Research Article

Demographic Factors of Corporate E-learning among E-learners in an Oil and Gas Company

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Abstract: Organizations that use e-learning as a tool to educate their employees have either reaped the benefits or struggled with its implementation. The dominant reason for this is corporate e-learning overlaps the organizational, human, and technological aspects of learning. Previous research has compartmentalized the research by studying these three aspects separately, so there is little insight on how these variables affect corporate e-learning. Therefore, this study aimed to assess the levels and differences of organizational learning, e-learning quality, and e-learning use according to the demographic groups of corporate e-learners in a Malaysian oil and gas company. A quantitative survey method was applied to collect data from 261 participants using a 5-point Likert Scale questionnaire. The results revealed the level of overall organizational learning, e-learning quality, and e-learning use was moderate. Furthermore, organizational learning, e-learning quality, and e-learning use were significantly different for gender, department, and job position demographic groups. However, age and working experience did not show a significant difference for these variables. The findings from this study provide a bottom-up insight to stakeholders and managers when investing in and implementing e-learning at the organization.

Keywords: Organizational Learning Model, corporate e-learning, e-learning quality, e-learning use, IS Success Model,organizational learning.

1. Introduction

The integration of technology in the workplace has evolved workplace learning in many different ways. It has evolved from structured training programs to modern technology-enhanced workplace learning, which happens through the flow of work, on-demand, short pulses, and constant. While acknowledged as necessary for any organization to stay competitive, learning at the workplace is not expected to interrupt the work routine but to merge seamlessly into it because the main purpose of businesses is to generate revenue (Migdadi, 2019). This is where learning technologies facilitate the workplace learning process by enabling the learner to be an active participant rather than a mere observer(Ifenthaler,2018). Learners have to use pockets of time that become spontaneously available during their work to engage in learning activities (Tvenge&Martinsen, 2018). The unstructured learning schedule of corporate employees makes it hard to synchronize learning activities with other people, such as classroom training. However, with learning technology modules that are short, flexible, and created to be accomplished unsynchronized, it becomes possible for learners to embrace modern workplace learning (Gronseth& Hutchins, 2020; Littlejohn &Margaryan, 2014).

Workplace learning technologies come in many different forms. For instance, web tools such as e-learning, video conferencing, social and professional e-networks, instant messaging, and file sharing are among the most popular tools that support corporate learning (Hester & Hutchins,2016). In many ways, the use of technology for learning at the workplace yields positive results. It enables learners to access quality information on demand, facilitates collaboration amongst colleagues in multi-location offices, increases capabilities while simultaneously decreasing costs, and extends information access beyond the boundaries of the organization (Li & Herd, 2017; Colbert et al., 2016; Haas et al., 2014).

These benefits have motivated organizations to use e-learning as a tool to educate their employees. Research has shown that organizations that excel at implementing corporate e-learning experience improvements in employee efficiency, productivity, lifelong learning, and morale boost. These improvements have been known to pave the way for long-term organizational success (Gabelaia&Bucovetchi, 2020; Seufert & Meier,2016). In contrast, organizations that struggle with e-learning experience difficulty tracking e-learners' progress, matching the course design to suit the different learning styles, acquiring appropriate technological infrastructure, and resistance from e-learners (Vančová&Kovačičová,2018).

These contrasting experiences from organizations are unsurprising as corporate e-learning intersects between the organizational, human, and technological aspects of learning. Hence, providing high-quality e-learning material alone is not enough to guarantee the usage of e-learning. The organizational learning environment in which the e-learning takes place also influences e-learning in the organization (Kapo et al., 2020; Schaefer et al., 2019; Schaefer et al., 2018).Studies have also revealed that human factors, i.e. demographic factors, also shape the e-learning environment. However, these studies have focused on the education sector (Wongwatkit et al., 2020; Tarhini et al., 2016; Islam, 2011). Consequently, there is scarce information on

demographic factors of corporate e-learning and organizational learning in the literature. Therefore, this research aims to:

1. Identify the levels of organizational learning, e-learning quality, and e-learning use among corporate e-learners of a Malaysian company.
2. Investigate the differences in organizational learning, e-learning quality, and e-learning use according to demographic groupsof the corporate e-learners.

