



The impact of e-learning strategies on supporting cultural education an empirical study

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Abstract

The purpose of this study is to analyze the growth and development of the literature on e-learning strategy. The literature published indicated there are three main strategies of e-learning (synchronous e-learning, asynchronous e-learning, blended e-learning.), this study tries to identify the impact of the strategy of e-learning on cultural education, and was based on a sample of students within two experimental and control groups, which gives similar or different results by adopting e-learning strategies. The empirical and analytical approach was adopted through the testing procedures by adopting e-learning strategy and gender, the methods of comparing means and causal relationships were adopted. The study found out that there are significant differences between the adoption of e-learning strategy between the experimental and control groups, where the group that adopts e-learning got better scores than the group does not use it, in addition to the most effective strategy is the blended strategy followed by the asynchronous strategy.

Keywords: e-learning strategies, synchronous e-learning, asynchronous e-learning, blended e-learning

Introduction

Information and communication technologies are used in large part of our daily operations, so education is not exempt from its use. Over the past years, the world has witnessed extensive use of the World Wide Web (WWW), where educational institutions have invested heavily in educational technology such as Moodle and Blackboard platforms to support online distance learning. (Martin, 2005) [15]. If we add to the above that the worldwide use of the Internet is increasing, as evidenced by the 2019 report of the internet world stats (Kemp, 2019) [13], and the tremendous technological progress with the growth of technology users as shown in Figure 1, 2. So, the technology must become substantial support for the teaching-learning process.



Fig 1: Global Internet Use 2019

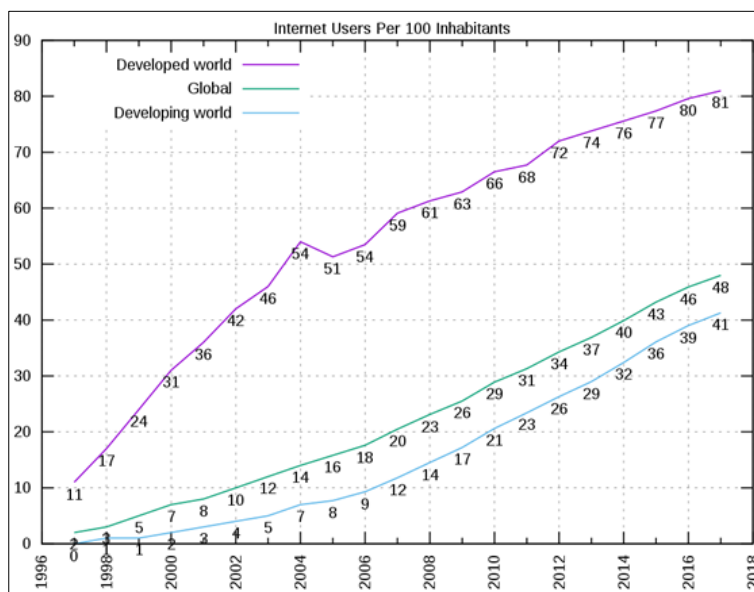


Fig 2: Worldwide Internet users

Information technology (IT) diffusion and adoption processes have been extensively studied over the last decades. An analysis of the literature on innovation-diffusion-acceptance of IT reveals that much of the research focuses on complexity (Rogers, 2003)^[24], ease of use, perceived utility, intended use, attitude, behavioral intent (Venkatesh *et al.*, 2003)^[27], and self-efficacy, among others, to explain how individuals adopt new information technologies.

Currently, educational institutions have joined together to support teachers in the face of the challenge of using digital resources in teaching to promote virtual learning; Consequently, the proliferation of tools, resources, models, and changes in the learning environment has been constant (Orueta & Mengual, 2010)^[18]. In the ANUIES Master Plan for Distance Education (2001) there is a recommendation to operate training programs by educational institutions from the instruction of teachers for the production of resources to the use of those available on the internet, in a way effective that promotes learning and the acquisition of skills in students. Finally, there is a gap in the national context of studies on the influence of e-learning strategy on learning acceptance. Although there is a growing number of papers evaluating the acceptance of technology within the national context (Ferreira *et al.*, 2012)^[8], there are few studies that investigated the influence of e-learning strategy in the technology acceptance process (Ramos & Oliveira, 2010)^[22], in which they evaluate the virtual learning in a distance learning course, pointing out that only the variable access time was significantly different in relation to gender.

