Jordanian Students' Barriers of Utilizing Online Learning: A Survey Study

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Abstract

This study aims at finding out the main barriers preventing students in Jordan from using online learning from their perspective. To achieve this objective, a questionnaire was developed and the validity and reliability of the questionnaire were checked. A simple random sampling was used forming a sample of 400 students. The results indicate that the online learning infrastructure is an immense barrier that obstructs the utilization of online learning in Jerash University. Also, there are statistically significant differences in the barriers that faced students while they are using online learning based on gender and studying year variables in favor of female and students of first year respectively. Moreover, the results of the study revealed that there is an interaction between gender and teaching year variables. Finally, in light of the results, the study recommended that additional efforts from decision makers and teachers should be taken into consideration for the sake of online learning process improvement.

Keywords: barriers, online learning, higher education, ICT, Jordan

1. Introduction

Information and communication technology (ICT) plays a vital role in education especially among the higher learning institutions. It is beneficial for both students and educators. It assists the instructor in preparing, presenting and evaluating their lessons, and students to access the information and understand their lessons easily. Therefore, educational institutions should adopt technology based learning by shifting from conventional teaching method to online teaching method. Institutions that employ ICT in teaching and learning process will develop better e-communication between students and teachers besides, the online teaching method.

Nowadays, most of the universities are using computer based teaching and learning. In developing countries, many courses are taught through the internet and this kind of learning is called online learning. According to Khan (1997) online learning is an innovative approach for delivering instruction to students in remote places, online learning also includes all kinds of learning that are transmitted across the computer.

Recently the use of online learning has dramatically increased around the world (Picciano & Seaman, 2009). However, online learning is still not yet well utilized in the developing countries. Due to several constraints as factors, the use of online learning in the teaching and learning is still not being used widely. These barriers include poor access to the internet, upgrading network, updating recourses such as software and lack of the ability and confidence resulting from shortage of training courses (Cheok, Wong, Ayub, & Mahmud, 2017; Hechter & Vermette, 2013). Other barriers were commonly reported in the previous studies like; time-consuming, technical issues and organizational beliefs or cultural beliefs (Fish & Gill, 2009; Hartmann, Braae, Pedersen & Khalid, 2017). Technological concerns and technological competencies were also reported as the major barriers that preventing faculty staff from expanding their use of online learning (Sims, 2002; Young, Cantrell, & Shaw, 2001).

Gender differences also play a role in determining the willingness to use online learning among students and teachers. The related literature review that dealt with the gender differences showed that females were more active than males and more interested in participating in activities and discussions on the internet forums (Lowes, Lin & Kinghorn 2016; McSporran & Young, 2001). Moreover, the attitudes of females toward online learning and e-learning were more positive compare with males; González-Gómez, Guardiola, Rodríguez, and Alonso (2011)

stated that female students are more satisfied than male students with the e-learning subjects. In contrary, both of age and gender variables had no impact on students' academic performance (Amro, Mundy, & Kupczynski, 2015).

1.1 Problem Statement

Numerous researches have been conducted on barriers to online learning. But in developing countries particularly in Jordan, the online concept is still in infant stage. And to the best of knowledge of researchers, there is a lack of studies that assessed the barriers on online learning as perceived by students. Most of the past studies discussed the barriers on online learning from faculty staff members or teachers (Fish & Gill, 2009; Haber & Mills, 2008; Johnson, 2008; Seaman, 2009). So, this study is one of the first studies that discusses the online learning barriers from the students' perceptions on Jordan more specifically at private sector (Jerash University).

According to the field observation and teaching experiences noted that students in online courses were unhappy, frustrated and complaining. Some of them reported that they do not enjoy online courses as they are lacking in technical skills and the confidence in using it. Some students also express that they have no previous computer skills and are not interested in dealing with new innovation. In line with that, the study tries to answer the following questions of the study:

1) What are the perceptions of Jerash University students' on barriers to online learning?

2) Are there any statistically significant differences between online learning according to studying year and gender?

