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Behavioral Intention of EFL Teachers to Apply E-Learning

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Abstract: E-learning is the future of teaching because of its flexibility in terms of time and place and its ability to provide teachers with a convenient learning environment that enables them to learn efficiently, develop their professional expertise quickly and advance professionally. Considerable researches on e-learning have neglected the role of teacher's perspective in accepting the use of e-learning systems for in-service teachers. This perspective is important to determine their acceptance and behavioral intention as a key to successful anticipation. A questionnaire was distributed to 52 respondents whom they are in-service secondary school Iraqi teachers of English as Foreign Language (EFL) in Al-Rusafa-1/Baghdad. The study uses the Teo's model as the theoretical framework which combines main acceptance models. Moreover, ANOVA test shows that the model is acceptable in Iraq. Using one sample t-test and found that perceived usefulness, perceived ease of use, facilitating conditions, subjective norm and attitude toward use, had a significant positive effect on behavioral intention to use e-learning by in-service Iraqi EFL teachers.

Key words: EFL, electronically supported learning, technology acceptance model

INTRODUCTION

Electronically supported learning (e-learning) was introduced in 1995. Educators agree that e-learning is a set of synchronous and asynchronous instructional methods delivered to learners by using technology (Clark and Mayer, 2008; Elebiary, 2012). E-learning systems also provide online administrative tools, such as management and monitoring modules. Management modules aid teachers in managing online courses, examinations and submitting grades effectively, allowing them to trace and monitor the learning paths and participation of students (Chen, 2011).

The introduction of e-learning to the education field has improved education quality that depends on the desire for and attitude toward the quality performance of all stakeholders in the educational system, especially teachers who play the central role in education and attitude formation of students toward technology (Hu *et al.*, 2003; Ma *et al.*, 2005). Teachers also have a central role in integrating technology in the classroom (Harvey-Woodall, 2009). Moreover, Sun *et al.* (2008) stated that one of the key factors that influence student satisfaction in distance education is the attitude of teachers toward e-learning, including its Perceived Usefulness (PU) and Perceived Ease of Use (PEU).

The present study focuses on the inactive, early stage e-learning system in Iraq under the numerous advantages and rapid development of e-learning systems across the world. While this technology in Iraq is necessary to be investigated and understood, the perception of teachers on e-learning benefits and its role in increasing educational results for students, should be explored (Eftimie, 2013) to estimate the quality of e-learning performance, predict results and determine the factors that drive teachers to accept and use a new technology. The online system was rejected probably for several reasons, including poor electronic infrastructure, weak technology literacy of English teachers and low Internet usage and penetration rate in Iraq (Latchem and Jung, 2009). Therefore, identifying the factors that drive teachers to accept e-learning will improve their productivity and teaching competency.

Researchers had been interested in identifying the conditions or factors that facilitate technology integration into education for several years and models had been developed and tested over time to predict technology acceptance. Among these models, the Technology Acceptance Model (TAM) (Davis, 1989), Theory of Planned Behavior (TPB) (Ajzen, 1991) and Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh *et al.*, 2003), are the most widely used and validated (Sugar *et al.*, 2004).

This study adopted the model presented by Teo (2011) in exploring the behavioral intention to use (BIU) e-learning in teaching English as Foreign Language (EFL) among Iraqi in-service teachers. This model is an integrated and tested model that embodies variables from the three models (TAM, UTAUT, TPB) and maintains the relationships of these models. Moreover, this study determines factors that may motivate Iraqi teachers to be involved in an e-learning environment in Iraqi secondary schools in Al-Rusafa-1/Baghdad. In sum, the purpose of this study is to investigate the level of BIU e-learning among Iraqi teachers and signifies the importance of the proposed factors for Iraqi EFL teachers.

RESEARCH HYPOTHESES

- H1:** The Teo’s model is applicable in Iraqi context.
- H2:** Iraqi EFL teachers have a significant BIU e-learning.