With the digital learning portfolio system to support teachers in organizing their own resources to improve teaching and assessment practices with online assessment and tutoring models, the study applies an e-learning strategy for the pre and post-test of the experimental and control group. This paper presents the experience of using learning strategies in teaching students within the framework of the institutional program for pedagogical qualification for cultural education.

Consequently, this study aims to identify the impact of e-learning strategies on cultural education.

Literature Review

E-Learning Strategies

E-Learning is not just software, it can be classified as an information system. Among the existing diversity, it is one of the methods of education (the teaching and learning procedure) that allows flexible training focused on the student. It is based on the World Wide Web (Chu *et al.*, 2009)^[5]. E-learning has a clearly different purpose from other Web applications, and is, in particular, self-learning through fluid material on the Web and a virtual community of collaborative learning. Websites are able to provide one more degree of knowledge and multimedia content. They also employ new pedagogical strategies and different ways of assessing student learning (Parra *et al.*, 2011)^[20]. The application of ICT in education is also known as (electronic learning). E-learning is defined as the utilization of various technological tools that are based on the web for the purpose of educating yourself on, This definition applies to formal education in schools and training programs ongoing in the organizations (Melas *et al.*, 2011)^[16], e-learning has several forms and is delivered on different platforms (Amit, 2015)^[1] as shown in Figure 3.

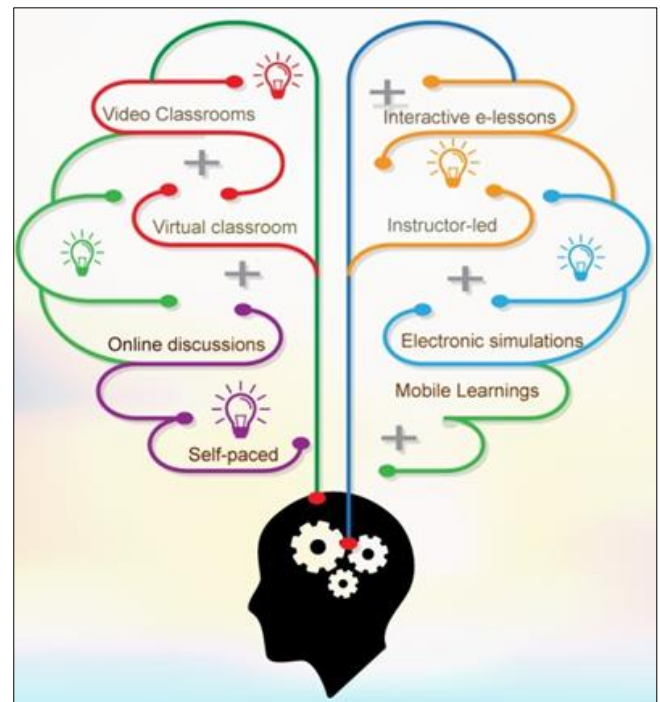


Fig 3: E-Learning Platforms

E-learning needs a strategy for planning ahead, called e-learning strategy which is defined as the comprehensive and systematic action plan which will add value to the educational organization to ensure that interactive continuous learning. There are several types of e-learning strategies, the most common being the following: (Oye *et al.*, 2012)^[19]:

1. Synchronous Learning

This type of learning necessarily requires the presence of teachers and the learner at the same time, and learning materials are used through virtual classrooms or text chat (Hrastinski, 2008)^[11]. This is a direct learning, which is in real time and needs to be the presence of learners at the same time in front of the technological devices to conduct discussion and conversation between learners themselves and teachers through conversation or lessons through the classroom as it is a live interaction between teachers and learners (Omwenga & Rodrigues, 2006)^[17]. This type of learning has the ability to support learners and develop communities and education usually includes broadcasting the voice of the trainer to learners through the Internet audio. The advantages of this type of education is to provide immediate information on the performance of the learner and modify the process of education immediately (Shahabadi & Uplane, 2015)^[25].

2. Asynchronous e-learning

It is not necessary to have a teacher and learners at the same time, the learner can interact with the teacher and inquire what he wants about the educational content and the teacher responds at any time (Hrastinski, 2008)^[11], Asynchronous e-learning tools include e-mail, textile web, mailing lists, discussion groups, file transfers, CDs. Information is exchanged between learners themselves and teachers at successive times (Shahabadi & Uplane, 2015)^[25]. One of the advantages of this type of education is that learners have a lot of interaction and communication and

can receive attention and personal guidance by the mediator and represents self-learning and interactive (Oye *et al.*, 2012) [19].