2. Literature Review

There is a large volume of published studies describing the barriers of online learning. Therefore, it is significant at this stage to indicate that the online learning is a good opportunity to exhaust the possibilities of the interaction between the students and urges the active participation among them. However, despite these features, there are still some constrains that limit students from using the online learning. Willis, Davis, and Chaplin (2013) have pointed common barriers prevent students from participating in online learning and make them prefer traditional courses. On the other hand, these barriers are considered as huge lack of familiarity with a new environment, structure, material and strategy, as well as a lack of time. In fact this can be reported as one of the main barriers from the student's point of view. In relation, Becker, Newton, and Sawang (2013) conducted a study designed at identifying barriers to the adoption of e-learning and their impact on learners. The results of the study revealed that the chief barriers to using e-learning comes out of several aspects such as the nature of e-learning as a learning approach, the use of technology, and the lack of time.

A considerable amount of literature has been published on online learning barriers. These studies are by Muilenburg and Berge (2005) who have reported several barriers on online learning faced by students. These barriers include administrative routine issues, social interaction, cognitive and technological skills, encouragement, inadequate time, inadequate and outdated of resources, and several technical difficulties. Delays in instructor's response, the limited number of technicians, high degrees of technology dependence, and high student frustration are other barriers have also reported by students (Navarro, 2000; Simonson et al., 2009). Besides, Dabaj (2011) conducted a study entitled "Analysis of communication barriers to distance education a review study". He divided the barriers into two main categories: the first lies at the unhidden barriers such as lack of expertise with technology, cost of communication and website access, the second is the hidden barriers that include resistance to new technology, fear from technology and rigid belief in traditional education.

Previous research findings into the online barriers at local level have been inconsistent and contradictory (Almarabeh, 2014). He has conducted a study at the University of Jordan about the students' perceptions of e-learning. The study has revealed some interesting issues on Jordanian students. Firstly, the Jordanian students are very much qualified to utilize e-learning system as they are aware of e-learning benefits. Secondly, the findings indicated that the professed ease of use and students' attitudes toward using e-learning system are directly affected by the perceived usefulness factors. Also, Mashhour and Saleh (2010) evaluated the e-learning in Jordanian universities. In fact, the outcomes have demonstrated in general a titanic acceptance of e-learning in the universities. However, there are still many barriers hinder in the expected future progress. These barriers are poor infrastructure, lack of adequate support of government as well as from the higher education chief administration.

Furthermore, Al Adwan and Smedley (2012) have investigated the factors that could affect the e-learning at two Jordanian universities. The results showed that the organizational infrastructure and the level of the student technological skills are considered as the greatest barriers. The study recommended that development and

training are needed in prior to the process of implementation of sufficiently support of the important step of transition from traditional learning to e-learning.

Finally, as a substance idea of this paper, students in 21 century prefer to try new innovations and ICT tools in their daily life situation, and they have a positive attitude toward learning which involved these technological tools. Smart and Capple (2006) indicated that students were satisfied with online learning and their perception of online learning in elective courses also were positive but students have reported that inadequate time is the main barrier encounters them in using of online learning.

2.1 Ability and Confidence with Online Learning Technology

Wu, Yen, and Marek (2011) have conducted a study about how the online learning boosting both of ability and confidence among EFL students. The sample of the study consisted of 227 non-major EFL learners from the business school of a technical university in central Taiwan. The results of the study showed some positive points. Firstly, there is a clear sign on growing of students' ability in acquiring the knowledge. Secondly, students become more self-confidence academically. This indicates a clear point on the personal skills that students might possess of online learning although some studies have indicated to this point. In fact, teaching staff and students have suffered from the lack of confidence especially when they deal with online learning. This problem may be due to a lack of computers' skills, insufficient training courses and refusing new innovation. However, confidence issues according to teaching staff classified as the main barrier of information and communication technology (ICT) (Aljaraideh & Shdooh, 2014; Totter, Stutz, & Grote, 2006; Pelgrum, 2001).

Detailed examination of online learning by Yau and Fong (2012) showed that younger students have ability to use technology better than older students. Besides, younger students have more confidence compare to elderly students. In contrary Dabaj (2009) has indicated that older students prefer conventional teaching methods such as face-to-face lecture. However, younger students have more ability and confidence in using new technology paralleling with older students.

