FACTORS INFLUENCING STUDENT'S INTENTION TO USE E-LEARNING SERVICES: AN APPLIED STUDY ON LEBANESE PRIVATE UNIVERSITIES

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Abstract

The study's purpose is to investigate the impact of selected factors (Computer self-efficacy (CSE), subjective norms (SN), perceived enjoyment (PE), perceived usefulness (PU), perceived ease of use (PEOU), attitude) on university students' intention to use e-learning. The objective of this paper is to advance a conceptual framework to better understand the factors that could affect the intention of students to use e-learning in Lebanese universities. The collection of the data was from 444 private universities students in Lebanon. The SEM analysis had been used to assess the influence of these components to intend e-learning system. All proposed relationships are accepted in the framework expected the relationships between Computer self-efficacy (CSE) and subjective norms (SN) on perceived usefulness are rejected. In addition, relationships between subjective norms and perceived enjoyment on perceived ease of use (PEOU) are rejected. Finally, results are discussed then conclusions and future research are presented.

Keywords

1. INTRODUCTION

Because of the pandemic crisis of covid 19, the e-learning system has become a critical constituent of all educational institutions globally (Almanthari *et al.,* 2020; Rahman, 2021). This situation allowed universities to move from traditional physically presence learning process to e-learning (Almanthari *et al.,* 2020; Gloria & Uttal, 2020).

However, e-learning faces various practical difficulties and obstacles (Baldwin-Evans, 2004). Despite investments, technology may be insufficient for learners to completely accept e-learning (Karkar *et al.,* 2020). E-learning in developing nations has been inadequately adopted in certain extent (Salloum *et al.,* 2019). In addition, applying e-learning have not been integrated and are not reached to the satisfactory level due to the shortage of clarifying the factors affecting its acceptance (Salloum *et al.,* 2019).

Few studies analyze variables affecting learner's intention to use e-learning (Regmi & Jones, 2020; Zhang *et al.,* 2020; Kayali & Alaaraj, 2020). By reviewing 107 published articles during ten years with investigating 152 external factors, practitioners revealed that self-efficacy, subjective norms and enjoyment were contemplate as the major extensive employed external factors that extended the technology acceptance model TAM (Abdullah & Ward, 2016).

CSE acts a role in academic major to accept e-learning. Thongsri *et al.* (2020) revealed that the user have the same skills, awareness and attitude towards e-learning even though the differences in academic major. Moreover, Subjective norms are considered as a variable impacting learner's intention to use e-learning services (Bagadia & Bansal, 2016; Nayanajith & Damunupola, 2019b). In addition, customers can be impacted by their enjoyment during technology usage (Yang et al., 2013; Nikou & Economides, 2015; Hussain *et al.,* 2016).

TAM examined the influence of PEOU and PU on attitude and learners' intention to use e-learning (Castiblanco Jimenez *et al.,* 2021). Student's attitude toward using such technology leads to misused e-learning (Bonk *et al.,* 2002; Swan, 2002; Hovermill, 2003; Taat & Francis, 2020). Student's attitude is defined as a variable that hinders the acceptance of e- learning (Kisanga & Ireson, 2015). Facilitating conditions can face difficulties to carry on the task because of the external resources can hinder to execute the usage of e-learning (Kamal *et al.,* 2020; Khechine *et al.,* 2020).

This research will investigate the extent the TAM to which the following variables (computer self-efficacy, subjective norms, perceived enjoyment) may impact learners' intention by using e-learning in order to be suitable for developing nations, such as Lebanon. This study is considered one of few studies to analyze e-learning in Lebanon, so by conducting this research the gap between student's behaviors toward e-learning in western countries and Arab countries will be more close.

According to the above, the next part shows the theoretical background which is divided into two parts, first theories to clarify intention to use e-learning, and next variables' definition. Following by presenting a literature review and improving hypotheses tested in this paper. In addition, the next part debates the methodology of the research. Then the findings and analysis are showed. Finally, conclusion and recommendations for future research are presented.

2. THEORETICAL BACKGROUND

The theoretical background is categorized into two parts, the first part will discuss the theory TAM to clarify intention to use e-learning and in the next part will focus on definition of variables.

To achieve the purposes of this paper, the researcher will validate theory to recognize the phenomenon of usage intention of e-learning. TAM theory helps to analyze to what extent e-learning will be used. The objective of investigating the theory is to better clarify the effect of technology in improving to intend e-learning usage. This paper is based on employing TAM theory with extend on some variables from UTAUT and other variables by testing them toward usage intention of e-learning.

2.1 Technology Acceptance Model (TAM)

Referring to Morris and Dillon (1998), technology acceptance is as "the illustration willingness within a user group to apply information technology (IT) for the goals it was drawn to carry of" (p. 5). TAM usage is to proclaimed people to have authority or not on the system applied (Pearlson & Saunders, 2006). According to Mazman & Usluel (2009), the main thought behind the TAM is that, individual has the tendency to support or not technology to some extent that they have faith how much it is helpful in performing their job better (perceived usefulness) and if a user considered that learning to apply that technology in place have no effort (ease of

use). TAM is one of the strong models for estimating user adoption in particular in information system context such e-learning.

In TAM, attitude toward intention to use is considered as an assessment impact of a negative or positive feeling of people in executing a specific behavior (Ajzen & Fishbein, 2000). The last factor involved in TAM is behavioral intention to use (BIU) which is a dependent variable that examined the actual utilization of the device from users (Morris & Dillon, 1997; Agarwal & Prasad, 1998; Thompson *et al.,* 2006).

