

# Do the instructors differ in their behavioral intention to adopt e-learning based on age, gender, and Internet Experience?

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## Abstract

The aim of this research is to examine if there differences of the age, gender, and internet experience on behavioural intention to adopt e-learning of the instructors in Jordanian universities. The paper takes a social, and technical approach in its investigation by using a research model based on the ANOVA and t-test Analysis to identify if there differences or not. stratified random sampling method was used to select instructors. 245 from 360 instructors which response (68.1%) at three public and three private universities in Jordan. The paper presents some findings on e-learning adoption intention determinants. It also discusses some of the implications of the findings

**Keywords:** age, gender, Internet Experience, Behavioural intentions, e-learning.

## 1. Introduction

This is the age of WWW and we are living in a globalized era, where the world is massively being connected. The E-learning initiatives have connected the whole world and have removed the barrier of age, place, time and socio-economic nature. The technological revolution has created a new dimension in whole education scenario. With the amazing development of Internet, the field of education has tried to exploit web as a communication channel to connect distant learners with their learning resources. Tom Kelly quoted that "E-learning is about information, communication, education and learning" (Sangeeta, Monohar & Shikha, 2011). It is a platform with flexible learning using Information Technology and Communication (ITC) resources, tools and applications, and focusing on interactions among teachers, learners and online environment (Khan, 2007). E-learning usually refers to structured and managed learning experiences, and may involve the use of Internet, CD-ROMs, software, other media and telecommunications. Because of the flexible nature of E-learning and since it provides the right information in right time and in right place, students are now more familiar and feel more comfort in this new education system (Al-Qeisi, 2009; Wagner, Hassanein, & Head, 2008).

E-learning can take many forms and is often associated with the environment on which the course is based. E-learning can take place in either an asynchronous or a synchronous setting. An asynchronous environment is characterized by the delay in the communication time between the learners and instructors. On the other hand, a synchronous communication environment takes place in real time in which the learners and instructors are all communicating simultaneously, but not necessarily in the same location (Jolliffe, Ritter, & Stevens, 2001).

At the micro end of the e-learning, e-learning can be used to supplement face-to-face education, in which activities and information resources are used as components of what is known as blended learning. Blended e-learning involves elements of internet interaction and face-to-face interaction. For example, the instructor can use flash simulations to visualize concepts during traditional lectures. At the macro end of the continuum, there can be comprehensive distance e-learning programmes plus virtual universities (Khan, 2007). Moreover, e-learning applications can differ in the levels of collaboration that they incorporate. Some programmes are totally independent and individual, whilst others involve elements of group learning, such as discussion forums or chat rooms (Wagner et al., 2008).

## 2. Literature review

### 2.1 Brief history of higher education in Jordan

By founding diverse instructors' colleges within the country in the 2<sup>nd</sup> half of the 20<sup>th</sup> century in the 60s, higher education in Jordan instigated. By this, the needed teaching workforce required to fulfill the high demand of school education as a characteristic of that period was provided. By now, there are various kinds of institutions for higher education in Jordan, among which public and private universities, as well as international universities, and community colleges.

His Majesty King Abdullah II has remarkably taken into consideration the higher education by directing the succeeding governments after him to elaborate on higher education and exert efforts on improving it. This is why numerous public and private universities along with international institutions functioning within Jordan have been founded during his Majesty's reign. It needs to be pinpointed that such international programs have originated from the cooperation arrangements signed by Jordan and other foreign universities as well as the

Jordanian universities located in the bordering Arab countries (Jordanian Ministry of Higher Education and Scientific research, 2013).