2.2 Effectiveness of Online Learning

As discussed previously, the online learning brings a massive significance to the education process. The literature on online learning has highlighted several positive impacts on students' outcome. In fact, there are various benefits on online learning such as attract students' attention and make them more involved in any given tasks (Dobrin, 1999; Hoffman, 1999). In contrast, Freeman and Capper (1999) and Arbaugh (2000) have revealed indicated that there is no effectiveness for online learning on students' performance Yet, the effectiveness of online learning always depends on students' technological skills, infrastructure, availability of equipment and perceptions of both of students and teachers toward online learning. However, if students perceived that online learning has no real consequence on their learning as well as on their real life situations' they will absolutely stop to use it. In a nutshell, major studies in third world countries especially in Jordan conclude that the online learning has a great influence on students' academic performance.

Another effectiveness of online learning is the enjoyment. Truthfully, "Learning by doing" or "learning by fun" is a global concept which means students enjoy their learning experiences. Online learning enjoyment is a double-edged sword can be a success factor and may be a hindrance to the applying of online learning in the education setting. Liangxing (2017) stated that learning enjoyment has been classified as one of the main barriers to learn English online by Chinese students. Learning enjoyment also plays a key role in accepting a new technologies and strategies such as mobile learning, online learning and digital learning. A recent systematic literature review by Ahmad et al., (2010) concluded that there are factors affecting students' acceptance of mobile learning, one of those factors is perceived enjoyment. Perceived enjoyment is defined as "the degree to which a person believes that using a particular system would enhance his or her job performance" (Davis, 1989). In addition, adoption of new technology like; online learning and mobile learning is highly depends on certain elements such as; enjoyment, ease of use, usefulness etc. (Sarrab, Al Shibli & Badursha, 2016).

2.3 Infrastructural Barriers

The infrastructure of online learning includes many tools and equipment such as computer, internet network, software as well as technical support. If all these elements were effective enough, they would lead to the good implementation of online learning. A recent study by Zolghadri and Mallahi (2013) indicated that low-speed internet network, communicational problems and difficulty accessing the Internet were the most important topics related to infrastructural barriers of e-learning (e-learning and online learning are used interchangeably). Panda and Mishra (2007) also conducted a study to identify the barriers of e-learning as perceived by faculty members, they concluded that poor access to the internet, lack of computers' needed skills and lack of training courses were

essential barriers could prevent the applying of e-learning in open universities.

2.4 E-Learning in Jordan

Realizing the value of e-learning, Jordan becomes a pioneer in E-learning in the Arab world. To provide E-solutions to the teaching and learning process in all the school levels, the Ministry of Education took serious steps to translate the HM King Abdullah II vision "Jordan will become an IT hub for the region" into reality. Thus, computerizing of the public school was started in 1999 and concluded in 2005. In 2003, Edu-Wave was set up to serve over 1.2 million students in Jordan schools as well as teachers. Nowadays, all the Jordanian schools are computerized and linked utilizing Edu-Wave.

The demand for E-learning, in Jordanian higher institutions, is rising and it is going to rise and that is due to many reasons like the spread of new technology (mobile, taps and laptops) and network website (Facebook, Twitter and WhatsApp). Jordanian higher institutions cannot neglect these emerging innovations and the new means of communications between all the parties of the institutions (Staff, teachers and students); hence they take primitive steps toward E-learning. Some general requirement courses has been teaching online in several universities like University of Jordan, Yarmouk University, Jerash University where no utilization of E-learning in other Jordanian universities. There was an urgent need to set up a specialized committee to deal with the e-learning file in terms of evaluation, assessment and capacity building of e-Learning in Jordanian Universities. One longitudinal study by E-learning steering committee was formed by the ministry of Higher Education and Scientific Research found that to prepare a national e-learning strategy with a mission: "To support institutions of higher education in their move towards embedding E-Learning appropriately using technology to transform education into a learner centric system that is internationally distinguished in its quality and impact, to foster innovation and excellence in teaching and learning, and to support employability of lifelong learning" (E-Learning Steering Committee, 2009).

2.5 Purpose of the Study

The study aims to examine the students' perceptions on online learning and investigates the barriers encountered by Jordanian undergraduate students at Jerash University. The researchers investigate these barriers in order to provide useful insights that can be helpful in the teaching and learning process. The study also aims to evaluate the impact of independent variables (studying year and gender) on the dependent variable (barriers to using online learning).