Many research used TAM by extending additional constructs (Venkatesh, 2000; Venkatesh & Bala, 2008). For e-learning acceptance, the TAM is a suitable model (Zhang *et al.,* 2008; Arbaugh *et al.,* 2009; Liu *et al.,* 2010; Ghasemi-Varnamkhasti *et al.,* 2011; Baby & Kannammal, 2020). However, this model is unable to represent all crucial variables that may impact on intention to use e-learning. First, individuals may deal with e-learning acceptance not only due to the technology. E-learning is an involvement in innovation. Second, the existence of e-learning due to individuals that play a role for e-learning acceptance. Third, some particular characteristics such as facilitating conditions of e-learning make the difference, comparing from any other information system (Ndonje, 2013).

3. VARIABLES CONCEPTUALIZATION

There is a debate between researchers (Ayeh et al., 2013; Bakar & Razak, 2014) about factors influencing on intention of e-learning usage which is an essential ingredient. Therefore, many studies (Al-Rahmi et al., 2018; Jury, 2007; Tan, 2013) mentioned variables which impact the intention behind e-learning usage. The definition of the dependent and independent variables will be explained as follows.

3.1 Computer Self Efficacy (CSE)

Bandura debated the self-efficacy as the faith in person's abilities to motivate, rational resources and movement needed to suit with certain situations (Bandura & Cervone, 1986). Self-efficacy is an individual's perception to perform a particular job (Gist, 1987).

Furthermore, CSE is considered as the capability of individual's perception is linked to particular computer skills and knowledge (Murphy *et al.,* 1989). Compeau and Higgins (1995), conceptualized the CSE as the person's belief considering their capability of computer's application in IT context. It is the ability of person's beliefs to execute some tasks in order to reach for certain goals (Saadé & Kira, 2009) to execute certain activities related to information technology (Kanwal & Rehman, 2017). Person's behavior is examined by the execution of CSE (Salloum *et al.,* 2019).

3.2 Subjective Norms (SN)

Subjective norms are defined as an individual's faith that influence others thinking, must or must not execute the behavior (Ajzen & Driver, 1992; Taylor & Todd, 1995). That individual is stimulated to observe with the relatives or friends even if this individual does not recommend the conduct (Fishbein & Ajzen, 1977).

Subjective norms are also called by several words, such as social factors, social influence, or social norms, in different theories (Mazman *et al.,* 2009). Subjective norms are the anticipated group pressure to execute some conduct and the stimulation to observe with those pressures (Hyde & White, 2009). Considering the e-learning environment, many friends recommended other learners to apply e-learning (Kanwal & Rehman, 2017). Subjective norms are thoughts in which people have faith to adopt with e-learning system (Al Hamad, 2020).

3.3 Perceived Enjoyment (PE)

Perceived enjoyment (PEN) is considered as the degree of being enjoyable in applying technology (Davis et al., 1992). Perceived enjoyment (PEN) is regarded as an intrinsic stimulation to apply technology (Venkatesh & Speier, 2000). Perceived enjoyment is also defined as how student can evaluate certain services either it is enjoyable or not (Teo & Noyes, 2011). PE is considered as a tool of motivation to improve activity's performance without

concerning any reason that may affect this activity's performance (Teo & Noyes, 2011). (PE) is also defined as an action of applying a particular device is perceived to be enjoyable, without taking into consideration any performance effects resulting from system usage (Alharbi & Drew, 2014). By applying a new system, the enjoyment experienced can decrease the perception of user's effort (Alia, 2017).

3.4 Perceived Usefulness (PU)

Davis (1989), described PU as the extent to which a learner has faith that making use of some systems or using the new technology would have an effect on his/her job achievement. Hence, this variable measures the utilitarian dimension of adopting the technology on the groundwork that users assume that the use of the technology will facilitate them in engaging in the tasks to be developed (Davis, 1989). Specifically, perceived usefulness refers to effectiveness at work, productiveness understood as time saving and the relative importance of the system for the person's work (Davis et al., 1989).PU is described as a level to which a person anticipated in technological know-how as high quality and efficient (Nysveen et al., 2005).

3.5 Perceived Ease of Use (PEOU)

PEOU is described as the level to which a person has faith that the usage of a precise device could be free of force (Lovinger et al., 1985). In addition, according to Davis (1989) who posited that the interconnection between learner and e-learning is intelligible. PEOU considered as an estimator factor in Davis' model. Davis (1989), revealed that with minimum required effort to achieve certain task, people will easily adopt the technology.

Venkatesh (2000), argued that based on user's beliefs concerning the system used, utilizers can perceive ease of use. Venkatesh et al. (2003), displayed that PEOU is a characteristic of utilizors' contrast of the effort engaged in the learning's process. Porter and Donthu (2006), deposits that utilizer will keep away from studying new knowledge due to the perceived situation and chance related with gaining knowledge of that thing.

3.6 Attitude

Triandis (1971) described attitude as individual's character which reflects positive or negative conduct. In addition, attitude is described as the ability of individual's to interact with certain behavior. Attitude suggests an individual's feeling of profitableness or non profitableness towards certain devices (Morris & Dillon, 1997).

Attitude toward intention to use certain devices is described as a person's influence to the system usage (Davis, 1989; Venkatesh et al., 2003). In the framework of TAM, Davis described Attitude to employing as "the level of evaluative impact that a person associates with using the goal system in his or her job" (Davis, 1992). According Bajaj and Nidumolu (1998) who defined attitude as the level to which a person is interested in a particular device. As evaluated by the TPB, attitude and person's behavior are significantly impacted (Boateng et al., 2016).

3.7 Facilitating Conditions (FC)

Facilitating conditions are described as "supportive package for customers of PCs could also be one kind of facilitating situation that can have an effect on system usage" (Thompson et al., 1991, p. 129). FC is described as much as the infrastructure and organizational technical are supportive to help individual using certain device (Venkatesh et al., 2003). FC is considered as a variable in which individual's point of view to manipulate certain conduct (Venkatesh et al., 2008). FC is defined as individual's point of view about existing technical support existed for the usage of a device or system (Venkatesh et al., 2012). FC exist when person's inspiration in using e-learning refers to organizational infrastructure and technical strengths (Tarhini et al., 2017a).