3. Blended E-Learning

In-class learning strategies are integrated with traditional e-learning tools through the Internet (Littlejohn & Pegler, 2007) [14]. It is a form of teaching or learning (training that integrates) in which e-learning merges with classroom education (traditional) in a single framework, where e-learning tools, computer or network, are used in teaching and lectures, which often take place in classrooms. The real class is equipped with network connectivity (Wu *et al.*, 2010) [28]. It combines both online and offline forms of learning, offline forms occur in traditional chapters (Singh, 2003) [26]. Different communication tools are used together to teach a particular subject. It is live lecture, online communication, self-instruction, electronic performance support systems, learning systems management (Heba & Nouby, 2008) [10].

Cultural Education

Cultural education is a way of learning or transmitting new information to a group of people within a community. The method of learning depends largely on the way that a civilization in dealing with children and young people (Ballengee & Stuhr, 2001) [2]. The culture is transmitted through participation, interaction and experience and is not biologically inherited from parents. The process of a child's acquisition of culture is called

education (Barton & Armstrong, 2007) [4]. With regard to cultural learning, humans create, remember and deal with ideas. They apply a complex system of symbolic meanings in what looks like control mechanisms such as laws, recipes, and guidelines. Cultural education is a human activity in social network learning which allows the transmission of information, knowledge and behaviors between elements that are not possible in other forms of social learning, as well as the psychological development (Dolhun *et al.*, 2003) [6].

Making culture part of the school curriculum will help students understand the importance of teaching and learning (Bamford, 2012) [3]. Research has shown that in some cases, students do not show any interest and enthusiasm in academic learning, but when there is an introduction to culture in the curriculum, students develop an incentive to learn academic concepts. Curriculum and teaching methods must learn about the cultures, values, norms, principles, and lifestyles. Concerning the importance of cultural education and meaning, it is necessary for them to identify other cultures as well as educational institutions, individuals can gain an effective understanding of cultural education through religious places, historical places, museums, heritage sites, research institutions (Kapur, 2019) [12].

Difference between Traditional Learning and E-Learning

Many studies refer to the differences between traditional learning and e-learning (Rashty, 1995; Qahtani & Higgins, 2013) [23, 21], as follows:

Table 1: Comparison between Traditional Learning and E-Learning

	Traditional Learning	eLearning
Classroom Discussions	The teacher usually talks more than the student	The student talks at least as much as or more than the teacher
Learning Process	The learning is conducted with the whole class participating; there is almost no group or individual study	Most of the learning process takes place in groups or by The individual student.
Subject Matter	The teacher conducts the lesson according to the study program and the existing curriculum	The student participates in determining the subject matter; the studying is based on various sources of information, including web data banks and net-experts Located by the student.
Emphases in the Learning Process	The students learn "what" and not "how"; the students and the teachers are busy completing the required subject matter quota; the students are not involved in inquiry-based education and in solving problems, but rather in tasks set by the Teacher.	The students learn "how" and less "what"; the learning includes research study which combines searching for and collecting information from web data banks and authorities on the communications network; the learning is better connected to the real world, the subject matter is richer and includes Material in different formats.
Motivation	The students' motivation is low, and the subject matter is "Distant" from them.	The students' motivation is high due to the involvement in matters that are closer to them and to the use of Technology.
Teacher's Role	The teacher is the authority	The teacher directs the Student to the information.
Location of Learning	The learning takes place within the classroom and the school	The learning takes place with no fixed location
Lesson Structure	The teacher dictates the structure of the lesson and the division of time	The structure of the lesson is affected by the group Dynamics.

Materials and Methods

Sample

The sample was chosen by using the electronic questionnaire. The sample size was (43) students, through social networking. The target sample was identified in terms of age and scientific abilities of students. The sample was divided into two groups experimental (20) and control (23), the experimental group received a scientific program through the application of e-learning, via social networking. The google doc platform for the experimental group was adopted, the control group students were

based on the traditional solutions, and the achievement test was conducted on all study members. The comparison was applied by comparing the means, standard deviations, analyzing the independent samples T in addition to the multi-analysis test, using SPSS v.23 and Amos v.21.

Research Variables

The present study consists of two variables e-learning strategies (ES) and cultural education (CE), and the measurement of e-learning strategies consists of three basic dimensions

(synchronous e-learning (SE), asynchronous e-learning (AE), blended e-learning (BE)) and 20 questions, The questions are applied and the correction is made using the best that applies to it completely gives 5 grades.

