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The Intention to Use e-Learning in Corporations

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Abstract

The introduction of e-learning has allowed companies to re-engineer the process in which training is conducted, whilst realising the benefits that e-learning has to offer. It is important to identify and understand the driving forces behind users' behavioural intention to use ICT and e-learning in order to improve the chances of success of these projects. The purpose of this paper is to explore the intention to use e-learning in a corporate context. A case study approach with a survey strategy was used and the case was a South African software development company that has identified e-learning as part of its management strategy. A theoretical model of the intention to use e-learning is proposed and is used to guide the research. The results showed that the respondents have positive intentions to use e-learning and positive computer self-efficacy whereas they rated their computer anxiety negatively. From these results and the theoretical model it can be deduced that respondents will have positive intentions to use e-learning. Possible limitations of this study are that it only investigates one company and it does not investigate the relationship between the three constructs and the intention to use.

Keywords

e-Learning, Intention to Use, Self-efficacy, Enjoyment, Computer Anxiety, Survey, and Case Study.

1. Introduction

There has been a transformation in the field of education and learning due to the introduction of the Internet (Akaslan, Law, & Taşkin, 2012). Information and Communication Technology (ICT) has been a prominent driving force behind the economic, commercial and socio-political industry changes (Alias, Zakariah, Ismail, & Aziz, 2012). ICT has also influenced the educational industry substantially by the way in which learning is facilitated. The teaching and training methods of institutions have changed from formal lectures to the use of ICT for learning content delivery (Akaslan et al., 2012). However, some of the characteristics of developing countries can make the diffusion of ICT more challenging (Grazzi & Vergara, 2012). These characteristics include elevated ICT prices, a lack in supporting infrastructure and cultural perceptions of technology.

The introduction of e-learning has created a new paradigm for modern education in a fluctuating technological environment (Alias et al., 2012). Studies show that there are a number of e-learning implementation issues which can lead to e-learning failure (Akaslan et al., 2012; Alias et al., 2012; May, Fessakis, Dimitracopoulou, & George, 2012). E-learning initiatives are subject

to the rapid pace of technology change which contributes to the risk of e-learning failure and the need for implementing organisations to be flexible. e-Learning can be defined as the implementation of Internet technologies in order to deliver an extensive array of solutions to enhance knowledge acquisition and learner performance (Haron & Suriyani, 2010; Liaw, Huang, & Chen, 2007). Various types of organisations such as companies, schools and universities are making use of e-learning as a training, learning and professional development tool (Chikh & Berkani, 2010). The increasing adoption of e-learning in such organisations is due to the Internet offering new opportunities to restructure the learning and knowledge transfer environment (Abbad, 2012). e-Learning also offers such organisations the opportunity to leverage the various advantages that e-learning provides (Hani, Hooshmand, & Mirafzal, 2013).

It is important to establish the behavioural intention to use e-learning because system use is an important indicator of the system's success (Mohammadi, 2015). Behavioural intention can be described as an immediate predecessor of usage behaviour and provides an indication of when a user is prepared to perform a specific behaviour (Tarhini, Hone, & Liu, 2013). Chen and Tseng (2012) found that motivation and self-efficacy both had significant positive effects while computer anxiety had a significant negative effect on the intention towards the usage of e-learning.

The adoption of e-learning initiatives has become one of the most researched topics in prior literature (Haron & Suriyani, 2010; Islam, 2013; Zhang, Wen, Li, Fu, & Cui, 2010). However, most studies that are related to the adoption of e-learning are conducted in university contexts. The purpose of this paper is to investigate the intention to use e-learning in corporate organisations. The structure of the paper is as follows: Section 2 explores the background to e-learning and the intention to use technology and e-learning. In Section 3 the case study and survey design adopted in the study is explained. The analysis of the results is presented in Section 4 and several conclusions and recommendations are made in Section 5.

2. Intention of e-Learning

The corporate environment is progressively realising the potential benefits of e-learning such as its ability to provide cost-effective training for employees and customers (Chen, 2010). The field of e-learning, specifically in the corporate context, was predicted a number of years ago to undergo a paradigm shift from an emerging realm with considerable potential to an established industry with much attention (Barron, 2002). Within the workplace, e-learning has been considered a popular approach to training due to its attributes of flexibility, ease of access, just-in-time delivery, low costs, consistency and customer value (Al-Qahtani, Al-Qahtani, & Al-Misehal, 2013). When operating in highly competitive markets, corporations have to realise the importance of human capital and knowledge in order to be able to leverage employees' skill sets as competitive assets (Weng, Tsai, & Weng, 2015).