3.8 Intention to Use e-learning

Marketers and researchers are analyzing intention to seize how a good deal effort a person would engage to without a doubt employing any technology (Ajzen & Fishbein, 1980). Davis et al. (1989), described the technology's intention to use as a level of individual that has viewed

aware layout to perform or not to operate certain conduct in future, it is to test the power of person's intention to operate a designated behavior.

Learners' intention increases when learners find the usage of e-learning is beneficial (Park, 2009). Intention to use is additionally defined as an individual's subjective probability that he will perform some conduct (Hsu et al., 2007). In the latest research, practitioners have determined that a greater opportunity to adopt technology is coming from the intention to use such technology (Cheng et al., 2011). In the context of e-learning, intention to use is considered as a key determinant of technology's adoption (Aypay et al., 2012). Intention to use is able to enhance the learning performance of the learners (Al-Rahmi et al., 2019).

4. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

This study is aiming to investigate the factors influencing student intention to use e-learning to better understand the consumer behavior toward this important educational process. In the literature review, the argumentative will be used by mentioned support or refusing for the hypotheses tested by previous research. The purpose is to improve a body of literature that establishes a contrarian viewpoint. Argumentative approaches to examining the literature can be a legitimate and essential form of discourse.

4.1 The effect of Computer self-efficacy (CSE) on Perceived Usefulness

Self-efficacy has been examined considerably in e-learning context (Lent et al., 1984; Compeau & Higgins, 1995; Compeau & Huff, 1999; Madorin & Iwasiw, 1999; Hasan & Elqaq, 2004). Moreover, a higher CSE leads for higher ability for using e-learning system and invest effort to overcome tough limitations as in contrast to people with low CSE (Kanwal & Rehman, 2017). Furthermore, CSE and PU are positively related (Compeau & Higgins, 1995; Venkatesh & Davis, 1996; Venkatesh, 2000; Mathieson et al., 2001; Gong, Xu & Yu, 2004; Ong & Lai, 2006; Pituch & Lee, 2006; Xiong et al., 2013).

However, according to Tarhini et al. (2017) revealed that in e-learning context, there is insignificant relationship among the e-learner's CSE and PU. Furthermore, Alenezi and karim, (2010) argued that CSE had no impact on the learners' intention of e-learning usage. Latest studies found that CSE has an insignificant impact on PU, in e-portfolios acceptance (Abbad et al., 2009; Chatzoglou et al., 2009; Abdullah & Ward., 2016; Chang et al., 2017; Kanwal & Rehman, 2017; Salloum et al., 2019). Pituch & Lee (2016) argued that there is no linkage between self-efficacy, PU and intention of using e-learning (Al-Rahmi et al., 2018). Hence, the hypothesis is as follows:

H1 a. CSE positively affects perceived usefulness in Lebanese private universities.

4.2 The effect of Computer self-efficacy (CSE) on Perceived Ease of Use

CSE plays an important act in terms of its significant impact on PEOU (Igbaria & Iivari, 1995; Madorin & Iwasiw, 1999; Wang et al., 2006; Saadé & Kira, 2009; Abbad et al., 2009; Chatzoglou et al., 2009; Al-Haderi, 2013; Abdullah & Ward, 2016; Chang et al., 2017; Kanwal & Rehman, 2017; Huang et al., 2020; Salloum et al., 2019).

Moreover, a research examined three kinds of systems (interactivity, functionality, response) that expose Self-efficacy had a statistically sizable impact with its effect being limited to PEOU. Specifically, for PEOU, the factor with the strongest influence used to be self-efficacy, with system response and system performance additionally having wonderful direct outcomes (Pituch & Lee, 2006).

According to (Boateng et al., 2016) revealed that CSE and PEOU had an insignificant direct relationship on e-learning adoption. Hence, the hypothesis is as follows:

H2 a. CSE positively affects PEOU in Lebanese private universities.

4.3 The effect of Subjective Norms (SN) on Perceived Usefulness (PU)

The purpose of employing SN is an essential consideration in persons' decision for system usage. However, research results are variable. It is the impact of other people to drive an individual to have an intention toward certain system (Zhou, 2011).

Latest research revealed that SN and PU are significantly related (Taylor & Todd, 1995a; Hsu & Lu, 2004; Lee, 2006; Al-Ammari & Hamad, 2008; van Raaij & Schepers, 2008; Abbad et al., 2009; Park, 2009; Karaali et al., 2011; Motaghian et al., 2013; Rejón-Guardia et al., 2013; Abdullah & Ward, 2016; Al-Gahtani, 2016; Chang et al., 2017; Teo & Zhou, 2017; Revythi & Tselios, 2019; Salloum et al., 2019). However, some studies stated that the relation is insignificant between subjective norms and PU (Abdullah & Ward, 2016; Kanwal & Rehman, 2017; Al-Hamad, 2020). Thus the hypothesis will be as follow:

H1 b. SN is positively related to perceived usefulness in Lebanese private universities.

4.4 The effect of Subjective Norms (SN) on Perceived Ease of Use

Latest studies stated that SN has positively related on PEOU for e-learning (Yuen & Ma, 2008; Abbad et al., 2009; Park, 2009; Park et al., 2012; Motaghian et al., 2013; Al-Gahtani, 2016; Abdullah & Ward, 2016; Chang et al., 2017; Kanwal & Rehman, 2017; Revythi & Tselios, 2019; Salloum et al., 2019; Al-Hamad, 2020).

Furthermore, previous studies stated that the social influence significantly impact on behavioral intention by applying the e-learning system (Beck & Ajzen, 1991; Taylor & Todd, 1995; Agarwal & Prasad, 1997; Al-Gahtani, 2016; Tarhini et al., 2017). However, according to (Yu et al., 2018), found that SN had insignificant impact on intention. Social influence is related to employees' attitude towards e-learning (Yoo & Han, 2013). SI has a significant impact on cloud-based e-learning (Nguyen et al., 2014). Refer to (Chang et al., 2017) found that SN no significantly influences on PEOU for e-learning. Thus the hypothesis will be as follow:
H2 b. subjective Norm positively affects perceived ease of use in Lebanese private universities.