2. Literature Review

2.1Corporate E-learningandIts Evolution

E-learning is "any type of learning, teaching or educational activity, which is based on computer and internet technologies" (Fallon & Brown, 2003, p. 4). Corporate e-learning is usually packaged as a Learning Management System (LMS) and has continued to evolve and grow as new trends emerge in the e-learning landscape (Bezhovski&Poorani,2016). It has been a popular tool for organizational learning since the early 2000's due to its two-fold benefits for employers and employees. For employers, e-learning is appealing because it is flexible, easily accessible, scalable, cost-effective, and tailored to the corporation's needs(Chen, 2008).For employees, e-learning offers an engaging learning experience at their own pace of learning, style, and convenience (Lenoue et al., 2011).

There are a few key differences between corporate e-learning and academic e-learning (Prakash,2018; Chang, 2016). Firstly, academic e-learning focuses on a broad scope to accomplish personal learning goals, whereas corporate e-learning is specific to business needs. Secondly, individual characteristics are one of the main drivers for successfully implementing e-learning in the academic sector. In contrast, organizational characteristics play an important role in corporate e-learning. Lastly, to keep up with new products, services, and market conditions, e-learning in the corporate sector tends to evolve faster than e-learning in the academic sector.

Corporate e-learning has continued to evolve alongside technological advancements to create and deliver learning through various mediums. During the 1990s, CD-ROMs were considered the most popular medium for delivering e-learning content because they were cheap and easy to use. In the early 2000s, increased internet access and personal computer use enabled organizations to deliver computer-based training (CBT) over a network. As the internet and the World Wide Web have transitioned from Web 0.0 to Web 4.0, e-learning has also evolved from static, read-only modules to interactive and intelligent systems (Choudhury &Pattnaik, 2020). Fig. 1 below shows the evolution of corporate e-learning over30 years starting from the 1990s.

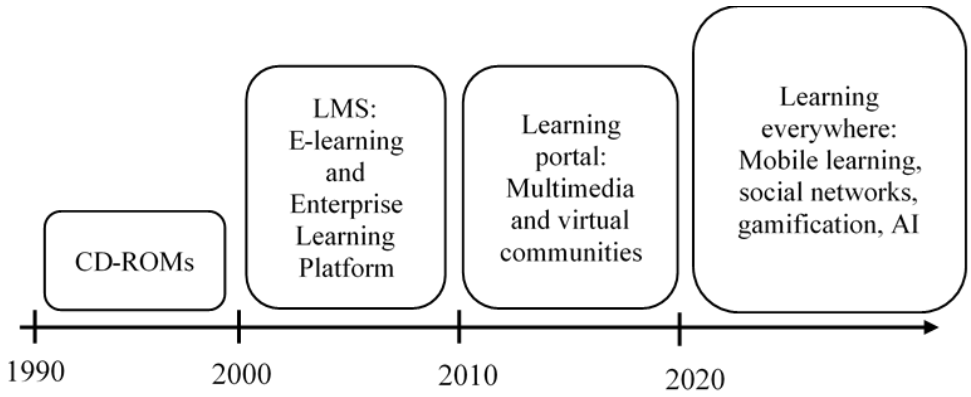

Fig.1. Evolution of corporate e-learning - summarized from Haikonen (2016).

2.2 E-learningQualityand Use Basedonthe Information System Success Model

Over the years, researchers have proposed different models and theories to explain the relations between technology and users' behavior. One of the most extensively used models is the Information System Success Model (IS Success Model). The IS Success Model developed by DeLone and McLean (1992) clarifies the human and technological aspects of information systems. The first version of the model had six dimensions: system quality, information quality, use, user satisfaction, individual impact, and organizational impact. The updated model, DeLone and McLean (2003), shown in Fig.2, combined individual and organizational benefits into net benefits. It also added service quality as another dimension to represent the role of service providers such as the IT department of an organization.This model has been used widely, partially or completely, in e-learning research (Bento et al., 2017).