The objectives of this study are as follows:

1) To identify the barriers on online learning at Jerash University.

2) To investigate whether there are significant differences in the barriers based on studying year and gender.

2.6 Hypothesis of the Study

1) There are no statistically significant differences barriers between genders when using online learning.

2) There are no statistically significant differences in the barriers based on year of study when using online learning.

3) There are no statistically significant differences in the barriers according to the interaction between studying year, and gender variables when using online learning.

3. Methodology

Most research on online learning has been carried out in a quantitative method. One of the greatest well-known tools for assessing this study matter is the questionnaire. Therefore, the researchers developed a questionnaire based on previous studies (González-Gómez et al., 2011; Muilenburg & Berge, 2005; Simonson et al., 2009). The questionnaire has two sections; the first one is related to personal data while the second section is a set of barriers that prevent students from using online learning. This section also has four domains: (a) ability and confidence with online learning technology, (b) effectiveness of online learning, (c) online learning enjoyment and (d) online learning infrastructure. The final version of Likert scale questionnaire consisted of 26 items which represents the main barriers of online learning.

3.1 Validity

The face validity of the questionnaire was checked by all the education faculty members at Jerash University. All their comments, corrections and amendments have been taken into account by the researchers.

3.2 Reliability

The reliability of the study was checked throughout a test implementing on 20 students from outside the study's

sample, with a time difference of two weeks. After collecting data and analyzing students' responses, the Pearson correlation coefficient was 0.82, which is acceptable for the purposes of the current study.

3.3 Sample of the Study

400 respondents from Jerash University took part in a questionnaire instrument. The sample of the study consists of 230 male and 170 female students. The Participants aged between 18 to 24 years chosen randomly from all faculties of university. The simple random sample procedure was used in this study in order to represent all variables of the study (gender and teaching year) as shown in Table 1.

The data was gathered from participants in summer 2017, during the summer semester. The questionnaire was administrated by the researchers and a brief induction as well as aims of the study was provided to the students. The gathered data was analyzed utilizing the Statistical Package for Social Science (SPSS version 16).

Table 1. Distribution of sample members according to gender, studying year variables

Gender	Frequency	Percent
Female	230	57.5
Male	170	42.5
Total	400	100.0
Teaching year	Frequency	Percent
First	86	21.5
Second	114	28.5
Third	99	24.8
Fourth	101	25.3
Total	400	100.0

3.4 Pilot Study

Pilot study involved the first 50 respondents', consist of 25 males and 25 females. The main purpose of the pilot study was to test the strength and consistency of the internal reliability (Cronbach's alpha) of the structured test. It investigates the crucial components of the main study to find out its feasibility. It was also meant to test the clarity of the questionnaire questions and to have a little practice for the study. The pilot study was designed and planned to reflect the actual study to be carried out. After completing the pilot study and after analyzing the data, the researcher found that it is a good hands-on experience. According to Yin (1984), a pilot study is a preliminary trial of the study, which provides an evaluation of the proposed process and may be used to remove flaws. Thus, the main objectives of this pilot study are:

1) To test the reliability and the feasibility of the instruments.

2) To check if there were ambiguities in the items and consequently improve on them.

3) To refine the questionnaire questions.

4) To evaluate the trial data analysis. The pilot study was carried out at Jerash University, in July 2017.

4. Results and Discussion

4.1 Q1: What Are the Barriers of Online Learning at Jerash University from Students' Perspective?

To answer this, means and standard deviations of the online learning barriers were computed as presented in the following table.

Table 2. Means and standard deviations for domains in the questionnaire, ranked in a descending order

Rank	N	Online Barriers Domains	Mean	Std. Deviation
1	4	Online learning infrastructure	3.74	.600
2	2	Effectiveness of online learning	3.44	1.104
3	3	Online learning enjoyment	3.23	1.062
4	1	Ability and confidence with online learning technology	3.16	.509
		Total score	3.39	.609

As revealed from the results, it can be clearly seen that students appear more confident using online learning

technology. The statistics shows that they have enough ability to cope with it. In addition, they are aware of e-learning benefits and online learning usefulness. Thus, they seem to be enjoying their online class in moderate degree (3.16). This was equally alluded to Mashhour and Saleh study (2010) who evaluated the E-learning in Jordanian universities. They concluded that there is a general acceptance of E-learning in universities in spite of the barriers which hinder the process of E-learning. Another research also support the findings also in which agrees with Almarabeh (2014) who stated that Jordanian students are very much qualified to utilize e-learning system then they are aware of E-learning benefits.