The factors associated with e-learning failure must be identified before embarking on such initiatives. There are excessive costs that can be linked to e-learning failures including time wasted as well as monetary expenses which can be avoided by being aware of learner usage intention (Akaslan et al., 2012). A more advanced e-learning environment can be provided for

users by being aware of metrics that may increase users' behavioural intention to use such systems (Hani et al., 2013). An advanced e-learning environment according to Hani et al. (2013) is one that maximises the proficiency of the education system, decreases student dropout rates, increases student pass rates, enhances the success of students related to their education, increases scholarly outputs of students and reduces the costs associated with education system processes (Figure 1). If the aforementioned metrics are catered for in e-learning environments, the success of such systems may drive the intention to use the technology. The study by Hani et al. (2013) was conducted in a university environment and the corporate environment would benefit from more research in the e-learning field.

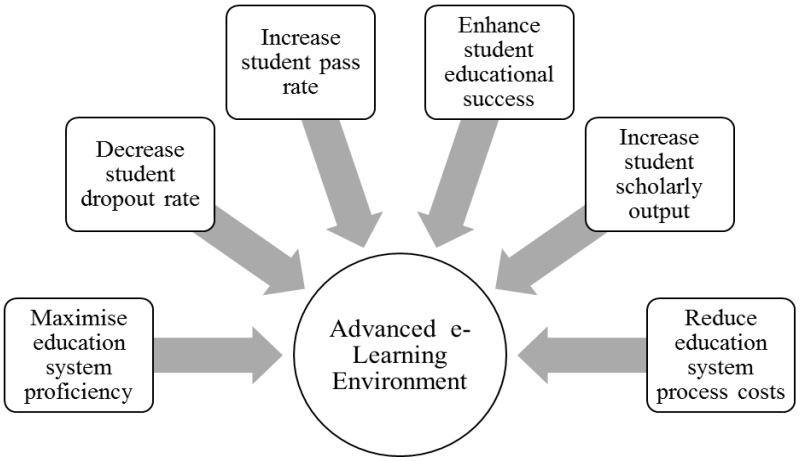

Figure 1: An Advanced e-Learning Environment
Source: (Hani et al., 2013)

The success of an e-learning environment can be determined by the intention to use e-learning (Mohammadi, 2015). Companies that want to avoid the underutilisation of technology and resources wastage must focus on developing effective strategies to ensure the continued intentions of usage or participation (Weng et al., 2015). Smith and Sivo (2012) revealed that by determining the metrics that influence the intention to use educational technologies, educational leaders, designers and facilitators can more easily promote both the application and development thereof. Chatzoglou, Sarigiannidis, Vraimaki and Diamantidis (2009) propose a model for determining the intention to use e-learning. This model incorporates three metrics that can be used for determining the intention to use e-learning, namely:

- computer anxiety;
- self-efficacy of learners; and
- the enjoyment of e-learning.

Intention describes one's subjective probability that one will perform some behaviour (Fishbein & Azjen, 1975). When referring to ***enjoyment*** in the field of IS, it can be defined as the extent to which the task of using the technology or system is perceived to be pleasing, regardless of any performance consequences that may be anticipated (Davis, Bagozzi, & Warshaw, 1992). Higher enjoyment of using a system positively influences the intention to use a system (Chatzoglou et al., 2009; Davis et al., 1992). ***Computer anxiety*** describes the obstruction of the intention of one to use a system, due to the anxiety stemming from the use of a computer, which in turn hinders

one from being able to complete tasks using a computer (Igbaria & Parasuraman, 1989). When users have computer anxiety, they may experience feelings of uneasiness, apprehensiveness or fear when thinking about current or future use of computers. Due to computers being the essential tool of e-learning, anxiety which stems from the use thereof, would obstruct the intention to use such a system (Chatzoglou et al., 2009). The intention to use e-learning was used as the outcome variable in this study because it has been found to be a reliable predictor of actual technology use (Azjen, 1991; Teo & Zhou, 2014; Turner, Kitchenham, Brereton, Charters, & Budgen, 2010). ***Self-efficacy*** relates to the belief in one's capabilities to initiate one's motivation, cognitive resources and courses of action required to meet the demands of a given situation (Filho & Isoni, 2013; Wood & Bandura, 1989). Bandura (1986) further explained that self-efficacy is not associated with the skills one has, but rather with the judgements and belief of what one can do with those skills possessed. Self-efficacy has a negative effect on computer anxiety as the sense of enjoyment of using a system can reduce the anxiety of using computers (Chatzoglou et al., 2009; Yi & Hwang, 2003).