4.5 The effect of Perceived Enjoyment (PE) on Perceived Usefulness

In the context of technology's adoption, enjoyment has been used in several studies due to the fact it is supposed that enjoyment may have a significant impact on the users' views (Al-hawari & Mouakket, 2010). The enjoyment experienced whilst the use of a new computing device can limit the perception of effort being made via the person (Alia, 2017). In addition, according to Al-Mushasha (2013) who posits that feeling enjoyable when using e-learning systems can significantly impacted the PU and PEOU.

Previous research determined that PE is positively associated on perceived usefulness of e-learning, when the learners is conscious that employing e-learning device is enjoyable (Teo et al., 1999; Agarwal & Karahanna, 2000; Koufaris & Hampton-Sosa, 2002; Yi-Cheng et al., 2007; Chatzoglou et al., 2009; Lin et al., 2010; Al-Aulamie et al., 2013; Zare & Yazdanparast, 2013; Abdullah & Ward, 2016; Chang et al., 2017; Salloum et al., 2019; AlHamad, 2020; Siron et al., 2020; li et al., 2021). Hence, the following hypotheses were determined:

H1 c: Perceived enjoyment (PE) has a positive effect on the perceived usefulness in Lebanese private universities.

4.6 The effect of Perceived Enjoyment (PE) on Perceived Ease of Use

PE used to be established in latest studies that PE has a large impact on PEOU (Davis *et al.,* 1992; Teo *et al.,* 1999; Venkatesh, 2000; Moon & Kim, 2001; Koufaris & Hampton-Sosa, 2002; Venkatesh *et al.,* 2002; Chatzoglou *et al.,* 2009; Al-Aulamie *et al.,* 2013; Al-Mushasha, 2013; Ayeh *et al.,* 2013; Zare & Yazdanparast, 2013; Al-Ammary *et al.,* 2014; Abdullah & Ward, 2016; Kanwal & Rehman, 2017; Al-Rahmi *et al.,* 2019; Salloum *et al.,* 2019; AlHamad, 2020; Huang *et al.,* 2020; Siron *et al.,* 2020; li *et al.,* 2021). Enjoyment had influence on the students' intention to e-learning usage (Lee *et al.,* 2005; van der Heijen, 2004; Alenezi & Karim, 2010; Cheng, 2012; Zare & Yazdanparast, 2013).

Moreover, Moon and Kim (2001) found by using a sample of 152 graduate students in Koeran context that PE play an essential act in mediation between PU and intention to use internet. Additionally, Teo and Noyes (2011) posits that PE is significantly related to the intention to use, PU, and PEOU of technology.

Another study examines factors impacting e-learning acceptance and studying of foreign language learning, the outcomes stated that PE have no effect on e-learning adoption and studying toward language students via the mediating role of PU (Rafiee & Abbasian-Naghneh, 2019). Hence, the following hypotheses were proposed:

H2 c: Perceived enjoyment (PE) has a positive effect on the PEOU in Lebanese private universities.

4.7 The effect of Perceived Usefulness on Attitude

According to the literature, PU is positively affected users' conduct intention (BI) (Kibelloh & Bao, 2014), either directly or indirectly (via PEOU) on e-learning (Larmuseau et al., 2018; AlHamad, 2020). Several empirical studies have found that PU is the estimator of IT (Davis, 1989; Davis et al., 1992; Igbaria & Iivari, 1995; Gefen & Straub, 1997; Venkatesh, 2000; Koufaris et al., 2002; Gefen et al., 2003; Legris et al., 2003; Hsu & Lu, 2004; Ong et al., 2004; Cheong & Park, 2005; Lee, 2006; Kulviwat et al., 2009; Lee et al., 2009; Ong & Lai, 2006; Yu et al., 2018).

In addition, a study revealed that satisfaction mediate between PU and attitude in the direction of the device in an educational context (Szymanski & Hise, 2000; Casaló et al., 2010). Additionally, in e-learning context, several research found that the PU is significantly related to attitude. According to the literature, it suggested that PU and attitude toward the system are strongly related (Yang et al., 2011; Ayeh et al., 2013; Salloum et al., 2019). Hence, the following hypothesis is estimated:

H3: Perceived usefulness (PU) has a positive effect on the attitude in Lebanese private universities.

4.8 The effect of Perceived Ease of Use (PEOU) on Attitude

The impact of PEOU in the context of the TAM has been investigated in several studies (Morosan & Jeong, 2008; Huh et al., 2009; Casaló et al., 2010; Moroşan et al., 2010). The outcomes of numerous empirical research have been validated that PEOU and behavioral intention are positively related to accept e-learning, both directly (Davis, 1989; Gefen & Straub, 1997; Venkatesh, 2000; Wang, 2003; Gefen et al., 2003; Al-Ammary & Hamd, 2008; Amin, 2009; Lee et al., 2009; Ong & Lai, 2006) and indirectly, through PU (Davis, 1989; Igbaria & Iivari, 1995; Venkatesh, 2000; Venkatesh & Davis, 2000; Pituch & Lee; 2006; Al-Busaidi, 2013; AlHamad, 2020; Anouze & Alamro, 2019).