Instrument

The researcher adopted general cultural and historical questions to test the level of cultural education resulting from e-learning strategies, for the experimental and control groups, the test was divided into three parts, the first part is the procedure for testing the differences for the pre- and post-test. The second part is testing the differences for gender and strategy, the third part is to test the impact of e-learning strategies on cultural education, the analysis was don according to the following hypotheses:

H1: There are no significant differences between the mean scores of the experimental group that adopts e-learning and the control group that does not adopt e-learning.

H2: There are no significant differences between the mean scores of the experimental group that adopt strategy due to the gender variable.

H3: There are no significant differences between the mean scores of the experimental group that adopt e-learning due to the gender variable.

H4: There are no significant differences between the mean scores of the control group that adopt e-learning due to the gender variable.

H5: There are no significant relation between e-learning strategies and cultural education.

Results

Demographic Profile

Demographic profile of the respondents is shown in Table 2. Which refer to the majority of the respondents are male with (60%) and (40%) are female for experimental group. and (56.5%) male and (43.5%) female for control group.

Table 2: Respondent's Demographic Profile

Variable	Frequency	Percentage
Experimental Group	Male	12 (60%)
	Female	8 (40%)
	Total	20 (100.0%)
Control Group	Male	13 (56.5%)
	Female	10 (43.5%)
	Total	23 (100.0%)

Table 3: Differences between Experimental Group and Control Group

Grade	Group	N	Mean	Std. Deviation	Std. Error	t	F	Sig.	Mean Difference	Sig. (2-tailed)
Grade	Experimental Group	20	82.4000	4.25997	.95256	3.189	4.153	.048	5.53043	.003
	Control Group	23	76.8696	6.65585	1.38784	3.285			5.53043	.002

Hypothesis 2

Table 4 shows that the arithmetic mean for males within the blended strategy group was (85.75), standard deviation (4.026) and standard error (1.42). The mean of males in the asynchronous strategy group (82.5), standard deviation (3.5) and standard error (2.50), The mean of males in the synchronous strategy group (78.0), standard deviation (2.82) and standard error (2.00). Accordingly, the strategy that most commonly adopted by the

Model Adequacy

The model is good by establishing the conditions of conformity good index and depending on the sample size on the quality of the models using the modeling and direct methods with mix mode, the sample size is appropriate to a direct method with mix as it is shown in Figure 4 it is good to fit index for a model quality with (66.7%).

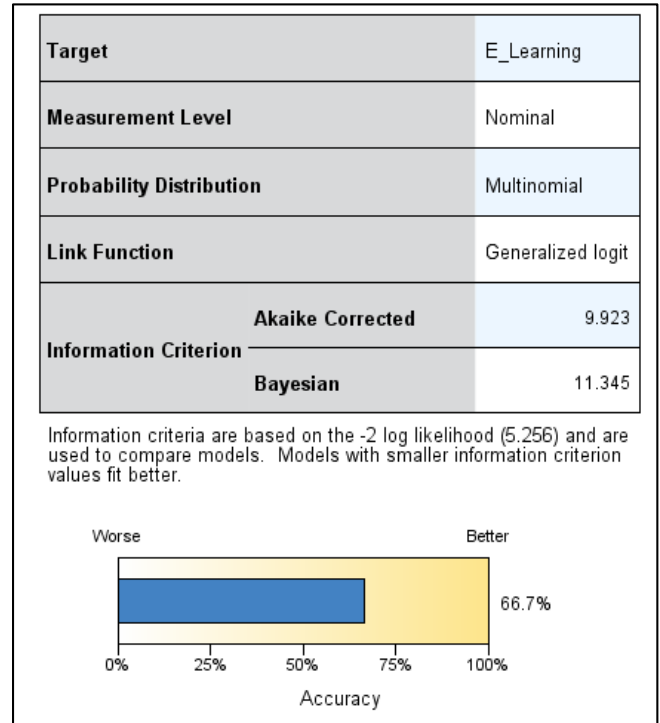


Fig 4: Model Summary

Hypothesis Testing

Hypothesis 1

Table 3 shows that the mean of the experimental group is (0.82.4), standard deviation (4.153) and standard error (0.952). The value of T-test (3.285) and this result is significant at (0.05), The statistical differences indicate the rejection of null hypothesis and acceptance of the hypothesis which indicates that there are significant differences between the mean scores of the experimental and control groups and that the difference is due to the experimental group.

male group is the blended strategy, followed by the asynchronous strategy, and finally the synchronous strategy.