In Jordan, there are more than twenty public and private universities and the number of enrolled students reached 211,903 Jordanian students versus a sum of 23'053 for the foreign students who joined the Jordan's universities while the number of the instructors was 8008 (Jordanian Ministry of Higher Education and Scientific research, 2013). University of Jordan, being founded in 1962, is referred to as the first public Jordanian university while Yarmouk University was established in 1976. Another eight public universities have been also instituted in diverse parts of the kingdom since then. It is of note that the first policy document for allowing the launch of private universities was certified by the Council of Higher Education in 1989. In the same year, the first Jordanian private university called Al-Ahliyya Amman University came into existence but another 14 private universities have been founded since then. Non-university education is also being provided by the community colleges which were initially established in 1981 as a result of converting and expanding the present teacher colleges. These colleges serve multifaceted purposes such as training the professionals needed to work in various sectors offering study programs for two years following the matriculation, in addition to training the professionals for the fields of education, engineering, business, medical assistance, and social programs (Jordanian Ministry of Higher Education and Scientific Research, 2010). The entire colleges are overseen by and affiliated to Al-Balqa Applied University, as a Jordanian public university (Jordan's Ministry of Higher Education and Scientific Research, 2012).

Distance-learning programs were asked by the government of Jordan to be offered in the institutions of higher education in 2002 with the intention of admitting more foreign and Jordanian students and with the purpose of developing Jordan's IT-related infrastructure and schemes (Castillo, 2002). The first e-Business and e-Learning International Conference was held in 2005 by the Princess Sumaya University for Technology, demonstrating a vibrant devotion of e-learning in Jordan. Two years later, the laptops project was initiated by the Jordanian Ministry of Information and Communications Technology with the aim of excelling the IT knowledge and skills of the Jordanian university students. Such a project enabled the students to buy reasonably priced laptops with little premium rates per month (Ghazal, 2007). In practice, the project has a plan to annually deliver equal to 50,000 laptops to Jordanian university students (Ghazal, 2007).

While the ministry is trying to cast particular attentions on higher education, prioritizing it at a national level, supervising and appraising the strategies of higher education and scientific research has been given a specific emphasis for the years (2007-2012). The aim is twofold; to sustain a clear image of higher education and scientific research, their outputs, as well as their viable competences; and to have the highest possible population of our youngsters admitted by Jordanian universities in agreement with the system's goals which are in turn consistent with our national objectives.

It needs to be accentuated that Jordan could accomplish quantitative and qualitative attainments in this sector notwithstanding the conspicuous challenges experienced by the higher education. In other words, having taken suitable measures to boost the role of higher education enabled Jordan to attain a substantial high-quality improvement so that the nation could pace with contemporary developments adopted by the Jordanian universities. This could be achieved because of different inventiveness for controlling the influence of such challenges in order to apply a comprehensive national strategy for the Jordanian higher education sector.

## **2.2 E-learning in Jordan**

E-learning is determined by Khan (2005) as a groundbreaking method to provide a ingenious, learner-centred, collaborating, and smoothed learning setting for everyone, everywhere, and at any times. This can be indeed fulfilled through employing the elements and means of different digital technologies accompanied by other types of learning materials appropriate for open, dynamic, and distributed learning settings (p.3). McConnell (2006) refers to e-learning as, "networked collaborative e-learning" and defines it as gathering the learners by means of personal computers connected to the internet, concentrating on them functioning as a learning community while sharing sources, information, experience, and accountability via communal collaborative education (p.11). Evidently, this second perspective goes beyond the technology element of e-learning and attaches another deeper level, namely that of the learning theory. Khan (2005) argues that, e-learning is essentially a learner-focused model and underlines the interaction. In the same vein, McConnell (2006) places emphasis on networking people and resources. For McConnell, e-learning is learning in virtual or networked groups and communities. This view of e-learning suggests collaborative learning where the students share, cooperate, provide support and engage in relevant and meaningful processes. The emphasis is emphatically on learning and not on the technology as such (McConnell, 2000).

A research executed by Kirkman et al. (2003) in the center of international development at Harvard University exhibited that Jordan possessed an acceptable rank among world countries in information technology and it took the first rank among Arab countries in internet usage in this region.

Such an attention has momentarily eased developing the national information policies and the associated institutions. While the internet was initially used in Jordan in 1996, the projected population to use it was 127'300 in 2000. Yet, there has been a momentous upsurge in the number of its user. This population was reported to be 1.127 million in 2007, constituting 17.8% of Jordanians (Al-Qeisi, 2009; The World Factbook, 2007). According to the report announced by the Internet World Statistics (2008), Jordan had an internet penetration rate of 18.2% in 2008, implying a 4% enhancement compared to the preceding year (consistent with the ITU 2008 reports).