In addition, a positive correlation between PEOU and attitude (Park, 2009; Shroff et al., 2011; Teo & Noyes, 2011; Okazaki & dos Santos, 2012; Ayeh et al., 2013; Boateng et al., 2016; Kanwal & Rehman, 2017; Teo et al., 2019). However, according to Karkar et al. (2020) posited that PU and PEOU has the lowest impact comparing to social media websites. Further, Salloum et al. (2019), explored that (PEOU) has no impact on behavioral intention to use (BI) in the e-learning context. Furthermore, to study the acceptance of e-learning system in Zimbabwe context, the study posited that PU is considered as a vital leader toward intention to use. In contrast, PEOU was insignificantly related toward intention to e-learning usage (Rafiee & Abbasian-Naghneh, 2019). Based upon the preceding research, the following hypotheses are proposed:

H4. PEOU has a positive effect on the attitude in Lebanese private universities.

4.9 The effect of Facilitating Conditions (FC) on Intention to Use

Many research have examined the influence of FC as one of the important elements to indicate user's acceptance of technology (Danielsson et al., 2006). The research output shows that (FC) have positive influence towards behavioral intention (BI) (Teo, 2011; Foon & Fah, 2011; Im et al., 2011; Chen & Chan, 2014; Martins et al., 2014; Mutlu & Der, 2017; Raman & Rathakrishnan, 2018; Almaiah & Alyoussef, 2019; Wang et al., 2020). According to Nysveen and Pedersen (2016), an individual who benefits from high access in facilitating conditions, leads

to have a large possibility to intend technology. This linkage is referred to the unified theory of acceptance and use of technology theory UTAUT (Khazaei, 2019).

Due to the lack of research concerning teachers' technology adoption, a research examined the intention to use technology in the view of instructors who teach English language in China. PU and FC have been observed to be considerable estimators of attitude toward use, while PEU used to be (Teo et al., 2018). A research tested the linkage between FC and intention to continue the use proved that the relationship is positive and significant (Tarhini et al., 2013; Bakar & Razak, 2014).

However, facilitating conditions revealed that there is no support toward cloud-based E-learning (CBE-L) (Nguyen et al., 2014). Another study investigated the associations between facilitating conditions and employees' attitudes in the direction of e-learning, the result showed a no positive relationship (Yoo & Han, 2013). According to Tarhini et al. (2017), they found a no effect between behavioral intention and FC. Thus, the following hypotheses are proposed:

H5: Facilitating conditions has a significant impact on intention to use in Lebanese private universities.
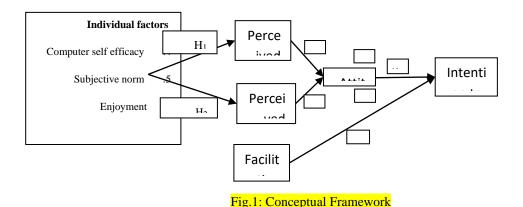
4.10 The effect of Attitude on Intention to Use

Latest studies found a direct and significant association between an individual´s attitude in the direction of an object or conduct and that individual´s conduct (Brown & Stayman, 1992). Empirically, numerous research have additionally confirmed that attitude and intention are positively related (Lee et al., 2005; Cheung &Vogel, 2013) to use technology (Davis, 1989) and to accept or to intend e-learning system usage in different context (Ong et al., 2004; Yu, 2006; Raaij & Schepers, 2008; Wangpipatwong et al., 2008; Alenezi & Karim, 2010; Ayeh et al., 2013; Elkaseh et al., 2014; Yang et al., 2017; Hussein, 2017; Salloum et al., 2019).

According to Bruess (2003) exposed on the acceptance of educational technology context that attitudes have an essential act on impacting scholar's teaching offline. Forgasz (2006) exposed that instructors are encouraged to apply on computers if they perceive that this will increase scholar's enjoyment. Not all scholars respond in similar level to the possibility to be involved in technology. Vale and Leder (2004), reported in his study on secondary students that women were less significant than men about computer-based mathematics. However, a research explored that Attitude had insignificant effect on Intention (Teo & Noyes, 2011; Al-Adwan et al., 2013). Hence, the following hypothesis is formulated:

H6: Attitude has a positive effect on the intention to use in Lebanese private universities.

5. CONCEPTUAL FRAMEWORK

On the basis of extensive literature review a research model based on the theories and concepts is as under:

Fig.1: Conceptual Framework

Source (developed by the researcher)

6. RESEARCH METHODOLOGY

This present research design will be conclusive with cross sectional design, because the objective is to test specific hypotheses and to analyze the linkage between the research variables. In the following sections the researcher will address the measurement, research population and sample, analysis.

6.1 Population and Sample

The population's target of this paper was of all students from Lebanese private universities during the academic year 2020-2021. Accordingly the research population is defined as all universities students who have e-learning experiences from one year and above and studying across the different levels of education in different academic programs (undergraduate, MBA students, Master, PHD student, DBA student) in Lebanon to have the sufficient experience to benefit the research. Purposive sampling is used.

In order to avoid the subjectivity and bias, the research employed the following equation in order to obtain the sample size (Yamane, 1967)

$$n=N/(1+N+(e2))$$

Where:

n= corrected sample size, n=173834/435.585= 399 students.

N = population size,

e = Margin of error = 5%, based on the research condition.

A margin of error is 0.05, a 95% confidence level (Yamane, 1967).

An approximate number of the size will be acquired by Blom Invest Bank to analyze the universities students market, the population size on 2018 is 173,834 students. Data was collected from the distribution of electronic survey. The researcher obtained 445 responses; one of these responses was missed so the total is 444 responses.

6.2 Data Analysis

Overall, 54.8 percent of respondents were women, 33/100 of respondents were aged between 18-28 years, 39.3/100 were aged between 28-38 years, 16.4/100 were aged between 38-48 years and 11.2/100 were older than 48 years. The educational level question showed that 54.4/100 held a bachelor degree, 37.8/100 a Master's degree and 6.7/100 held a PhD. 0.9/100 held DBA. In addition, for the relationships information, 3.4/100 from the respondents were divorced, 42.5/100 were married and 54.2/100 were single.