3. Research Methodology

The purpose of this paper is to investigate and report on the intention to use e-learning in a corporate context. The main research question to be answered in this paper is "What is the intention to use e-learning in a corporate context?". An in-depth literature review of studies related to the intention to use e-learning was undertaken. The theoretical model derived by the authors (Figure 2) was based primarily on the model proposed by Chatzoglou et al. (2009). It has been decided to exclude the metrics of learning goal orientation, management support, perceived usefulness and perceived ease of use from the model due to the irrelevance of these metrics to the case study. The intention to use e-learning can be determined by measuring three metrics, namely: computer anxiety, self-efficacy and enjoyment.

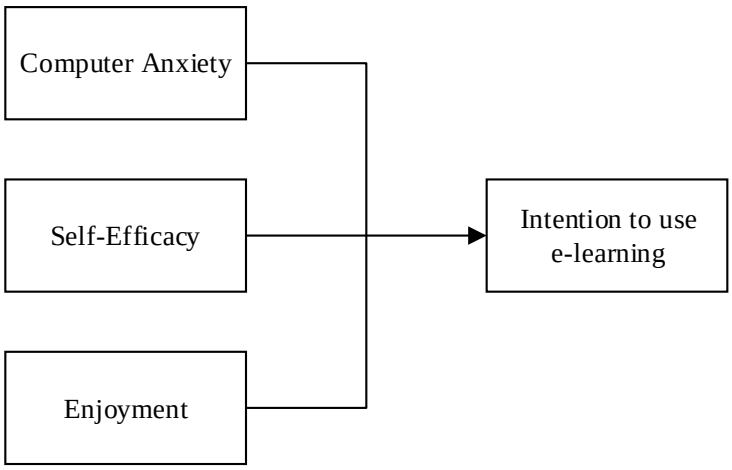

Figure 2: Intention to use e-Learning Model

3.1 Case Study

A case study research strategy was used and this strategy can be described as being about real people and contexts which usually rely on inductive reasoning and highlight the reader's

understanding of the phenomenon being focused on in the study (White, Drew, & Hay, 2009; Willis, 2007). Willis (2007) also describes case study research strategies as allowing researchers to gather rich, detailed data in authentic settings. Case study research also enables the understanding of human behaviour to be interpreted in a social context as lived experience and can be done without predetermined hypotheses.

The case study is a South African software development company, specialising in the development of technological solutions for the South African property industry. For purposes of anonymity, the company will be referred to as SysCompSA. The company's vision for e-learning is for it to form an integral part of customers' interaction with their software. Prior to the implementation of e-learning, customers were trained to use the software by means of face-to-face courses. SysCompSA would like to migrate these courses to an e-learning environment in order to reduce costs and to introduce a more effective learning process. Some of the courses are partially available online but usage of these courses is low. One of SysCompSA's goals is therefore to improve the usage of the current e-learning system. In order to do this the intention of customers to use e-learning needs to be investigated so as to devise a strategy to convince employees and customers to move from traditional face-to-face training to using e-learning.

In order to answer the research question a survey was conducted to measure the intention of SysCompSA's customers to use e-learning where the variables of computer anxiety, self-efficacy and enjoyment were measured. The variables of the model were adapted from the study conducted by Chatzoglou et al. (2009) in order to meet the requirements of this study. The e-Learning survey was used to source data using an online survey tool known as Google Forms. The structured survey was distributed electronically to the customers that are using SysCompSA's software. There were 94 respondents. Of the 94 respondents, 52 respondents answered a section related to intention and 42 respondents answered a section related to the satisfaction of using e-learning, however, satisfaction will not be reported on as it is beyond the scope of this paper. These respondents have varying levels of expertise and familiarity in the field of e-learning in the corporate context. The items in the survey were measured using a variety of techniques including five-point semantic differential scales where there were opposing levels such as *Least preferred* and *Most preferred*.