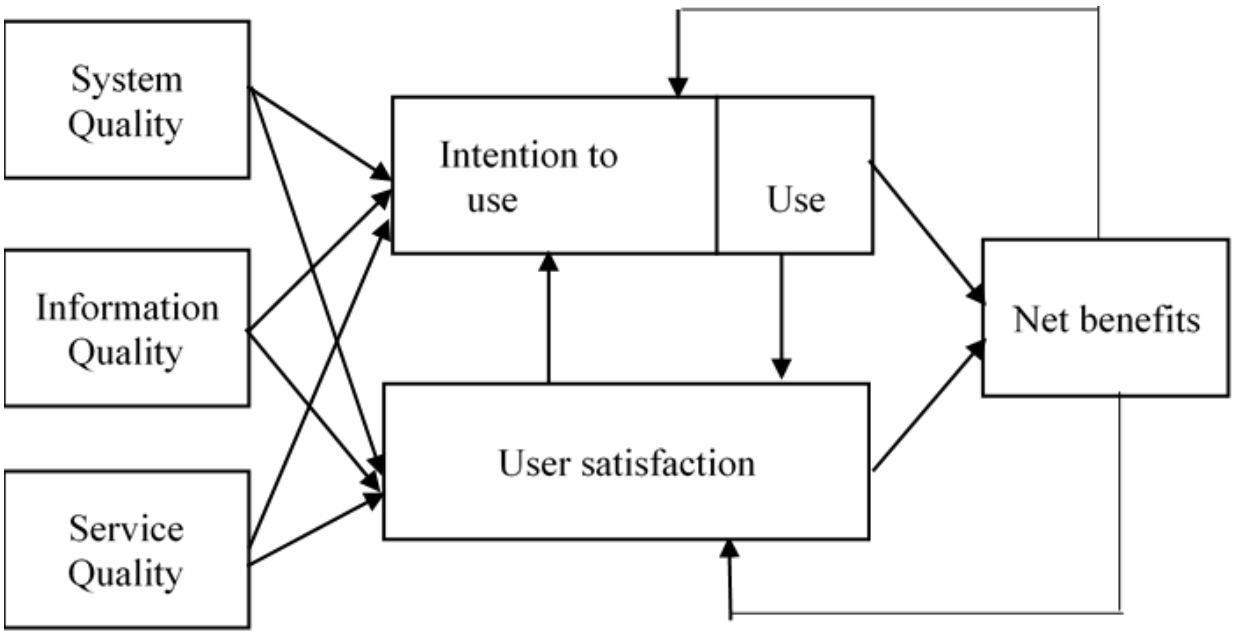

Fig.2. The DeLone and McLean's updated IS Success Model (p. 24) [29]

Additionally, the model proposed intention to use as an alternative to use in certain contexts but stressed that intention to use is an attitude while use is a behavior. Use is embedded in a feedback loop with user satisfaction and net benefits, which leads to subsequent use. This study emphasizes the quality and uses aspects of the IS Success Model because, with the increasing demands in the industry and the sophisticated advances of technology, e-learning providers are expected to provide high-quality e-learning to users.

System quality, information quality, and service quality are desirable characteristics that facilitate the successful implementation of an e-learning system in an organization.DeLone& McLean (2016, p. 11) defined each category as follows:

(i) System quality is the technical characteristics of the system, including its reliability, flexibility, and ease of use.

(ii) Information quality is the content of the system that includes accuracy, conciseness, relevance, and completeness.

(iii) Service quality is the support that system users receive from the IT department or personnel, including responsiveness, reliability, and technical competence.