Table 1: Means, standard deviation

	Accessib ility	Personal Innovati veness	Resistan ce to change	Perceived Usefulness	Perceived ease of use	Facilitating Conditions	Attitu de towar ds use	Intentio n to use
Mean	3.2746	3.2472	3.2528	3.2697	3.2629	3.2255	3.250 6	3.1948
Std. Deviation	0.92464	0.83347	0.94794	1.01288	0.90527	0.94750	0.978 73	0.98106
Minimum	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Maximum	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00

Table 1 shows the descriptive statistics for the study variables. By Comparing with scale possibilities, it displays the mean values, standard deviations for all variables. The mean value of the accessibility was highest at 3.2746, with a standard deviation of 0.92464, perceived usefulness was the second highest mean at 3.2697 with a standard deviation of 1.01288, followed by PEOU (Mean value 3.2629, SD 0.90527), RTC (Mean value 3.2528, SD 0.94794), attitude towards use (Mean value 3.2506, SD 0.97873), Personal innovativeness (Mean value 3.2472, SD 0.83347), facilitating conditions (Mean value 3.2255, SD 0.94750), intention to use (Mean value 3.1948, SD 0.98106) and finally, Perceived Enjoyment (Mean value 3.1025, SD 0.89670).

Table 2: Cronbakh alpha

	N	Cronbach Alfa
Computer Self Efficacy	5	0.927
Subjective norm	5	0.87
Perceived enjoyment	5	0.0898
Perceived Usefulness	4	0.95
Perceived ease of use	4	0.903
Facilitating Conditions	3	0.892
Attitude towards use	4	0.948
Intention to use	3	0.932

Table 2 describes Cronbach''s α is utilized to evaluate the internal consistency of the multi-item scales. Computer self-efficacy measurement was adapted from 5 items on 5 points of Likert scale according to (Salloum et al., 2019) where (α =0.927). The subjective norms measurement was adapted from 5 items on 5 points of Likert scale according to (Salloum et al., 2019) where (α = 0.87). Perceived enjoyment measurement was adapted by 5 items on 5 points of Likert scale according to (Salloum et al., 2019) where (α= 0.0896). Perceived usefulness were based on a study by (Lee, 2006) and evaluated by employing a four-point Likert scale (α 0.95). PEOU was adapted by (Salloum et al., 2019) assessed on a 4 items scale where (α 0.903). Facilitating conditions was adapted by (Teo, 2011) by applying three items where (α 0.892). Attitude toward use is assessed by Salloum et al., 2019) by applying four items where (α 0.948) and finally the intention to use was evaluated by (Roca & Gagné, 2008).with three items where (α 0.932).

Discriminant validity is the enlargement to which a given data construct (here an unobservable variable) is recognize from other constructs (Hair et al., 2006). Thus, high discriminant validity contributes a proof that a statistical construct is exclusive and took some phenomenon that other measures do not. Discriminant validity is employed when cross relationships between index testing different variables are not extremely high and, therefore, relationships between the unobservable variables (computer self-efficacy, subjective norm, perceived enjoyment) are only moderately strong (Kline, 1998).

KMO is Kaiser-Meyer-Olkin test is a statistical measure to determine how suited data is for factor analysis. The test measures sampling adequacy for each variable in the model. The following result of KMO where, the computer self-efficacy (KMO 0.891), subjective norms (KMO 0.847), perceived enjoyment (KMO 0.862), PU (KMO 0.872), PEOU where (KMO 0.82), Facilitating where (KMO 0.74), Attitude toward use is (KMO 0.865) and finally the intention to use where (KMO 0.768).

Table 3: Correlations matrix

		Computer Self Efficacy	Subjective norm	Perceived enjoyment	Perceived Usefulness	Perceived ease of use	Facilitating Conditions	Attitude towards use	Intention to use
Computer Self Efficacy	R	1	.680**	.612**	.567**	.621**	.486**	.531**	.547**
	P								
Subjective norm	R	.680**	1						
	P	0.000							
Perceived enjoyment	R	.612**	.614**	1					
	P	0.000	0.000						
	P	0.000	0.000	0.000					

	P	0.000	0.000	0.000					
	P	0.000	0.000	0.000					
Perceived Usefulness	R	.567**	.586**	.656**	1				
	P	0.000	0.000	0.000					
Perceived ease of use	R	.621**	.536**	.512**	.585**	1			
	P	0.000	0.000	0.000	0.000				
Facilitating Conditions	R	.486**	.448**	.517**	.522**	.666**	1		
	P	0.000	0.000	0.000	0.000	0.000			
Attitude towards use	R	.531**	.479**	.609**	.754**	.665**	.618**	1	
	P	0.000	0.000	0.000	0.000	0.000	0.000		
Intention to use	R	.547**	.521**	.649**	.743**	.678**	.621**	.813**	1
	P	0.000	0.000	0.000	0.000	0.000	0.000	0.000	

* P<0.05, ** P< 0.01, *** p < .001

In addition, table 3 represents correlations between constructs. Also, the p-value for all constructs denotes a significant relationship. After reviewing data, the author observed that all factors are correlated. The research analysis shows that the correlations between CSE with PU and between CSE with PEOU are respectively ($r = .567^{**}$, $p < .001$); ($r = .621^{**}$, $p < .001$) which indicates a positive relationship between these variables. Moreover, SN with PU and PEOU are respectively ($r=.586^{**}$, $p < .001$); ($r=.536^{**}$, $p < .001$). Correlations between Perceived Enjoyment with Perceived Usefulness and Perceived Ease of Use are as follows ($r = .656^{**}$, $p < .001$), ($r = .512^{**}$, $p < .001$) which also indicates that the constructs are positively related.

In addition, PU ($r = .754^{**}$, $p < .001$), PEOU ($r = .665^{**}$, $p < .001$) which means that there are significant and correlated with Attitude. Furthermore, Facilitating Conditions ($r = .621^{**}$, $p < .001$), Attitude ($r = .813^{**}$, $p < .001$) are significant and positively correlated with intention to use.