Technology has been developing rapidly and e-learning has consequently become widely adopted and used as an instructional instrument. In this study, the acceptance of EFL teachers on e-learning was investigated, as well as their BIU e-learning. The Teo (2011) model was selected (Fig. 1). The questionnaire of the same study was selected and modified and distributed to in-service Iraqi EFL teachers in Al-Rusafa-1/Baghdad to evaluate their BIU e-learning in teaching, as shown in the appendix.

TECHNOLOGY ACCEPTANCE MODEL (TAM)

Davis (1989) developed TAM which is widely adopted for and renowned in quantitative research. Technology Acceptance Model can successfully predict the acceptance of technology and holds that the

acceptance of a particular technology is based on two kinds of beliefs, namely, PU and PEU (Ajzen and Fishbein, 1977). This model has received numerous accolades from its development and is thus considered as one of the most successful technology-acceptance models (Ajzen and Fishbein, 1977). Figure 2 shows PEU and PU as the main predictors of the attitude and intention of a user toward the actual use of a particular technology. In Fig. 2, the intention and actual use are highly correlated.

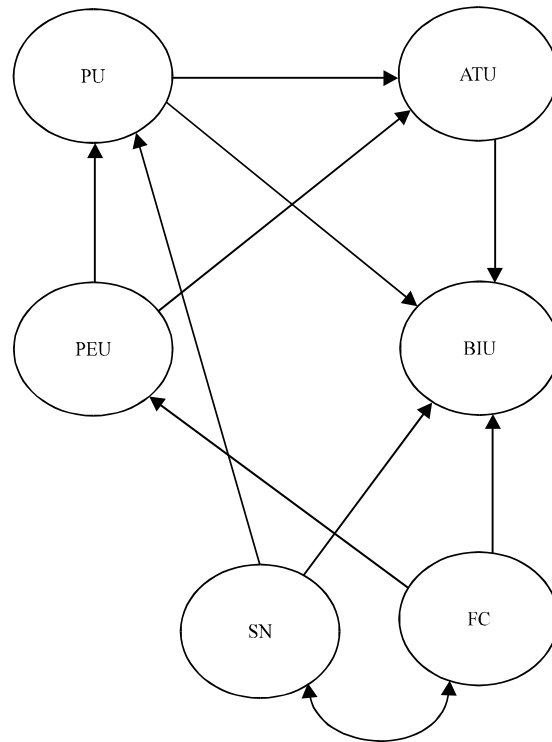


Fig. 1: Teo’s model

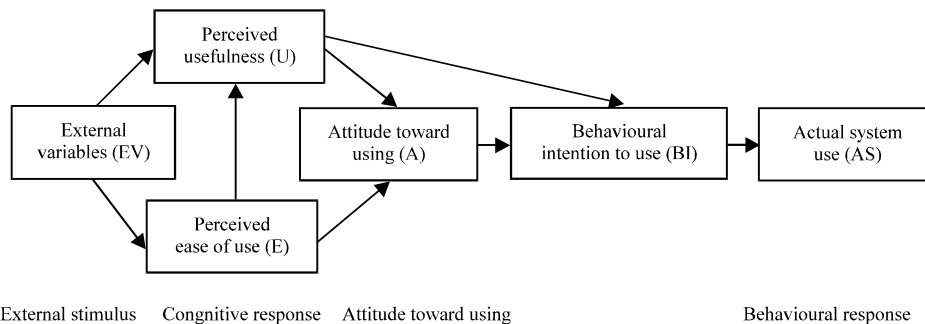


Fig. 2: Technology acceptance model (Davis, 1989)

UNIFIED THEORY OF ACCEPTANCE AND USE OF TECHNOLOGY (UTAUT)

UTAUT was created by Venkatesh *et al.* (2003) after examining the structures of eight models to describe the usage behavior of various information systems (Fig. 3). The UTAUT assumes that the intentions of users to engage in an information system and their behaviors are associated with the following general constructs: Performance expectancy, effort expectancy, facilitating conditions (FC) and social influence. In general, UTAUT assumes that the constructs may be further divided by gender, age, experience and voluntary action to use technology.