There is consensus in the literature that these three components make up the overall quality aspects of an e-learning system (Aldholay et al., 2018; Isaac et al., 2017).For e-learning systems that have already been established in an organization and where usage is voluntary, e-learning use has been considered a suitable measure of e-learning success.E-learning use refers to the degree and manner in which corporate e-learners utilize the capabilities of the e-learning system (DeLone& McLean, 2016, p. 11). It includes the amount of use, frequency of use, nature of use, and extent of use by its users in the company.

2.3 Organizational Learning Environmentin Corporate E-learning

Workplace e-learning must be driven by organizational learning (Montgomerie et al., 2016; Yang, 2019). This is because when employees are engaged in corporate e-learning, they are involved in achieving organizational learning goals as well as individual learning goals. Organizational learning is a dynamic process of integrating new learning and using what has already been learned across the individual, group, and organization levels (Crossan et al., 1999).These three levels of organizational learning are linked by four broad categories of social and psychological processes: intuiting, interpreting, integrating, and institutionalizing (4Is), in Crossan et al.'s 4I Organizational Learning Model, shown in Fig.3.

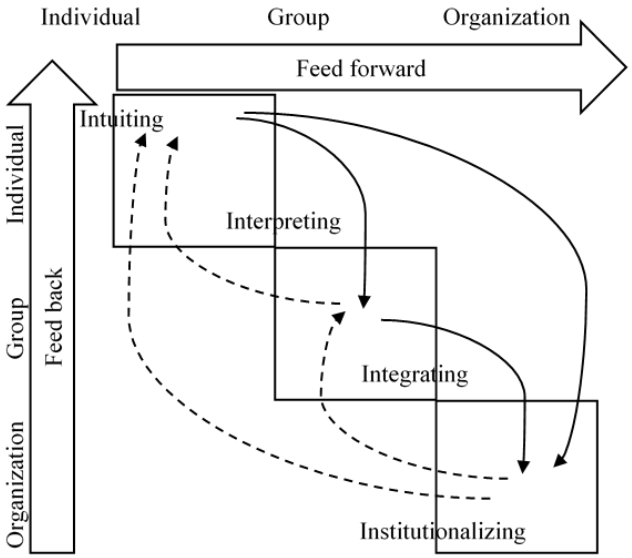

Fig.3. 4I Organizational Learning Model (Crossan et al., 1999, p. 532)

Organizational learning happens when individuals receive information, transform it into knowledge, and spread the knowledge throughout the organization(Bontis et al., 2002).Bontis et al. (2002, p.443) define the three levels as follows:

(i) Individual learning level refers to "individual competence, capability, and motivation to undertake the required tasks."

(ii) Group learning level is the "group dynamics and the development of shared understanding."

(iii) Organization learning level is the "alignment between the non-human storehouses of learning including systems, structure, strategy, procedures, and culture, given the competitive environment."

Researchers agree that organizational learning is not merely a sum of individual learning of the organization's members, but rather, it occurs due to the interaction between the three levels (Oltra et al., 2018). Thus, individual, group and organization learning levels are components of overall organizational learning(Aragón et al., 2014). Furthermore, the organization's learning environment is perceived as either an enabler or barrier to e-learning participation (Garavan et al., 2010).

2.4 Demographic Factors

Gender refers to the cultural connotations given to male and female social categories in social institutions and practices (Wood &Eagly, 2009). Previous research has found that men and women vary in socially constructed cognitive structures, problem-solving skills, and decision-making processes (Nagahi et al., 2019; Venkatesh&Morris, 2000). This difference has been observed in the higher education e-learning sector, where male and female students showed different perceptions of their e-learning environment and usage behavior. Female students tended to be driven by positive emotions,whereas male students were more influenced by the functional and practical aspects of their e-learning environment(Wongwatkit et al., 2020). In contrast to this, other studies have also found no significant differences between the genders regarding their perception of e-learning (Khechine et al., 2014; Al-Gahtani et al., 2007).