3.2 Survey Validity

The validity of the survey was established through a survey pre-testing process (Zikmund, 2003). Two academic expert users and three industry expert users were asked to make remarks regarding the research survey instructions and to point out any drawbacks or lack of clarity of the items observed. Academic Expert 1 made comments to ensure that the survey items would produce the results that the study aimed to measure, namely internal validity and to ensure that the survey is aligned with the literature surrounding the problem at hand. Academic Expert 2 was an experienced statistician and assessed the statistical validity of the survey items and suggested a few changes be made to the structural model of the survey. Industry Expert 1 analysed the survey from the perspective of SysCompSA to ensure that the survey was aligned with the brand image and was appropriate to be distributed to their customer base. Industry Experts 2 and 3 analysed the survey from the perspective of the customers of SysCompSA so as to ensure that the customers would complete the survey and all the survey items were clear.

3.3 Profile

A variety of descriptive statistics were calculated based on the five items of Section A of the survey, namely Demographic Information (Table 1). Respondents were classified according to their gender, home language, age, highest level of education and computer experience. The proportion of female respondents in relation to male respondents was notable.

Demographic	Frequency	Percent
Gender:		
Male	0	0
Female	100	100
Home Language:		
Afrikaans	30	58
English	18	35
Xhosa	0	0
Other African	3	6
Other European	1	2
Age:		
18-24	0	0
25-39	33	63
40-49	10	19
50+	9	17
Highest Qualification:		
Some High School	1	2
High School or equivalent	38	73
Vocational/Technical School	9	17
Bachelor's Degree	3	6
Honour's Degree/4-year equivalent	1	2
Master's Degree	0	0
Doctoral Degree	0	0
Computer Experience:		
Novice user	1	2
Intermediate user	24	46
Expert user	27	52

Table 1: Demographic Information (n = 52)

The proportion of female respondents in relation to male respondents is notable. Of the 52 respondents, none of them are male and 100% are female which can be a possible limitation, however, this ratio is representative of the actual customer base of SysCompSA. With regards to home language, the majority of the respondents speak Afrikaans (58%) with English being spoken by 35% of the respondents and 6% of the respondents speak another African language

such as Zulu, Pedi or Tswana whilst 2% speak another European language, namely German and there were no Xhosa-speaking respondents.

The majority (63%) of the respondents fall within the 25 to 39 age group and 19% of the respondents are between the ages of 40 and 49. Some of the respondents are over the age of 50 (17%) and 0% of the respondents fall within the 18 to 24 age group. The frequency distribution of the highest level of education obtained by respondents shows that the majority (73%) of respondents have a high school level of education or a qualification of equal standard. Of the 52 respondents, 9 stated that their highest level of education is at vocational or technical school. From this it can be deduced that the majority of respondents do not have tertiary education. The frequency distribution of computer experience shows that 52% of respondents believe that they are expert users and can troubleshoot problems and work without assistance to complete tasks. Of the respondents believing that they have intermediate computer experience, 46% are comfortable to use computers to complete end-user tasks.

4. Results and Discussion

Respondents were asked four questions related to their self-efficacy and were required to rate their responses on a semantic differential scale where 1 indicates *Strongly Disagree* and 5 indicates *Strongly Agree*. The mean ratings can be statistically classified as negative [1 to 3.6), neutral [3.6 to 4.4] or positive (4.4 to 7]. When asked about the degree to which respondents agreed with feeling confident using a computer without assistance, the majority (81%) stated that they strongly agreed whilst 10% were neutral with their response (Table 2). With regards to the respondents' agreement with finding it easy to adapt to new software versions, 62% of respondents stated that they strongly agree and 19% were neutral with their response. Of the 52 respondents, 67% strongly agreed that when faced with a problem computer-related, they try and solve the problem first before asking for assistance and 19% agreed with the statement. When respondents cannot solve a problem on the first attempt whilst using a computer, 63% strongly agree that they would try again whilst 23% agree that they would try again. All four items of the self-efficacy metric were rated in the positive range. The highest rated item was "I feel confident using a computer without any assistance" (μ = 4.75). The lowest rated item was "I find it easy to adapt to new software versions" (μ = 4.33). From this it can be deduced that the respondents rated their self-efficacy positively.