THEORY OF PLANNED BEHAVIOR (TPB)

TPB was designed by Ajzen (1991). This theory states that the intention of a person to adopt a behavior is influenced by the direct determinants of intentions,

namely, attitudes toward the behavior, subjective norms (SNs) and perceived behavioral control. Figure 4 presents this relationship.

ACCEPTANCE OF E-LEARNING

Based on research, e-learning and its sub-categories, such as blogs, forums, e-mails for language learning and teaching, network-based language learning and chat rooms, are used by numerous people for educational purposes. E-learning and its sub-categories have been proven highly effective for education (Mohammadi *et al.*, 2011).

Babic (2013) claimed that determining the factors that influence the decisions of teachers to use e-learning technology inside and outside the classroom remains a challenge for researchers, depending on the characteristics of participants in a teaching scenario (e.g., student, content and teacher). He stated that the perception of situational factor characteristics is also

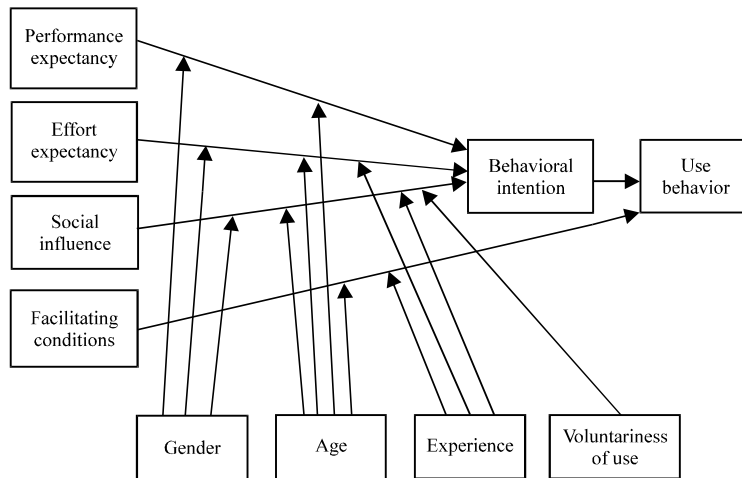


Fig. 3: UTAUT model (Venkatesh *et al.*, 2003)

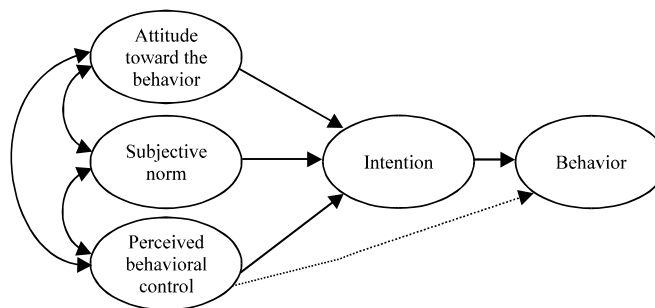


Fig. 4: TPB model (Ajzen, 1991)

connected with the knowledge and skills of teachers in the field of distance education. Situational factors are the extrinsic motivation of teachers to accept distance education which also has a mutual influence on their inner motivation. Thus, situational factors are assumed to have a varying influence on certain groups of teachers.

The study by Pynoo *et al.* (2011) tried to investigate secondary school teachers' acceptance of a Digital Learning Environment (DLE) and UTAUT was chosen as theoretical framework. The study highlighted that there is an increased use of technology in the classroom and showed that to maximize use of a DLE, its usefulness should be demonstrated, while school boards or principals should strongly encourage teachers to start using the DLE. This study also looked at acceptance studies. It means that it looked at e-learning from a different point of view that has been accepted by the teachers or students or not. Since the result comes from two sources questionnaires and user logs, so their results are exact and clear.

Agarwal (2000) explained the following categories of factors associated with the personal acceptance of information technology within organizations: Situational factors, personal differences, organizational factors, social influence and attitudes and beliefs. The acceptance of e-learning was examined using different types of motivational factors and intrinsic factors (e.g., beliefs, anxiety and sense of competence), as well as extrinsic factors (e.g., institutional factors) (Osika *et al.*, 2009; Babic, 2013).