Regarding female group, the results indicated that the most adopted strategy is the blended strategy with arithmetic mean of (81), standard deviation (2.23) and standard error (1.00), followed by the asynchronous strategy with arithmetic mean (78.6), standard deviation (2.30) and standard error (1.33). According to the above, it is clear that the strategy that most used

by all students (males and females) is the blended strategy of (65%)

And then followed by asynchronous strategy of (25%) while the use of the synchronous strategy was weak with (10%).

Table 4: Differences between Experimental Group due to Gender and Strategy

Gender	Strategy	Mean	N	Std. Deviation	Std. Error of Mean	Percentage
Male	Synchronous	78.0000	2	2.82843	2.00000	17%
	Asynchronous	82.5000	2	3.53553	2.50000	17%
	Blended	85.7500	8	4.02670	1.42365	67%
	Total	83.9167	12	4.62126	1.33404	100%
Female	Asynchronous	78.6667	3	2.30940	1.33333	38%
	Blended	81.0000	5	2.23607	1.00000	63%
	Total	80.1250	8	2.41646	.85435	100%
Total	Synchronous	78.0000	2	2.82843	2.00000	10%
	Asynchronous	80.2000	5	3.19374	1.42829	25%
	Blended	83.9231	13	4.11221	1.14052	65%
	Total	82.4000	20	4.25997	.95256	100%

Hypothesis 3

Table 5 shows that the arithmetic mean for males within experimental group was (83.916), standard deviation (4.62) and standard error (1.334). The mean of females in the experimental group (80.125), standard deviation (2.41) and standard error (0.854). And the mean of male is greater than female. T-test value

is (2.393), and this result is significant at (0.05), The statistical differences indicate the rejection of the null hypothesis and the acceptance of the hypothesis which indicates the existence of differences between the mean scores of the experimental group that adopts e-learning due to gender, This means that the gender variable is a determining and important factor for e-learning.

Table 5: Differences between Experimental Groups due to Gender

	Group	N	Mean	Std. Deviation	Std. Error	t	F	Sig.	Mean Difference	Sig. (2-tailed)
Experimental Group	Male	12	83.9167	4.6212	1.3340	2.122	8.09	.011	3.79167	.048
	Female	8	80.1250	2.4164	.85435	2.393			3.79167	.028

Hypothesis 4

Table 6 shows that the arithmetic mean for males within the control group was (79.230), standard deviation (7.595) and standard error (2.106). The mean of females in the control group (73.8), standard deviation (3.583) and standard error (1.133), and the mean of male is greater than female. T-test value is (2.270),

and this result is significant at (0.05), The statistical differences indicate the rejection of the null hypothesis and the acceptance of the hypothesis which indicates the existence of significant differences between the mean scores of the control group that adopts e-learning due to gender, This means that the gender variable is a determining and important factor for e-learning.

Table 6: Differences between Control Group due to Gender

	Group	N	Mean	Std. Deviation	Std. Error	t	F	Sig.	Mean Difference	Sig. (2-tailed)
Control Group	Male	13	79.2308	7.59555	2.10663	2.082	6.615	.018	5.43077	.050
	Female	10	73.8000	3.58391	1.13333	2.270				

Hypothesis 5

Table 7 indicate rejection of null hypothesis and acceptance of alternative hypothesis 5, where there is a positive effect of (0.888) which is a positive and significant effect of the e-learning on cultural education, with (R²= 0.756) and it is significant that P refer to accept value (less than (0.05)), also the value of F is greater than its tabular value, and the level of significance recorded a statistically acceptable value which is (P <0.05). These results support the hypothesis: there is a positive effect of e-learning strategy on cultural education.

Regarding multiple effect of e-learning strategies, Table 8 and Figure 6 show that there are positive effect of e-learning strategies on cultural education, it seems there are positive affect for SE, AE, and BE on CE, the coefficient of determination is (0.703), and the model is significant, F value is (13.410) which is greater than the tabular value, and the significance level was less than 0.05.

The greatest impact is the strategy of (BE) with value of (0.544), secondly, the effect of the strategy of (AE) with (0.270), finally, the impact of the strategy of (SE) with value of (0.114).

