management system (Moodle LMSs) and its impact in the University of Jordan, Almarabeh et al. (2014) used TAM model. The results showed that this kind of system is accepted from students, and can move forward towards E-learning using Moodle to be a main E-learning platform at the University of Jordan. Some challenges faced by students who used this system related to some labs' technical issues, but this issues can be overcome if the decision makers at the university give orders to make maintenance for computer labs periodically.

In addition, 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 in both universities and this is consistent with Al-Adwan et al. (2013) and Davis (1989) who claimed that perceived ease of use has a significant effect on the attitudes towards the use of E-learning.

Thus, according to the previous results, it can be concluded that the students in Jordan universities (private and public) are accepted and interested to use the E-learning system like Moodle which help them to get a good knowledge anytime anywhere and support their skills. Finally, the student interaction and satisfaction are increased by using E-learning system, and this leads to awareness of teachers about the importance of this kind of learning. Therefore, it is necessary to encourage them to use E-learning in the educational process because of its positive effects on student satisfaction and how it increased their interaction which effect positively in their academic achievement.

## References

Al- Adwan, A., Al- Adwan, A., & Smedley, J. (2013). "Exploring students' acceptance of e-learning using Technology Acceptance Model in Jordanian universities." *International Journal of Education and Development usingInformation and Communication Technology, 9*(2), 4-18.

Almarabeh, T., Mohammad, H., Yousef, R. and Majdalawi, Y.Kh. (2014) "The University of Jordan E Learning Platform: State, Students' Acceptance and Challenges". *Journal of Software Engineering and Applications*, 7, 999- 1007

Davis, F. D. (1989). "Perceived usefulness, perceived ease of use, and user acceptance of information technology". *MIS Quarterly*, 13(3), 319-340.

 

Malhotra, N. K. 2004, "Marketing research", New Jersey: Prentice Hall.

Mason, G. (1987). "Coping with Collinearity". *The Canadian Journal of program evaluation,* 2, 87-93.

Nair, S., Paril, R., & Singh, R. (Oct 2012). "Evaluation of e-Learning: A Comparative Study between a Private College in Oman and an Affiliated University in UK." *International Journal of advancement in electronics and computer engineering (IJAECE*) , 158-162.

Puteh, M., &Hussin, S. (2007). "A comparative study of e-learning practices at malaysian private universities." *The 1st International Malaysian Educational Technology Convention* (pp. 1177-1188). Malaysia: Sofitel Palm Resort, Senai, Johor Bahru.

Roca, J. C., Chiu, C.-M., &Martı´nez, F. J. (2006). "Understanding e-learning continuance intention: An extension of the Technology Acceptance Model." *Int. J. Human-Computer Studies*64 , 683–696.

**"This research is funded by the Deanship of Research at Zarqa University/Jordan"**