Teachers are the key to successful learning in the classroom or in the educational system, thus their understanding on the precise role of technology in teaching and learning is important (Beauchamp and Kennewell, 2010). Teachers usually assume the effective factors when deploying an e-learning system. Researchers have revealed that the perceptions and attitudes of teachers toward technologies affect their successful use of such technologies in learning and teaching (Paraskeva *et al.*, 2008). Investors in the education system assume that teachers use technology in methods that are in line with their beliefs, thus the technology affects learning and teaching. However, teachers are also challenged by numerous inter-related factors that discourage or encourage technology acceptance. A portion of these factors are technical variables, including FC and personal variables such as SN (Ngai *et al.*, 2007).

With the important task of teachers and their contributions in preventing or encouraging the incorporation of computer technology in educational

systems, the technology acceptance of teachers must be studied in terms of identified influencing variables. The successful use of technology in learning and teaching is based on variables that considerably affect the acceptance of technology by teachers. Moreover, these variables provide an idea on the problems associated with the use of technology by teachers.

FACTORS AFFECTING THE ADOPTION OF E-LEARNING SYSTEMS BY TEACHERS

We selected the factors that were superficially treated before and those that significantly influence the adoption of e-learning systems by teachers. These factors are PU, PEU, ATU, FC and SN.

Perceived Usefulness (PU) and Perceived Ease of Use, (PEU): Generally, PU is the assumption that technology benefits the overall performance of a user. The PEU is the assumption that engaging in technology takes absolutely no effort (Davis, 1989). The TAM shows that the external factors or variables related indirectly affect PU and PEU. The TAM has been employed in various studies to assess the variables and factors that affect the adoption and use of technology. Pituch and Lee (2006) had used TAM with external factors and claimed that PU and PEU positively affected the intention to use e-learning.

Facilitating Conditions (FC): The FC is assumed to be an external factor and affects the general form of the personal perception of technology and the form of resource FC (Taylor and Todd, 1995). Particular problems are associated with external control in technology use in the workplace which consists of support staff. Such external control is a managerial reply to assist users to avoid issues with technology use, particularly during the initial stages of use and learning. This concept is general and includes support, training, knowledge and infrastructure. The existence of technical support is a critical factor in deciding the acceptance of technology in teaching (Korte and Husing, 2006). This case represents the scenario during the early stages of technology adoption.

Venkatesh (2000) also revealed that FC and external control were used as anchors that users may use to notify PEU about information technology. As FC and external control, support is a significant deciding factor of PEU. Research has revealed that e-learning systems that were unsuccessful in fulfilling their objectives did not have contact to any technical support (Soong *et al.*, 2001; Alexander and McKenzie, 1998).

Subjective Norm (SN): Teachers may have the general intention to accept technology but they will accept technology based on the effect of the environment. Generally, SN is the perception of a user that other people assume that the use should not reflect the behavior in focus (Fishbein and Ajzen, 1975). Lee (2006) and Schepers and Wetzels (2007) claimed that SN is an independent variable that positively affects BIU e-learning.

Fishbein and Ajzen (1975) suggested that SN can be a direct determining factor of behavioral intention. Subjective norm directly affects intention because users can decide whether to perform a behavior despite not having the desire to do so or to be involved in the consequences of the behavior. If several significant people assume that they should carry out this behavior, other users will be encouraged to carry out the behavior.

Attitude Toward Use (ATU): The ATU is one's judgment to perform a behavior. Generally, a person who believes that performing a given behavior mostly leads to positive outcomes will hold a positive attitude toward performing the behavior, whereas a person who believes that performing the behavior mostly leads to negative outcomes will hold an unfavorable attitude. According to TAM, BIU is determined by ATU and PU. The relationship between ATU and BIU implies that people tend to perform behaviors toward which they have positive attitudes, when other factors are equal. Several studies have also confirmed the significant relationship between ATU and BIU (Chang and Wang, 2008; Chen *et al.*, 2007; Lin, 2007; Liu *et al.*, 2009; Wu and Chen, 2005).