The major places for Jordanians to have an access to computer and internet are the internet cafes while all the universities in Jordan provide internet accesses offered for the pupils, personnel, and faculty members on campus. On the national level, there have been numerous auspicious projects introduced and advanced with the aim of including the internet's applications into higher education. On the word of the National Center for Human Resources Development (2005), with the purpose of incorporating the IT into higher education, a 5-year project was introduced and practiced in 2000 by the government in Jordan titled "the Higher Education development Project". This project was primarily aimed to excel the infrastructure required for the university networks and IT as well as introducing management information systems (MIS) and electronic library infrastructure at the universities.

As stated by Gasaymeh (2009), the internet communication systems have turn out to be more trustworthy and effectual in Jordan. In addition, it is admitted that the Jordanian government has developed a particular attention to assimilate innovative telecommunication technologies into higher education, changing the country into one of the chief competitors in the Middle East in terms of providing education by means of the internet-based distance education environment (Castillo, 2002).

By the rapid progression of internet technologies along with web based environ, e-learning is regarded to be indispensable to all Arab nations. Using this kind of learning seems to play a role as a panacea to numerous issues related to human development; though, such a panacea seems not to be that smooth as it appears (Altarawneh, 2011). Adopting e-learning in Arab countries is equal to encountering diverse impediments, hurdles, and undertakings, and Jordan is not an exception (abdelraheem, 2004). Most of the e-learning contents are still developed in the same traditional educational ways; the Jordanian government Universities have followed different ways in implementing the e-learning systems (abdelraheem, 2004).

E-Learning has been adopted by most countries around the world and implemented by world-class universities. Unless Jordan takes positive and serious steps toward applying this new system of education, it will be left behind. Like most countries, Jordan is an ambitious country that usually takes into account employing appropriate techniques in order to be educationally developed. By now, such an ambition can be only fulfilled by applying the concept of information and communication technology (ICT) through using different electronic and digital devices in almost all domains of life in Jordan, especially at the universities (Mashhour & Saleh, 2010). Applying e-learning in universities is paramount due to the fact that e-learning enhances the quality of education and reduces the students' expenses. Moreover, it will increase the rate of students' enrollment as they better accept this new system. Therefore, there is an undeniable urge for universities to introduce the new technologies and invest more in providing the students with such technologies in the form of labs and/or well-equipped specialized e-learning centers (Al-Qeisi, 2009).

Nonetheless, Jordan has remained an observer since early 2000 in this area of expansion prompted by the ministry of higher education in adopting the e-learning technology to the teaching and learning processes at the public and private educational institutions (Al-Mobaideen, 2009).

### **2.3 Behavioral Intention to Adopt E-Learning**

Intention is a psychological construct that refers to an individual's motivation in the form of his or her conscious plan to exert effort to perform behavior (Eagly & Chaiken, 1993). The concept of intention occupies a central position in cognitive approaches to understanding human behavior (Tubbs & Ekeberg, 1991). The concept has been tackled in social psychology research since the early 1950's (Dulany, 1961; Fishbein & Ajzen, 1975). Intention has commonly been viewed as the "conative" or behavioural component of the tripartite conception of attitude (Rosenberg & Hovland, 1960). Therefore, measures of attitude and intention have often been applied interchangeably to serve as indicator of a person's attitude (Fishbein & Ajzen, 1975). This view indicates the strong association between the two concepts.

sometimes there can be discrepancies between the intentions and behaviours (Ajzen, 2005). For example, time can affect the individual's intention to carry out an action. As time elapses, the likelihood that the intentions are influenced by unforeseen events increases. Sejwacz, Ajzen and Fishbein (1980) reported a decrease in the correlation between the intentions and behaviours over a two-month period from 0.72 to 0.47 respectively. Nonetheless, there is research to support the predictive validity of the intentions over a 3-month period (Armitage, 2005). Largely, when an appropriate measure of intention is obtained, it will provide the most accurate prediction of the behaviour (Ajzen, 2005).