A multiple regression analysis was conducted using partial least square (PLS) regression from other methods (linear regression, polynomial regression, logistic regression, Quantile regression, ridge regression, Lasso regression,...) because it places minimum limits on sample size, measurement scale, and residual distribution (Chin, 1998). It also combines the use of multiple linear regression and factor analysis to measure model parameters and model structure (Meng-Hsiang et al., 2014). Besides that, this is a successful tool for investigating complex associations.

6.3 Statistical Techniques Used

A structural model was improved and predicted employing structural equation modelling (SEM) techniques. SEM is a method of analyzing statistical data to test hypotheses about linkage among observable and hidden variables (Hoyle & Panter, 1995). The main benefits of this technique are the capability to predict a model incorporating both measurement and structural considerations. In SEM, the measurement model presents the statistical association between the observed and latent variables. SEM techniques have been well established in testing user adoption in IT (Venkatesh et al., 2003). In technology context, lots of published articles have used the SEM approach like Moon and Kim (2001). However, it is not the main purpose of this study to ensure a large debate of SEM techniques which can be exposed in Bollen (2005).

6.4 Assessing the Model Fit

Study's hypothesis model proposed that Computer Self-efficacy, SN, PE, PEOU, PU, Attitude, intention to Use are examined the distinctive constructs; the model fitting values are CMIN/DF =38.373, CFI = 0.835, SRMR = 0.160, RMSEA = 0.290. Almost all the fit indices are not within the recommended levels CMIN/DF< 5, CFI>0.9, SRMR< 0.08, 0.03<RMSEA< 0.08, PClose >0.05; and the value for GFI=0.835 which is less than 0.95 as a typical score. Therefore, the model fit is not ideal.

Table 4: Model Fit

Measure	Estimate	Threshold	Interpretation
CMIN	422.106	--	--
DF	11.000	--	--
CMIN/DF	38.373	Between 1 and 3	Terrible
CFI	0.835	>0.95	Terrible
SRMR	0.160	<0.08	Terrible
RMSEA	0.290	<0.06	Terrible
PClose	0.000	>0.05	Not Estimated

Confirmatory factor analysis (CFA) was employed as the initiative move of the second-move continuance of analysis. In general, modifications are made one at a time since a every single change could impact remaining terms of the result.

4. RESULTS AND DISCUSSIONS

Table 5: Structural relationships and hypotheses testing

			Estimate	S.E.	C.R.	P	Hypothesis
PU	<---	CSE	-.009	.054	-.166	.869	H□Rejected
PU	<---	SN	.099	.057	1.730	.084	H□Rejected
PU	<---	PE	.256	.050	5.116	***	H□Accepted
PEOU	<---	CSE	.228	.054	4.206	***	H□Accepted
PEOU	<---	SN	.028	.058	.485	.628	H□Rejected
PEOU	<---	PE	.017	.051	.341	.733	H□Rejected
ATU	<---	PU	.536	.032	16.913	***	H□Accepted
ATU	<---	PEOU	.368	.035	10.377	***	H□Accepted
ITU	<---	FC	.106	.030	3.550	***	H□Accepted
ITU	<---	ATU	.452	.042	10.878	***	H□Accepted

$p** = <0.01$, $p* <0.05$ Significant at $p** = <0.01$, $p* <0.05$

Refering to Table 5, CSE and Perceived Usefulness are not associated. Therefore, H1a is unaccepted. These outcomes were consistent by the literature, such as (Abbad *et al.,* 2009; Chatzoglou *et al.,* 2009; Abdullah & Ward*.,* 2016; Chang *et al.,* 2017; Kanwal & Rehman*,* 2017; Salloum *et al..,* 2019), but not confirmed with the following studies (Compeau & Higgins, 1995; Venkatesh & Davis, 1996; Venkatesh, 2000; Mathieson *et al.,* 2001;Gong *et al.,* 2004; Ong & Lai, 2006; Pituch & Lee, 2006; Xiong *et al.,* 2013). However the "negative" results are also of interest. Utilizers are more able to employed e-learning device because they have faith that it is easier rather than usefulness.

Moreover, CSE and PEOU are positively related. Therefore, H2a is accepted. Results reveal a common agreement with the literature (Igbaria & Iivari, 1995; Madorin & Iwasiw, 1999; Agarwal *et al.,* 2000; Wang *et al,* 2006; Saadé & Kira, 2009; Abbad *et al.,* 2009; Chatzoglou *et al.,* 2009; Al-Haderi, 2013; Abdullah & Ward*,* 2016; Chang *et al.,* 2017; Kanwal & Rehman*,* 2017; Salloum *et al..,* 2019; Huang, Teo & Scherer, 2020). However, the results disagreed with the findings of (Boateng *et*

al., 2016). Findings clarified that learners who have self-confident to apply e-learning system, with the absence of any assistance, are more advance to be utilizers.

Table 5 shows that the linkage between SN and PU is negatively correlated. This indicated that hypotheses H1b is rejected. These findings are not confirmed with the following studies (Taylor & Todd, 1995a; Venkatesh & Davis, 2000; Hsu & Lu, 2004; Lee, 2006; Al-Ammari & Hamad, 2008; van Raaij & Schepers, 2008; Abbad *et al.,* 2009; Park, 2009; Karaali *et al.,* 2011; Motaghian *et al.,* 2013; Rejon-Guardia *et al.*, 2013; Abdullah & Ward, 2016; Al-Gahtani, 2016; Chang *et al.,* 2017; Teo & Zhou, 2017; Revythi & Tselios, 2019; Salloum *et al.,* 2019). However, results supported some studies which found that the relation is insignificant between subjective norms and PU (Abdullah & Ward*,* 2016; Kanwal & Rehman, 2017; AlHamad, 2020).