METHODOLOGY

The survey instrument was distributed among in-service EFL Iraqi teachers to assess their e-learning acceptance and behavioral intention by using the research model of Teo which combines the major acceptance models (TAM, UTAUT, TPB). The survey was also designed to assess the factors that affect the intentions of EFL teachers to adopt e-learning in Iraq.

Research design: This study adopted the model of Teo (2011), but the model was adjusted to fit current research requirements. Further, the model was supported by reviewing related literature and was tested empirically by employing an online survey. This study employed a quantitative approach to achieve its purposes and

determine the acceptance level of teachers toward e-learning at several aspects. The data was analyzed using Statistical Package for the Social Sciences (SPSS) software version 20.0.

Sampling and population: Sekaran (2006) defined population as the entire group of people, events or things of interest that the researcher aims to investigate. The population of this study is the 118 schools in Al-Rusafa-1/Baghdad, where 276 EFL in-service teachers. Wong *et al.* (2012) stated that a study on pre-service teachers, may inadequately reflect the perceptions of in-service teachers regarding the demands of computer use in teaching and learning.

However, Sekaran (2006) defined sampling as selecting a sufficient number of elements from the population that will make the analysis of the sample generalizable to the population. According to the table of the sample size (Sekaran, 2006), the sample of this study is 155 respondents obtained by random sampling through which all of the members have equal chance to be chosen.

Data collection: The data serve as the bases for the conclusions of this study. The data was collected using an online questionnaire sent to the respondents. A total of 155 questionnaires were mailed to the respondents. Respondents were given two weeks to respond. A soft reminder and a follow-up were conducted. A total of 52 completed questionnaires were received. The response rate was 33.5%.

Instrument: The instrument of this study is an online questionnaire adopted from Teo (2011) and modified for the purpose of the current research as shown in the appendix. The instrument was created by "Google Forms" as a helpful tool to collect responses in an online spreadsheet from EFL teachers in Iraq. The questionnaire has many sections: The first section asks for the demographic information of the respondents, such as their age, gender and education. The second section inquires on the perception of the respondents on the factors that influence the intention to accept e-learning. This section includes four PU items, five PEU items, two SN items, three FC items, three ATU items and three BIU items. These items were rated using a five-point scale (i.e., 1 = Strongly disagree and 5 = Strongly agree). All items were written in English.

Data analysis: Data was analyzed using SPSS version 20.0. The descriptive analysis was conducted to obtain

the descriptive information of the respondents (Gay and Airasian, 2000). Reliability analysis was performed to determine the internal consistency of the constructs. Furthermore, the Pearson correlation was used to test the hypotheses.

RESULTS

Descriptive information of the respondents: The study was conducted in Iraq. Responses from 52 respondents were collected. Among the respondents, 33 were males and 19 were females. Most of the respondents (46) were college teachers, while six respondents were master’s degree teachers. Table 1 shows the gender and education of the respondents.

Reliability test: Cronbach’s alpha was employed to measure the internal consistency and then the reliability of the construct. Sekaran (2006) stated that Cronbach’s alpha of more than 0.6 is acceptable and reliable. Table 2 presents the result of the reliability test. The constructs had Cronbach’s alpha of more than 0.6. Thus, the constructs are reliable and acceptable.

Hypotheses testing: Regression analysis was conducted to test the first hypothesis and to find the extent to which the independent variables can explain the variation among the five dependent variables. The value of R² shows that 79% of the variation among the dependent variables can be explained by the variables. Therefore, the independent variables significantly influence the dependent variables. Table 3 shows the model summary.

The ANOVA results showed that the model of Teo (2011) is acceptable. The significance of the relationship

Table 1: Demographic information

Label	Frequency	Percent
Gender		
Male	33	63.5
Female	19	36.5
Total	52	100.0
Education		
College	46	88.5
Master	6	11.5
Total	52	100.0

Table 2: Reliability test

Construct	No. items	Cronbach’s alpha	Status
PU	4	0.93	Reliable
PEU	5	0.94	Reliable
SN	2	0.92	Reliable
FC	3	0.90	Reliable
ATU	3	0.85	Reliable
BIU	3	0.93	Reliable

is 0.00 which is less than the p-value of the relationship (0.05). Therefore, the model is accepted and a statistically significant difference exists in the factors that influence BIU.