## **2.4 Differences between instructors in behavioural intention**

the individual users' differences as factors influencing the adoption of e-learning, some key demographic variables such as the experience, gender, and age can offer significant information regarding the characteristics of the population under study. Studying the demographics of the users or potential users as Dwivedi (2008) has asserted may assist the policy makers by identifying specific needs of various segments. Based on a review of the relevant literature, four demographic variables are identified as important in the context of the research and the adoption of e-learning, including the age/ gender, and internet experience .

### **2.4.1 Age**

The age differences have been shown to exist in technology adoption contexts (Venkatesh & Morris , 2000). It is evident that the age significantly influence of the determinants on behaviour intention. For example, in accordance with the findings of Venkatesh et al. (2003).

### **2.4.2 Gender**

Understanding the gender differences in the individual technology adoption and usage decisions has been identified as a significant issue in the technology acceptance literature (Venkatesh et al., 2000). Several studies have found that there are differences between both males and females in their technology-related variables including the adoption (Venkatesh & Morris, 2000; Venkatesh et al., 2000). Generally, the literature reports that the males have more favourable attitudes towards technologies than their counterparts. Females generally experience greater computer anxiety and negative perceptions contrary to the males (Keller et al., 2007). On the other hand, there are some other studies which have found no significant difference between men and women regarding their perceptions and usage of IT (Leong & Saromines-Ganne, 2002).

### **2.4.3 Internet Experience**

Preceding research has shown that experience is a foremost variable in technology adoption (Liao & Lu, 2008; Sun & Zhang, 2006). Taylor and Todd (1995b) investigated the factors that may influence user's intentions to use a computer facility. They found noteworthy dissimilarities in the partial effect of the determinants of use contingent on the experience. In their study of the broadband adoption in Korea, Oh et al. (2003) found that the experience with the technology influenced PU and PEOU. Prior experiences help an individual turn to new technology with ease (Oh et al., 2003). Moreover, the experience influenced the formation of positive attitudes towards the technology by making people feel comfortable and ready to adopt it. When an individual has a previous experience with the technology, he or she is in a better position to adopt it if he or she finds it useful. Likewise, in the context of e-learning adoption, Degennaro (2010), Muhammad et al. (2011), and Pituch and Lee (2006) found that the computer experience influenced BI to adopt e-learning. As e-learning is internet-based, an experience with the internet provides the individual with some knowledge about the advantages of e-learning and about the way of exploiting e-learning with less effort and time .

## **3. Research design**

The sample of study consists of istructors of three public Universities and three private universities in Jordan who have introduced to e-learning. the sampling of this study is done in accordance with regional distributions in Jordan. Jordan is divided into three regions; northern, middle, and southern regions. Three public universities will be chosen randomly from all regions as follows: Yarmouk University from the northern region, Jordan University from the middle region, and Mu'tah University from the southern region. Similarly, three private universities will be chosen randomly as follows: Jerash University from the northern region, applied University from the middle region, and Al-Zaytoonah University from the southern region. The stratified random sampling method was used in sample selection. A total of 360 instructors from the six universities responded to the survey, of which 245 were usable which response (68.1%). Differences between instructors in behavioural intention are explored including: gender, age and internet experience.

The research question sought to uncover differences between the instructors in their BI to adopt e-learning based on selected demographic variables:

Do the instructors differ in their BI based on the selected demographics?

In answering this question, a number of null hypotheses were tested. In order to test the hypotheses, a t-test and a one-way ANOVA were used. Selecting the appropriate statistics was based on the distribution of the dependent variable as well as on the number of the groups being compared.

### 3. Results and discussion

#### 3.1 Age

**H1: There is no significant difference in BI to adopt e-learning between the instructors with different levels of age.**

In order to scrutinize the differences between the participants' age groups and the DV, a One-way ANOVA analysis was employed. In addition, a test on Homogeneity of variances, called the Levene's Test, was accomplished for the variables with the purpose of ascertaining the homogeneity of the research groups, whose results proved accepted homogeneity of variance for the DV;  $p > 0.05$  for all variables. This means that the groups were homogenous. Tables 1, 2, and 3 tabulate the related results.