Table 7: Effect of E- Learning on Cultural Education

Model	B	Std. Error	SS	df	MS	F	Sig.
E-Learning Strategies	0.538	0.444	7.557	1	7.557	58.763	0.000b
	0.888	0.116	2.444	19	0.129		
Total			10.001	20			
R ²	0.756						

Table 8: Multiple Effect of E-Learning Strategies

Var.	B0	B1	r	R2	Adj-R2	F
SE	0.653	0.114	0.838**	0.703	0.651	13.410
AE		0.270				
BE		0.544				

Ft 0.05 =3.196 Ft 0.01 =5.185 * Sig on a<=0.05 ** sig on a<=0.01

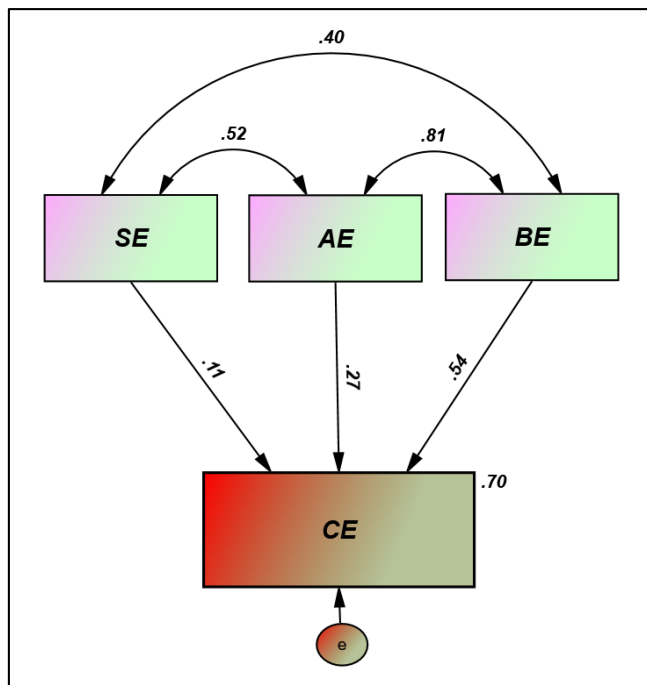


Table 5: Model of Multiple Effect

Discussion and Conclusion

The field of e-learning is influenced by the concepts acquired by the individual. This will affect the principles, methodology, and theory of knowledge as well as the way in which e-learning is applied to achieve positive outputs. A positive approach that views reality in a quantifiable manner will affect the formulation and implementation of the e-learning strategy. Adopting an interpretative approach will also have a clear impact. Numerous literature has indicated that using information technology positively influence education improvement when using discussion, relationships, and social networks. Successful implementation of e-learning depends on building a strategy that meets learners needs and the business objectives of the educational organization (Engelbrecht, 2003)^[7].

This research addressed the question of whether e-learning strategies with gender influence the way of e-learning to support cultural education. Overall, the results suggest that gender difference is a factor affecting e-learning strategies between different gender constructs, thus aligning with recent research on e-learning (Venkatesh & Morris, 2000)^[27] and the e-learning strategies literature itself who have pointed out that gender is a differential factor in e-learning, contrary to (Ramos *et al.*, 2010)^[22] who have pointed out that gender is no longer a differential factor in e-learning strategies.

A possible explanation for the results found here would be that, despite the IT literature pointing to differences, (Venkatesh & Morris, 2000)^[27], computer and internet usage today already help students, which would help explain this reduction in gender differences pointed out in previous research, which is in line with (Engelbrecht, 2003)^[7]. However, this does not mean that perceptions are equal regardless of gender. It was possible to verify gender differences regarding the direct effect of the experiment on the ease of use of the system, in which men had a significantly greater effect than women. This result can be explained by the fact that men generally have more ability to use

computers than women (Freitas *et al.*, 2015)^[9]. This does not mean that they do not use the system but only suggests that men perceive it more easily due to the greater familiarity of the male gender with computers (Venkatesh & Morris, 2000)^[27]. Thus, the evidence points that men tend to find the use of e-learning, under the aspect of computer use, easier than women.

The results proved that the most important e-learning strategy is blended, which combine synchronous and asynchronous, that provides a way to build skills for real-world settings, such as research skills, self-learning, and self-engagement, and helps develop decision-making. In a nutshell, e-learning has become an innovation in teaching and its diffusion and adoption within the teaching-learning environment tend to make the issue of genderless relevant with regard to its use. However, the way men and women deal with the system may differ. As e-learning is also a communication and task accomplishment tool, men tend to be more task-oriented (Freitas *et al.*, 2015)^[9] and women value connectivity and collaboration more than men. Thus, the way to use an e-learning by both genders must be evaluated to determine whether there differences in gender with regard to how each one uses.

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