Mean score value and one sample t-test: Table 4 presents the mean score values with their indication and interpretation. The Table is adopted from the study of Siron and Tasripan (2012).

Table 5 shows the mean score value of the items along with one sample t-test. The respondents agreed on all the items of the statement. The overall mean score value of PU is 4.30, with agreement on all the items of statements. Similarly, with this agreement, the overall mean score value of PEU, SN, FC, ATU and BIU is 3.92, 4.20, 4.03, 4.24 and 4.50, respectively. Similarly, the responses of the respondents for all the constructs were positive and statistically significant. The test value set to be the middle of the scale. The value of 2.5 is derived (5 divided by 2). All the

Table 3: Model summary

Model	R	R ²	Adjusted R ²	SEE
1	0.887 ^a	0.787	0.764	1.06514

a: Predictors: (Constant), ATU, PU, SN, PEU, FC

Table 4: Mean score values with their indication and interpretation

Mean score	Interpretation
1.00-1.80	Strongly disagree
1.81-2.60	Disagree
2.61-3.40	Moderate agree
3.41-4.20	Agree
4.21-5.00	Strongly agree

Table 5: Mean score value and one sample t-test

Items	Mean	Construct	Test value	Sig.(2-tailed)	Overall mean	Std. deviation
PU1	4.27					0.866
PU2	4.29					0.800
PU3	4.31					0.875
PU4	4.31	PU	2.5	0.000	4.30	0.981
PEU1	3.98					1.057
PEU2	4.02					1.057
PEU3	3.75					1.135
PEU4	3.88					1.003
PEU5	3.96	PEU	2.5	0.000	3.92	1.066
SN1	4.19					1.049
SN2	4.21	SN	2.5	0.000	4.20	0.915
FC1	3.94					1.074
FC2	4.00					0.970
FC3	4.15	FC	2.5	0.000	4.03	0.826
ATU1	4.17					1.216
ATU2	4.17					0.964
ATU3	4.38	ATU	2.5	0.000	4.24	0.796
BIU1	4.44					0.850
BIU2	4.56					0.725
BIU3	4.52	BIU	2.5	0.000	4.50	0.754

means are above 2.5 and that indicates that the responses are statistically significant.

DISCUSSION

This study determined the perceptions and BIU e-learning of in-service teachers. A total of 52 Iraqi EFL teachers participated in the study by filling out the questionnaire mailed to them. We re-examined the model of Teo (2011) and our results were identical to those of Teo (2011). The findings of the study showed that in-service teachers generally have a significant level of BIU e-learning. Most of the in-service teachers recognized the value of employing e-learning in instruction and had stated that they will use e-learning to supplement their teaching processes. However, the actual use of e-learning in Iraq is very limited.

Significant relationship was found between the constructs of TAM, perceived usefulness and perceived ease of use and the BIU. This finding is consistent with other researchers findings who conducted similar studies. For example, Pituch and Lee (2006) had used TAM with external factors and claimed that PU and PEU positively affected the intention to use e-learning. This can be interpreted that the more easy and beneficial the system, the greater the intention to adopt the system.

Many researchers have used the construct of UTAUT in their acceptance models. Teo (2011) model also construct from UTAUT as an important element. The findings of this study are in total agreement with the findings of others researchers. The study found positive and significant influence facilitating condition and social influence. Other researchers include (Pynoo *et al.*, 2011) who used UTAUT as theoretical framework to find the secondary school teachers' acceptance of a Digital Learning Environment (DLE), in four ways (attitude, behavioral intention, self-reported frequency of use and observed near-term use). He stated that teachers hold a positive attitude because of (PU, PEU, FC and Social Influence (SI). The study highlighted that there is an increased use of technology in the classroom and showed that to maximize use of a DLE, its usefulness should be demonstrated, while school boards or principals should strongly encourage teachers to start using the DLE. This study also looked at acceptance studies. It means that it looked at e-learning from a different point of view that has been accepted by the teachers or students, or not. Since the result comes from two sources questionnaires and user logs, so their result is exact and clear.