Table 1

Test of Homogeneity of Variances for the Variables based on the Experience

|    | Levene Statistic | df1 | df2 | Sig. |
|----|------------------|-----|-----|------|
| BI | 1.747            | 3   | 241 | .158 |

Table 2

Descriptive statistics for BI for the groups (age)

|              | N   | M    | SD   | Std. Error |
|--------------|-----|------|------|------------|
| 30-35 years  | 55  | 3.92 | .786 | .106       |
| 36-41 years  | 47  | 3.88 | .613 | .089       |
| 42-47 years  | 75  | 4.06 | .765 | .088       |
| 48 and above | 68  | 4.00 | .751 | .091       |
| Total        | 245 | 3.98 | .738 | .047       |

As illustrated in Tables 2 and 3, for BI the group with 30-35 years old reported a Mean ( $M = 3.92$ ) with Standard Deviation ( $SD = .786$ ) while the group of 36-41 years reported a Mean ( $M = 3.88$ ) with Standard Deviation ( $SD = .613$ ), the group of 42-47 years a Mean ( $M = 4.06$ ) with Standard Deviation ( $SD = .765$ ), and the group 48 and above years reported a Mean ( $M = 4.00$ ) with Standard Deviation ( $SD = .751$ ). An ANOVA test conducted between the means revealed that  $F_{(3,243)} = 0.764$  at  $p < 0.05$ , meaning that no significant differences could be discerned between the BI Mean of the groups. Accordingly, there was enough support to accept this hypothesis.

Table 3

Results of the ANOVA for the age in BI

|                | Sum of Squares | Mean Square | df (f) | F    | Sig. |
|----------------|----------------|-------------|--------|------|------|
| Between groups | 1.253          | .418        | 3      | .764 | .48  |
| Without groups | 131.747        | .547        | 241    |      |      |
| Total          | 133.000        |             |        |      |      |

\* $p < .001$

#### 3.2 Gender

**H2: There is no significant difference in BI between the male and female instructors**

To test this null hypothesis, an independent samples t-test was performed. The mean score of the male instructors ( $M = 3.96$ ,  $SD = .792$ ) was higher than that of their counterparts ( $M = 4.01$ ,  $SD = .671$ ). As Table 4 shows, the t-statistic was  $t(243) = .665$ ,  $p < .05$  (two-tailed). Hence, a non-significant difference was found in BI between the male and female instructors and the null hypothesis could be supported, accordingly.

Table 4

Results of the t-test for the gender differences in BI for the instructors

|                        | Gender | Mean | Std Dev | N   | Levene's Test for Equality of Variances |      | t-test for Equality of Means |     |      |
|------------------------|--------|------|---------|-----|---|------|------------------------------|-----|------|
|                        |        |      |         |     | F                                       | Sig. | t                            | df  | Sig. |
| BI to adopt e-learning | Male   | 3.96 | .792    | 180 | 2.467                                   | .118 | -.433                        | 243 | .665 |



### 3.3 Internet Experience

#### H3: There is no significant difference in BI to adopt e-learning between the instructors with different levels of IE.

In order to test this null hypothesis, a one-way between-groups ANOVA was performed. In addition, a Levene's Test on Homogeneity of variances was performed for the variables with the aim of determining the homogeneity of the research groups, while the results demonstrated accepted homogeneity of variance for the DV;  $p > 0.05$  for all variables. This means that the groups were homogenous. Tables 5, 6 and 7 show the related results.

Table 5

Test of Homogeneity of Variances for the Variables based on the Experience

|    | Levene Statistic | df1 | df2 | Sig. |
|----|------------------|-----|-----|------|
| BI | 2.072            | 5   | 239 | .070 |

Table 6

Descriptive statistics for BI for the groups (Experience)

|                   | N   | M    | SD    | Std.Error |
|-------------------|-----|------|-------|-----------|
| Never used        | 2   | 3.00 | .601  | .086      |
| Less than 1 year  | 8   | 4.23 | .707  | .250      |
| 1 - 2 years       | 51  | 4.01 | .680  | .095      |
| 3 to 4 years      | 114 | 4.02 | .734  | .069      |
| 5 to 6 years      | 52  | 3.96 | .656  | .091      |
| More than 7 years | 18  | 3.62 | 1.044 | .246      |
| Total             | 245 | 3.98 | .738  | .047      |