Although age is an important demographic in e-learning studies, the results from prior research show contrasting findings. Some studies found that younger adults fared better with e-learning systems as compared to older adults(Khechine et al., 2014; Venkatesh et al., 2003). However, other studies challenge this stereotype by claiming that age per se does not significantly influence users' behavior and perception of e-learning systems. Rather, in older adults, other intervening factors such as confidence, self-efficacy, perceived ease of use, and a supportive environment matter(Guner&Acarturk, 2018; Hauk et al, 2018; Chu, 2010).

Organizations are usually made up of various departments, depending on their business model and size. Each department has specific job functions, which result in differentiated training programs. For example, the training for clerical and support staff focused on the broad overview of how the company worked as well as specialist skills. In contrast, the training for technical staff was highly technical and lasted for a few years (Ashton, 2004). In the context of e-learning, e-learning modules' relevance for the specific tasks influences employees' perception and usage behavior(Vančová&Kovačičová, 2018).

The concept of working experience refers to the experience an employee gains from being employed in a specific field or occupation. In the context of corporate e-learning, the longer an employee is employed, the more experience is also gained in e-learning. Research has found that the degree of an individual's experience determines the level of perception and usage behavior towards an e-learning system where expert users performed better than novice users (Venkatesh&Bala, 2008; Kim, 2008). Furthermore, unlike junior employees, senior employees tended to form supportive learning networks to boost their workplace learning (Ashton, 2004).

Job positions according to power-based hierarchy are a common feature in organizations (van Kleef& Cheng, 2020). Although the hierarchical culture establishes clear lines of authority and responsibilities in an organization, it has been found to inhibit individual learning(Oh & Han,2018).Studies have found uneven access to learning between management and non-management positions. Managerial positions have more control over the distribution and access to knowledge than non-managerial positions (Ashton, 2004).

3. Methodology

This descriptive and quantitative study was conducted in a multinational Malaysian oil and gas company. The oil and gas industry was selected as the study population because it is an industry that requires highly trained employees and has a strong culture of state-of-the-art learning and development programs for its employees.The Sarawak branch was chosen over other locations because of the researchers' convenience and accessto the study location. The data collection for this research was carried out via a quantitative survey. The researchers utilized valid and reliable instruments from previous studies for the data collection(Check & Schutt, 2012).The questionnaire was the most effective way to collect data from the large number of participants involved. The questionnaires were administered through selected employees who acted as intermediaries between the researcher and the respondents.This study uses a centralized e-learning program that is disseminated from its headquarters to ensure that the system is standardized across its different branches.The questionnaire was adapted from the E-learning Success System (ELSS) instrument by Wang et al. (2007) and the Strategic Learning Assessment Map (SLAM) instrument by Bontis et al.(2002).The questionnaire was divided into four sections: Section A covered demographic data, Section B covered e-learning quality, Section C covered organizational learning, and Section D covered e-learning use. The participants were asked to self-evaluate a list of statements based on a Likert's five-point scale ranging from (1) strongly disagree to (5) strongly agree. The Likert scale is well-established and widely used in the survey method (Lavrakas , 2008). The reliability of the questionnaire used in this study was $\alpha = 0.852$, which is considered good (George & Mallery, 2016).

Participants of this study were either male or female employees above 18 years that used e-learning for work. These individuals used e-learning for their personal development and to achieve the company's goals. A total of 261 respondents participated in this study via the convenience sampling method. The extended data collection period that spanned from January 2020 to September 2020 is responsible for the 100% response rate. During this time, repeated attempts were made to get the questionnaires completed. It was not feasible to implement a randomized selection of participants in the company due to the unwillingness or unavailability of the participants and bureaucratic red tape. The convenience sampling was considered suitable by the intermediaries' accessibility to the respondents (Bryman, 2016).Even though a non-probability sampling method was used, because e-learning is implemented throughout the company, it was assumed that there would not be a significant difference between a randomly selected and a conveniently selected sample (Etikan et al., 2016).