The third theoretical model that has been used by in the Teo (2011) model is the TPB. Our study found that the

SN significantly and positively influences BIU. This finding is consistent with the findings of other researchers. Pituch and Lee (2006) has conducted a study to find the influence of SN on BIU and he found that SN significantly influences BIU. In similar approach Schepers and Wetzels (2007) claimed that SN is an independent variable that positively affects BIU e-learning.

CONCLUSION

The first hypothesis of this study focuses on the acceptance of the model of Teo (2011). The model summary shows that the model can explain the variation of e-learning adoption by teachers in Iraq. The proposed independent variables explain 79% of the variation in the dependent variables which is a high and significant percentage. Besides the model summary, ANOVA shows that the model is acceptable because its p-value is 0.00 and is less than 0.05. Thus, the model is accepted.

The second hypotheses focuses on the acceptance of teachers on e-learning which was examined using the overall mean score. The perception of teachers shows significant acceptance and agreement on the importance of e-learning and their willingness to use an e-learning system. The interpretation of their acceptance is based on the agreement of the mean value of the items and the overall mean score value of the construct.

In summary, in-service teachers have positive attitudes and high acceptance level of using e-learning to support their teaching. Thus, most in-service teachers are willing to develop and learn e-learning for teaching in the new era.

The current study indicates a willingness of in-service Iraqi teachers to use e-learning and provides guidance regarding conditions that must be in place for the instructional design and The study provides a vision for the Ministry of Education in Iraqi on the possibility, expected results and factors required in implementing e-learning particularly in Al-Rusafa-1/Baghdad. The study recommends the following to secondary schools to improve the utilization of e-learning: (1) Offer training sessions on the use of e-learning tools, (2) Offer workshops on technical issues in using e-learning tools, (3) Reduce teaching loads to give teachers sufficient time for employing e-learning tools, (4) Offer rewards and incentives to teachers who use e-learning tools and (5) Fulfill the e-learning system requirements (e.g., Internet access, computers, a powerful and easy e-learning system, stable power and continuous consultant support) of using e-learning tools.

LIMITATIONS AND FUTURE RESEARCH

This study has some limitations that should be considered. First, this study involves Iraqi EFL secondary school teachers but the suggested model may show different results for other courses and teachers in Iraq or in other countries. In addition, study-based data collection may be better than online data collection, in terms of the response rate and providing reliable responses not only from teachers who can access the Internet and emails but also from others who have limited access or capability to use technologies.

Appendix

Perceived usefulness (PU)

- PU1: Using e-learning enables me to accomplish tasks more quickly
- PU2: Using e-learning improves my performance
- PU3: Using e-learning increases my productivity
- PU4: Using e-learning enhances my effectiveness

Perceived ease of use (PEU)

- PEU1: Learning to use e-learning is easy for me
- PEU2: I find it easy to use e-learning to do what I want to do
- PEU3: My interaction with e-learning does not require much effort
- PEU4: It is easy for me to become skillful at using e-learning
- PEU5: I find e-learning easy to use

Subjective norm (SN)

- SN1: People who influence my behaviour think that I should use e-learning
- SN2: People who are important to me think that I should use e-learning

Facilitating conditions (FC)

- FC1: When I encounter difficulties in using e-learning, a specific person is available to provide assistance
- FC2: When I encounter difficulties in using e-learning, I know where to seek assistance
- FC3: When I encounter difficulties in using e-learning, I am given timely assistance

Attitude towards use (ATU)

- ATU1: Once I start using e-learning, I find it hard to stop
- ATU2: I look forward to those aspects of my job that require the use of e-learning
- ATU3: I like working with e-learning

Behavioural intention to use (BIU)

- BIU1: I intend to continue to use e-learning in the future
- BIU2: I expect that I would use e-learning in the future
- BIU3: I plan to use e-learning in the future

Adapted from Teo (2011)

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