In relation to the barriers, findings showed that "online learning infrastructure" domain receives the highest mean (3.74). Thus, the infrastructure is a great barrier that hinders the utilization of online learning in Jerash University. Thus, this finding concurs with Mashhour and Saleh (2010) who found that the major barriers student encounter are the poor infrastructure, lack of adequate support of government and higher education chief administration. Also, Al Adwan and Smedley (2012) who examine the factors that affected the e-learning at two Jordanian universities; and the outcomes indicated that the organizational infrastructure and the level of the student technological skills are considered one of the the greatest barriers.

4.2 Q2: Are There Any Statistically Significant Differences in the Barriers That Faced Students While They Are Using Online Learning According to Studying Year, Gender Variables?

To answer this question, means and standard deviations were statistically calculated as shown in table below.

Table 3. Means, standard deviations and number of cases for the barriers of online learning from students' perspective according to teaching year and gender variables

GENDER	YEAR	Mean	SD	N
Male	1	3.56	.702	45
	2	3.64	.479	61
	3	3.24	.618	67
	4	2.85	.693	57
	Total	3.31	.692	230
Female	1	3.47	.506	41
	2	3.57	.442	53
	3	3.60	.342	32
	4	3.40	.465	44
	Total	3.51	.451	170
Total	1	3.52	.615	86
	2	3.61	.462	114
	3	3.36	.569	99
	4	3.09	.662	101
	Total	3.39	.609	400

Table 3 shows a slight variance in the means of the online learning barriers according to gender and studying year variables, to find out whether there are statistical significant differences in these means, Two- Way- ANOVA was conducted and the results are shown in Table 4.

Table 4. Two-Way-ANOVA results of barriers of online learning related to gender, studying year and the interaction of both variables

Source	Sum of Squares	Df	Mean Square	F	Sig
GENDER	3.443	1	3.443	11.165	.001
YEAR	13.350	3	4.450	14.433	.000
GENDER * YEAR	7.539	3	2.513	8.150	.000
Error	120.869	392	.308		
Corrected Total	147.760	399			

Table 4 shows that:

- There are statistically significant differences at (α=0.05) in the in barriers of online learning due to gender variable in favor of females. The results indicate that female faced greater barriers when they are utilizing online learning compared with male students. Such findings contradict with previous studies such as (Lowes, Lin, & Kinghorn 2016; McSporran & Young, 2001) which indicate that female more interesting in using e-learning than their counterpart. According to results of the study the first null hypothesis which states "there are no statistically significant differences in the barriers that faced students while they are using online learning according to gender variable" was rejected.

- Table 4 Also shows that there are statistically significant differences at (α=0.05) in barriers of online learning due to studying year variable. Scheffe test was used for the differences among freshman, junior, sophomore and seniors students (studying variable) as shown in table 5.

- There are statistically significant differences at (α=0.05) in barriers of online learning due to the interaction between gender and studying year variables as shown in the Figure 1.

Table 5. Scheffe test for the differences among freshman, junior, sophomore and senior students' barriers of utilizing online learning as perceived by students

(I) YEAR	(J) YEAR	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
1	2	-.09	.082	.742	-.32	.14
	3	.16	.085	.318	-.08	.40
	4	.43(*)	.085	.000	.19	.66
2	1	.09	.082	.742	-.14	.32
	3	.25(*)	.079	.019	.03	.47
	4	.52(*)	.079	.000	.30	.74
3	1	-.16	.085	.318	-.40	.08
	2	-.25(*)	.079	.019	-.47	-.03
	4	.27(*)	.082	.014	.04	.50
4	1	-.43(*)	.085	.000	-.66	-.19
	2	-.52(*)	.079	.000	-.74	-.30
	3	-.27(*)	.082	.014	-.50	-.04

* The mean difference is significant at the .05 level.