In order to determine the levels of organizational learning, e-learning quality, and e-learning use among the e-learners at the research site, the mean scores were categorized into three levels: low, moderate, and high. This procedure was performed with IBM SPSS Statistics using quartiles to determine the levels as illustrated in Fig.4(Wagner, 2019).

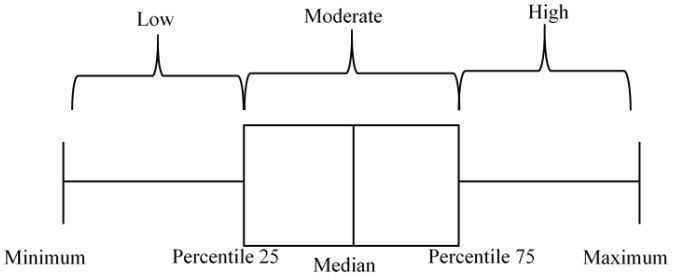

Fig.4. Quartiles of the mean scores

Mean scores below percentile 25 (< percentile 25) were considered low, while mean scores between percentile 25 to below 75 (≥ percentile 25 and < percentile 75) were classified as moderate. Means scores above percentile 75 (≥ percentile 75) were considered high. The level of the variables was interpreted by using the quartiles of the mean scores, as presented in Table 1.

Table 1. Interpretation of mean scores

Mean Scores			**Level**
Organizational learning	**E-learning quality**	**E-learning use**	
≤3.04	≤3.12	≤2.79	Low
3.05 – 3.99	3.13 – 3.91	2.80 – 3.59	Moderate
≥4.00	≥3.92	≥3.60	High

The differences with the demographic factors for organizational learning, e-learning quality, and e-learning use in this study were analyzed using Independent Samples t-test and One-way Analysis of Variance (ANOVA). T-test was used to evaluate if there was a statistically significant difference between the means in two independent groups. One-way ANOVA was used to verify whether there were any statistically significant differences between the means of two or more independent groups. In this study, a t-test was used for gender, department, and job position, while one-way ANOVA was used for age and working experience. A p-value of less than 0.05 ($p<0.05$) indicatedwhen the mean differences were significant.

4. Data Analysis and Results

4.1 Demography of Respondents

The data for the participants' demography were analyzed using frequency and percentage. The results are shown in Table 2.Five demographic categories were queried in the questionnaire, i.e., gender, age, department, working experience, and job position. In this study, the majority of the participants were male (61.7%), between 30 – 55 years old (61.7%), belonged to a technical department (93.9%), had 1 – 10 years working experience (66.3%), and belonged to a non-management job position (81.6%).

Table 2. Demographic Profile of Respondents

Demography		**Frequency**	**Percentage (%)**
Gender	Male	161	61.7
	Female	100	38.3
Age	18 – 29 years old	82	31.4
	30 – 55 years old	161	61.7
	> 55 years old	18	6.9
Department	Technical	245	93.9
	Non-technical	16	6.1
Working experience (years)	1 – 10	173	66.3
	11 – 20	77	29.5
	21 – 30	9	3.4
	>30	2	0.8
Job position	Management	48	18.4
	Non-management	213	81.6

4.2 Overall Level of Organizational Learning, E-Learning Quality, and E-Learning Use

The level ofoverallorganizational learning was moderate (M=3.50, SD=0.61), which indicates that the participants acknowledged the company's conducive learning culture.The level of overall e-learning quality was moderate (M=3.53, SD=0.58), which indicates that, on average, the participants agreed that the company had a satisfactory e-learning system.The level of e-learning use was moderate (M=3.22, SD=0.70), which indicates that participants generally used the e-learning system at work. Table 3 summarisesthe items and the results for the level of organizational learning, e-learning quality and e-learning use.