In addition, the association between SN and PEOU is negatively correlated, this means that H2b is rejected. These outcomes confirmed the research made by (Chang *et al.,* 2017). However, findings are not confirmed with the following studies in the literature (Yuen & Ma, 2008; Abbad *et al.,* 2009; Park, 2009; Park *et al.,* 2012; Motaghian *et al.,* 2013; Abdullah & Ward*,* 2016; Al-Gahtani, 2016; Chang *et al.,* 2017; Kanwal & Rehman, 2017; Revythi & Tselios, 2019; Salloum *et al.,* 2019;AlHamad, 2020). The improvement of e-learning is inadequate in Lebanon. Therefore, student's predictions of e-learning system did not squeeze their abilities. Indeed findings for subjective norms and PEOU and PU are not linked to each other.

Furthermore, perceived enjoyment and perceived usefulness are significantly related. Therefore, H1c is supported. These results confirmed the literature (Teo *et al.,* 1999; Agarwal & Karahanna, 2000; Koufaris & Hampton-Sosa, 2002; Yi-Cheng *et al., 2007;* Chatzoglou *et al.,* 2009; Lin *et al.,* 2010; Al-Aulamie *et al.,* 2013; Zare & Yazdanparast, 2013; Abdullah & Ward, 2016; Chang *et al.,* 2017; Salloum *et al.,* 2019; Siron *et al.,* 2020; AlHamad, 2020; li *et al.,* 2021).

Moreover, there was a negative relationship between PE and PEOU. Accordingly the hypotheses H2c is rejected. Results contradict the previous studies of (Davis *et al.,* 1992; Teo *et al.,* 1999; Moon & Kim, 2001; Koufaris & Hampton-Sosa, 2002; Venkatesh *et al.,* 2002; Chatzoglou *et al.,* 2009; Al-Aulamie *et al.,* 2012; Al-Mushasha, 2013; Ayeh *et al.,* 2013; Al-Ammary *et al.,* 2014; Ramírez-Correa *et al.,* 2015; Abdullah & Ward, 2016; Kanwal & Rehman, 2017; Al-Rahmi *et al.,* 2019; Salloum *et al.,* 2019; Siron *et al.,* 2020; li *et al.,* 2021; Venkatesh, 2000; Zare & Yazdanparast, 2013; AlHamad, 2020; Huang *et al.,* 2020). Enjoyment had impact on the students' intention of e-learning usage (van der Heijen, 2004; Lee *et al.*, 2005; Alenezi & Karim, 2010; Yang & Lin, 2011; Cheng, 2012; Zare & Yazdanparast, 2013) who found a positive association between PE and PEOU.

Findings also showed that there is a relationship between PU and Attitude. Therefore, H3 is accepted, these outcomes agreed with the results of (Yang *et al.,* 2011; Ayeh *et al.,* 2013; Salloum *et al.,* 2019) which pointed out that there is a positive significant linkage between PU and Attitude. This research also confirmed with the studies (Park, 2009; Teo & Noyes, 2011; Shroff *et al.,* 2011; Okazaki & dos Santos, 2012; Ayeh *et al.,* 2013; Boateng *et al.,* 2016; Kanwal & Rehman, 2017; Teo *et al.,* 2019) revealed that PEOU and attitude had a positive relationship. This resulted that H4 is accepted.

In addition, this study confirmed with (Foon & Fah, 2011; Im *et al.,* 2011; Teo, 2011; Chen & Chan, 2014; Martins *et al.,* 2014; Mutlu & Der, 2017; Raman & Rathakrishnan, 2018; Almaiah & Alyoussef, 2019; Wang *et al.,* 2020) which revealed in their studies, a positive impact between FC and intention to use. Therefore, hypotheses H5 is accepted. Moreover, results stated a positive relation between attitude and intention to use, that means that H6 is accepted. Previous studies showed the same results in different context (Ong *et al.,* 2004; Yu *et al.,* 2007; Raaij & Schepers, 2008; Wangpipatwong *et al.,* 2008; Alenezi & Karim, 2010; Ayeh *et al.,* 2013; Elkaseh *et al.,* 2014; Hussein, 2017; Yang *et al.,* 2017; Salloum *et al.,* 2019; Yu, 2006).

6. CONCLUSIONS AND FUTURE RESEARCH

The purpose of the study is to examine factors which the e-learning system are impacted. The paper is conducted on the learners' private universities of Lebanon. Further, to show the suggested research model relevance and hypothesis used for investigating the intention to adopt e-learning device, the results of data analysis are interesting. (SEM) techniques was employed to test hypotheses of the paper. Tables show the results of data analysis. From the all six hypotheses, some hypotheses were supported and others were not supported. The hypotheses which were accomplished through TAM model (H2a, H1c, H3, H4, H5, and, H6) have been supported. The outcomes present that variables such as PEOU, PU and attitude can enhance the intention to accept e-learning system. The literature review confirmed these outcomes.

The study has some constraints that will be presented in this paragraph. The study was organized using only private universities in Lebanon which is considered as a limitation since the researcher didn't examine factors in other educational institutions such as college, schools. The study could have become more valued by including public university and more educational institutions in Lebanon in the research.

Moreover, the researcher limited his study by limited factors to investigate how e-learning device adoption is impacted and ignored other factors. By enhancing a more genuine clarification of the e-learning device, the variables that impact the intention to use e-learning can be clarified in a much better way. Another limitation was taking only 444 university learners as the members of the research. Data was collected by survey questionnaire. To accomplish more consistent findings, a better instrument and sampling method could be employed and more academies and colleges from other regions such as the Middle East and South Africa by including several developing countries like Kuwait, Ghana, UAE and Bahrain. Additionally, for future studies, more learners will be interrogated to enroll in the research. Moreover, to achieve for better outcomes, focus group, as well as interviews, will be used. Furthermore, by encouraging public or private academies in Middle East or South Africa, e-learning system will be more applicable.

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