Respondents were asked three questions related to their enjoyment of using computers and were required to rate their responses on a semantic differential scale where 1 indicates *Strongly Disagree* and 5 indicates *Strongly Agree*. When asked about the degree to which respondents agreed that using computers to complete daily tasks is pleasant, the majority (87%) stated that they strongly agreed whilst 2% agreed, 2% disagreed and 2% strongly disagreed (Table 3). With regards to the respondents' agreement with having fun solving problems using a computer, 46% of respondents stated they strongly agree and 29% agreed. Of the 52 respondents, 60% strongly agreed that they felt innovative because using a computer allows them to accomplish tasks and 17% were neutral with the statement. The highest rated item was "Using computers to complete daily tasks is pleasant" (μ = 4.85). All three items of enjoyment were rated in the positive range. From this it can be deduced that respondents enjoy using computers which confirms other studies

of the enjoyment of computers in a corporate context (Chatzoglou et al., 2009; Davis et al., 1992).

Item	Mean	Standard Deviation	Strongly Disagree		2nd Option		Neutral		4th Option		Strongly Agree	
	μ	σ	n	%	n	%	n	%	n	%	n	%
I feel confident using a computer without any assistance.	4.75	0.62	0	0%	0	0%	5	10%	3	6%	42	81%
I find it easy to adapt to new software versions.	4.33	1.04	0	0%	4	8%	10	19%	4	8%	32	62%
When faced with a problem whilst using a computer, I try solving it myself before calling for assistance.	4.65	0.65	0	0%	1	2%	2	4%	10	19%	35	67%
If I cannot solve a problem on my first attempt whilst using a computer, I try again.	4.56	0.78	0	0%	3	6%	1	2%	12	23%	33	63%

Table 2: Frequency Distribution: Self-Efficacy Items (n = 52)

Item	Mean	Standard Deviation	Strongly Disagree		2nd Option		Neutral		4th Option		Strongly Agree	
	μ	σ	n	%	n	%	n	%	n	%	n	%
Using computers to complete daily tasks is pleasant.	4.85	0.70	1	2%	1	2%	0	0%	1	2%	45	87%
I have fun solving problems using a computer.	4.23	0.94	1	2%	2	4%	6	12%	15	29%	24	46%
Because using a computer allows me to accomplish tasks, I feel innovative.	4.38	0.91	0	0%	2	4%	9	17%	6	12%	31	60%

Table 3: Frequency Distribution: Enjoyment Items (n = 52)

Respondents were asked to rate four items related to their computer anxiety and were required to rate their responses on a semantic differential scale where 1 indicates *Strongly Disagree* and 5 indicates *Strongly Agree*. When asked about the degree to which respondents agreed that they hesitate to use a computer for fear of losing work that cannot be recovered, the majority (79%) stated that they strongly disagreed with the statement and 17% disagreed (Table 4). With regards to the respondents' agreement with finding computers intimidating, 87% of respondents stated they strongly disagree and 12% disagreed. Of the 52 respondents, 90% strongly disagreed that they feel fearful of not being able to progress with their work as a result of errors made whilst using a computer and 8% disagreed. With regards to feeling fearful of unfamiliar technology, 77% strongly disagreed and 21% disagreed with the statement. All four items were rated negatively and from this it can be deduced that the respondents did not suffer from computer anxiety.

Item	Mean	Standard Deviation	Strongly Disagree		2nd Option		Neutral		4th Option		Strongly Agree	
	μ	σ	n	%	n	%	n	%	n	%	n	%
I hesitate to use a computer for fear of losing work that cannot be recovered.	1.29	0.70	41	79%	9	17%	1	2%	0	0%	1	2%
Computers are intimidating to me.	1.19	0.63	45	87%	6	12%	0	0%	0	0%	1	2%
I fear that I won't be able to progress with my work as a result of errors made whilst using a computer.	1.12	0.38	47	90%	4	8%	1	2%	1	2%	0	0%
I have a fear of unfamiliar technology.	1.25	0.48	40	77%	11	21%	1	2%	0	0%	0	0%

Table 4: Frequency Distribution: Computer Anxiety Items (n = 52)

Respondents that had not used an e-learning system before were asked four questions related to their intention to use e-learning and were required to rate their responses on a semantic differential scale where 1 indicates *Extremely Unlikely* and 5 indicates *Extremely Likely*. When asked about the degree to which respondents intend to use e-learning for training when it is implemented, the majority (56%) rated it extremely likely and 23% found it likely (Table 5). With regards to the respondents' intention to use e-learning for training in order to improve their performance, 67% rated it extremely likely and 17% were neutral with their response. Of the 52 respondents, 40% rated it extremely likely that they would use e-learning for training on a regular basis and 37% rated it likely. With regards to respondents' intention to use e-learning instead of requesting assistance from facilities such as call centres, live chats or face-to-face training, the results show that the majority (46%) found this extremely likely and 31% found it likely. The highest rated item for intention was "I intend to use e-learning for training on a regular basis" (μ = 4.35). The lowest rated item for intention was "My intention is to use e-learning instead of requesting assistance (using call centre, live chat, face-to-face training)" (μ = 4.35). All four items for intention were positively rated. From this it can be deduced that the respondents intend to use e-learning in order to become more independent in learning to use software and to be more effective in their professional duties.