Table 3. Items andLevel of Organizational Learning, E-Learning Quality, and E-Learning Use

Item		**Mean (M)**	**Standard Deviation (SD)**	**Interpretation**
Organizational Learning		**3.50**	**0.61**	**Moderate**
Individual Learning Level				
IL1	I am able to break out of traditional mind-sets to see things in new and different ways	3.66	0.73	Moderate
IL2	I feel a sense of pride in my work	3.59	0.79	Moderate
IL3	I have a clear sense of direction in my work	3.54	0.83	Moderate
IL4	I generate many new insights	3.53	0.74	Moderate
IL5	I am aware of the critical issues that affect my work	3.51	0.83	Moderate
IL6	I feel confident in my work	3.59	0.79	Moderate
Overall		3.57	0.66	Moderate
Group Learning Level				
GL1	We have effective conflict resolution when working in groups	3.52	0.78	Moderate
GL2	Different points of view are encouraged in group work	3.52	0.77	Moderate
GL3	Groups have the right people involved in addressing the issues	3.47	0.81	Moderate
GL4	We share our success within the group	3.52	0.78	Moderate

GL5	In meetings, we seek to understand everyone's point of view	3.46	0.79	Moderate
GL6	Groups in the organization are adaptable	3.45	0.76	Moderate
GL7	Groups are prepared to rethink decisions when presented with new information.	3.53	0.78	Moderate
Overall		3.50	0.65	Moderate
Organization Learning Level				
OL1	We have a strategy that positions us well for the future	3.55	0.76	Moderate
OL2	We have the necessary systems to implement our strategy	3.50	0.76	Moderate
OL3	The organization's culture could be characterized as innovative	3.44	0.77	Moderate
OL4	The organizational structure allows us to work effectively	3.43	0.79	Moderate
OL5	We have a realistic yet challenging vision for the organization	3.45	0.77	Moderate
OL6	We have an organizational culture characterized by a high degree of trust	3.39	0.80	Moderate
OL7	Our operational procedures allow us to work efficiently	3.43	0.79	Moderate
Overall		3.46	0.66	Moderate
E-learning Quality		**3.53**	**0.58**	**Moderate**
Information Quality				
IQ1	The e-learning system provides correct information	3.80	0.73	Moderate
IQ2	The e-learning system provides accurate information	3.75	0.77	Moderate
IQ3	The e-learning system provides complete information	3.60	0.77	Moderate
IQ4	The e-learning system provides sufficient information	3.54	0.81	Moderate
IQ5	The e-learning system provides precise information	3.57	0.77	Moderate
IQ6	The e-learning system provides clear information	3.67	0.76	Moderate
IQ7	The information provided by the e-learning system meets my needs	3.59	0.80	Moderate
IQ8	The information provided by the e-learning system helps to solve my problems	3.48	0.83	Moderate
Overall		3.63	0.63	Moderate
System Quality				
SYQ1	The e-learning system provides good interaction mechanisms	3.59	0.89	Moderate
SYQ2	The buttons for the operation of the e-learning system can be clearly understood	3.71	0.79	Moderate
SYQ3	The buttons for the operation of the e-learning system can be easily understood	3.75	0.75	Moderate
SYQ4	The e-learning system responds quickly	3.72	0.75	Moderate
SYQ5	The e-learning system is seldom out of use	3.49	0.79	Moderate
SYQ6	The functions of the e-learning system work well	3.67	0.78	Moderate
Overall		3.66	0.63	Moderate
Service Quality				
SVQ1	The e-learning system provides a proper level of online assistance	3.36	0.81	Moderate
SVQ2	The e-learning system provides a proper level of online explanation	3.33	0.78	Moderate
SVQ3	The IT department staff provides high availability for consultation	3.17	0.83	Moderate
SVQ4	The IT department responds in a cooperative manner to my suggestion for future enhancements of the e-learning system	3.11	0.83	Low
SVQ5	The IT department provides satisfactory support to users using the e-learning system	3.20	0.84	Moderate
Overall		3.24	0.70	Moderate
E-learning Use		**3.22**	**0.70**	**Moderate**
EU1	Frequency do you use the e-learning system	3.08	0.96	Moderate
EU2	Functions of the e-learning system (e.g. videos, slides, assessments)	3.38	0.91	Moderate
EU3	I depend on the e-learning system when other types of training	3.16	0.79	Moderate

	are not available			
EU4	I use the e-learning system in addition to other types of training.	3.04	0.86	Moderate
EU5	The e-learning system usage is voluntary	3.46	0.97	Moderate