The mean for the BI group confirming that they never had an internet experience was 3 with an SD of 0.601 whereas the group with Less than 1 year of internet experience attained a mean of 4.2 (SD= 0.7). Moreover, the ones having 1-2 years of internet experience obtained a mean of 4.01 (SD= 0.68). Similarly, the mean for the group with 3 to 4 years was 4.02 showing a Standard Deviation of 0.73. Also, the means for the group with 5 to 6 years of internet experience and the group with the internet experience above 7 years were respectively 3.96 (SD= 0.565) and 3.62 (SD= 1.044). The results for the ANOVA test between the means revealed that  $F(5, 239) = 1.877$ ,  $p = .09$ . Therefore, it was concluded that no statistically significant differences could be observed in the BI Means of the groups, consequently supporting this hypothesis.

Table 7

Results of the ANOVA for the internet experience in BI

|                | Sum of Squares | Mean Square | df (F) | F     | sig |
|----------------|----------------|-------------|--------|-------|-----|
| Between groups | 5.025          | 1.005       | 5      | 1.877 | .09 |
| Without groups | 127.975        | .535        | 239    |       |     |
| Total          | 133.000        |             |        |       |     |

\* $p < .001$

### 4. Implications

The findings of the study have proven that the instructors differ in their intentions to adopt e-learning when compared on the bases of selected demographics. These differences necessitate designing strategies to promote and encourage the adoption of e-learning amongst the less interested groups. The University management should educate its instructors, and the whole society with the advantages of e-learning. Such a goal can be achieved by arranging awareness campaigns on the potential of e-learning in which leaflets or brochures can be provided describing the methods on how it can help broaden and facilitate university studies.

In addition, instructors take part in an e-learning course, there will be further possibility for the instructors and student-generated experiences to be swapped as well as introducing newer instructors to the course. Moreover, improving accessibility to e-learning in terms of cost and quality of internet connection can embolden e-learning adoption amongst the instructors.

### 5. Limitations of the Study

This study suffers from various limitations that have to be borne in mind once it is intended to interpret the obtained results. The main limitation is its reliance on self-report measures as the main source for gathering data. Self-report measures may be biased by social desirability. That is to say, the respondents would give

responses which might be socially pleasing instead of accurately reflecting their thoughts, beliefs, or actions (Nancarrow & Brace, 2000). Because of this, there is a possibility for the validity and reliability of the measurement to be biased and later bias the inferred conclusions. Nevertheless, as pointed out by Armitage and Conner (2001), this method is common in research adopting behavioural decision-making models such as TRA and TPB. In addition, Ajzen (1985) and Hartwick and Barki (1994) maintain that just as objective methods, self-report measures are equally valid because they are more comprehensive, that is, when subjects respond to them, they tend to consider various contexts. On the other hand, objective measures are usually limited in scope, "with the assessment made only in certain contexts or at certain times" (Hartwick & Barki, 1994, p. 460). However, the participants in the current research were not requested to divulge their names and this was for the purpose of minimalizing the impact of social desirability. Another limitation is recruiting a cross-sectional research design for assessing the perceptions on the subject of a rapidly growing technology. Indeed, the current research tended to assess the perceptions and intentions with reference to e-learning only at a single point in time. All the same, it is agreed that such perceptions might endure alterations within eras while the people would obtain more experiences and there will be an enhancement in the system as well.

Another limitation of this study is that its scope is confined to three public and three private universities in Jordan, a geographical area that is different in terms of its population and some cultural aspects from the other more homogeneous and conservative areas in the country. Therefore, the results may not be generalised to the population of Jordan University students.

## 6. Conclusion

This study focused on the Differences between instructors in behavioural in three public and three private Jordanian universities. The outcomes demonstrated that instructors gender age and Internet Experience do not differ in adoption to e-learning.

Further studies could be undertaken to find another factor can differ on instructors to adoption e-learning.

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