The Table 5 shows that there are statistically significant difference at (α= 0.05) in barriers of online learning between Junior students and senior students in favor of freshman students, and between junior students from one hand and sophomore and senior students from other hand in favor of second year. In addition, between sophomore students and senior students in favor of sophomore students. It is clear to notice that freshman and junior students face greater barriers in using online learning compared with sophomore and senior students. Therefore, these findings indicate that students once move from one academic year to another; they have or faced fewer barriers when they utilize online learning. Thus, the results of this study contradict with previous study (Amro, Mundy, & Kupczynski, 2015) which indicates age has no impact on academic achievement by using online learning. According to these findings, the second null hypothesis which states "there are no statistically significant differences in the barriers that faced students while they are using online learning according to studying year variable" was rejected.

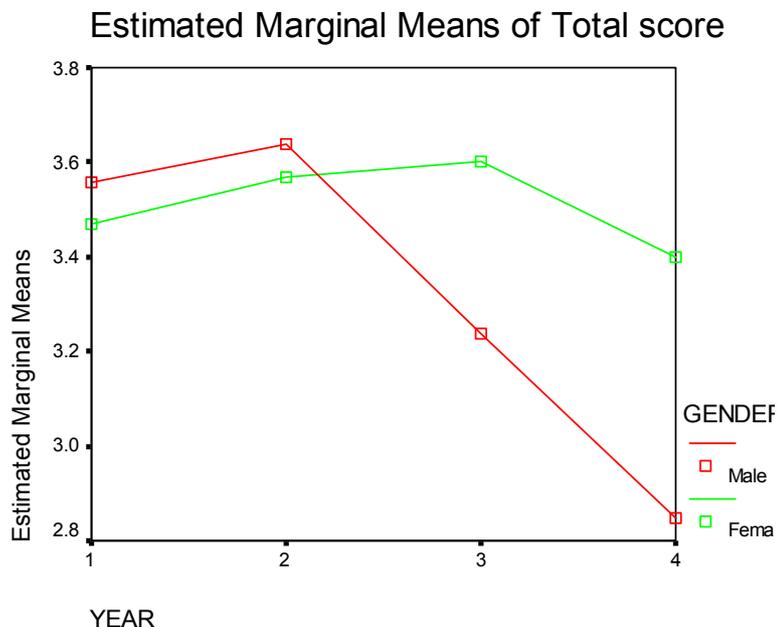## Estimated Marginal Means of Total score

Figure 1. Interaction between gender and studying year variables

Figure 1 undoubtedly shows the impact of teaching year levels (freshman, junior, sophomore and senior students') varies by gender levels (female and male). It means that female in the first and second year has faced barriers when they utilized online learning more than the barriers that male in the first and second year faced. Nevertheless, noticeably, male in the third and fourth year faced barriers in utilizing online learning more than the barriers that female in the third and fourth year. Therefore, the results of the third null hypothesis "there are no statistically significant differences in the barriers that faced students while they are using online learning according to the interaction between gender and studying year variables" was rejected. The outcomes explains that there is a clear difference between male and female in the adaptation of the online learning as well as to overcome the barriers.

5. Conclusion

As the online learning is still at its novelty stage in Jordan, further studies are needed to improve the online learning integration with traditional learning and to reflect the reality of online learning in the higher education institutions. In fact, this study has documented some of the students' barriers and shed the light on the process of online learning at a private university in Jordan. The students' barriers were in moderate degree, whereas female students tend to face greater barriers when they are utilizing online learning compared with male students. Also, it was revealed that there is an interaction between gender and teaching year variables.

Effective online learning necessitates great efforts from the academic institution, administrators, staff and students. The academic institution should keep in mind to enhance the online learning in terms of providing suitable training for teachers and providing financial support to update the labs with modern equipment and stimulating educational programs. Prior to students' enrollment, special online learning inductions should be conducted to raise the students' awareness of the importance of online learning. It is also significant to tackle any obstacle that may occurs. At the end, global developments in the world of technology cannot be neglected, since it is impossible at the present time to separate education from technology.

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