The overall mean and standard deviation ratings were calculated for the four metrics by obtaining an arithmetic average value based on the items measured (Table 6). Respondents rated their self-efficacy the highest (μ = 4.57) and rated computer anxiety the lowest (μ = 1.21). However since computer anxiety negatively affects the intention to use a system, a negative rating for computer anxiety is a positive result which also confirms the theory investigated (Chatzoglou et al., 2009). A negative computer anxiety result implies that the respondents have a constructive perception about their capabilities concerning the tasks that they have to carry out whilst using a computer. From this it can be deduced that respondents are confident in their ability to use a computer to meet everyday demands and do not fear the use of computers. The overall standard deviation ratings indicate that the data points are far from the mean with regards to the intention to use metric showing a large standard deviation (σ = 1.08). The computer anxiety metric had the lowest standard deviation rating meaning that the data points were close to the mean (σ = 0.55).

Item	Mean	Standard Deviation	Extremely Unlikely		2nd Option		Neutral		4th Option		Extremely Likely	
	μ	σ	n	%	n	%	n	%	n	%	n	%
I intend to use e-learning for training when it will be implemented.	4.27	1.01	2	4%	0	0%	9	17%	12	23%	29	56%
I intend to use e-learning for training in order to improve my performance.	4.35	1.08	2	4%	1	2%	9	17%	5	10%	35	67%
I intend to use e-learning for training on a regular basis.	4.08	1.01	2	4%	1	2%	9	17%	19	37%	21	40%
My intention is to use e-learning instead of requesting assistance (using call centre, live chat, face-to-face training).	4.02	1.23	4	8%	3	6%	5	10%	16	31%	24	46%

Table 5: Frequency Distribution: Intention Items (n = 52)

Metric	Overall Mean Rating	Overall Standard Deviation
	μ	σ
Self-Efficacy (n = 52)	4.57	0.77
Enjoyment (n = 52)	4.49	0.85
Computer Anxiety (n = 52)	1.21	0.55
Intention (n = 52)	4.18	1.08

Table 6: Overall Mean and Standard Deviation

5. Conclusions and Future Research

This study primarily aimed to report on the intention to use e-learning in a corporate context and the three constructs that can influence the intention to use, namely: enjoyment, self-efficacy and computer anxiety. An in depth literature review was conducted to develop a comprehensive understanding of behavioural intention to use in the field of e-learning and a theoretical model was proposed. The results of a survey of SysCompSA's customer base revealed that respondents had positive levels of self-efficacy, enjoyment and intention to use e-learning. Computer anxiety was rated negatively, which is a positive result since high anxiety can negatively affect intention to use e-learning. It can be deduced from the findings of the survey and the theoretical model that the customers of SysCompSA do intend to use e-learning in order to learn to use the software provided by the company. The research question was answered by establishing that positive levels of self-efficacy and enjoyment as well as negative computer anxiety can contribute to the willingness to use e-learning in the corporate context, based on the results of the case study.

A positive intention to use e-learning can provide SysCompSA the evidence that e-learning is worth investing resources in. The results of this study are in agreement with studies previously conducted (Chatzoglou et al., 2009; Davis et al., 1992), therefore confirming that self-efficacy,

enjoyment and computer anxiety as antecedents of intention to use e-learning. The study contributes valuable insights into the intention to use e-learning, specifically in companies, based on users' self-efficacy, enjoyment and computer anxiety. Nonetheless, a longitudinal study using the same sample of participants based on the comparison of the intention to use e-learning and the satisfaction of the use thereof may contribute substantially to the e-learning body of knowledge. Regarding the statistical analysis, correlations can be investigated for future work to test the relationships between the three constructs and intention to use, as well as other constructs that relate to the purpose of the study. Using other case studies, this research could be extended to other contexts in order to broaden the research of e-learning in the corporate context, which is currently lacking.

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