4.2 Organizational Learning, E-Learning Quality, and E-Learning Use According to Demographic Group

Table 4 summarises the level and differences of organizational learning, e-learning quality and e-learning use according to the demographic groups in this study.

Table 4. Level and differences of organizational learning, e-learning quality and e-learning use according to the demographic groups

Variable	**Demography**		**Mean**	**t, df / F, df**	**p-value**
Organizational learning	Gender	Male	**3.56M**	2.00, 259	*.04
		Female	3.41M		
	Age	18 – 29	3.45M	0.56, 258	.57
		30 - 55	**3.54M**		
		>55	3.48M		
	Department	Non-technical	**3.77M**	1.79, 259	.07
		Technical	3.49M		
	Working Experience	1 – 10	3.47M	0.79, 257	.50
		11 – 20	3.57M		
		21 – 30	3.59M		
		>30	**3.85M**		
	Job Position	Management	**3.74M**	3.05, 259	*.01
		Non-management	3.45M		
E-learning quality	Gender	Male	**3.56M**	0.87, 259	.38
		Female	3.49M		
	Age	18 – 29	3.48M	0.50, 258	.60
		30 - 55	3.56M		
		>55	**3.57M**		
	Department	Non-technical	**3.87M**	2.39, 259	*.01
		Technical	3.51M		
	Working Experience	1 – 10	3.50M	0.75, 257	.52
		11 – 20	3.59M		
		21 – 30	**3.71M**		
		>30	3.26M		
	Job Position	Management	**3.73M**	2.66, 259	*.01
		Non-management	3.49M		
E-learning use	Gender	Male	**3.24M**	0.52, 259	.59
		Female	3.20M		
	Age	18 – 29	3.24M	0.18, 258	.83
		30 - 55	3.21M		
		>55	**3.30M**		
	Department	Non-technical	**3.75H**	3.12, 259	*.01
		Technical	3.19M		
	Working Experience	1 – 10	3.22M	0.56, 257	.63
		11 – 20	3.21M		
		21 – 30	3.47M		
		>30	**3.60H**		
	Job Position	Management	**3.40M**	1.86, 259	.06
		Non-management	3.19M		

Key: Highest mean in bold; Levels = L (Low), M (Moderate), H (High)
Note: 95% confidence level, *sig ($p<0.05$)

4.2.1 According to Gender

Table 4 shows that the level of organizational learning, e-learning quality, and e-learning use were moderate for both male and female participants. There were 161 male and 100 female participants. The males had significantly higher levels of organizational learning (M=3.56, SD=0.61) compared to females (M=3.41, SD=0.60), t(259) = 2.00, p = .04. There was no significant difference for e-learning quality, t(259) = 0.87, p = .38, and e-learning use, t(259) = 0.52, p = .59, despite men (M_{EQ}=3.56, SD_{EQ}=0.59; M_{EU}=3.24, SD_{EU}=0.65) achieving higher scores than women (M_{EQ}=3.49, SD_{EQ}=0.56; M_{EU}=3.20, SD_{EU}=0.77).

4.2.2 According to Age

Table 4shows that the level of organizational learning, e-learning quality, and e-learning use was moderate across all the age groups.Participants aged between 30 and 55 years constituted the largest age group in this study. This age group had the highest level of organizational learning (M=3.54, SD=0.64) while the 18 – 29 age group with 82 participants had the lowest level of organizational learning (M=3.45, SD=0.54). The >55 age group with 18 participants had the highest level of e-learning quality (M=3.57, SD=0.61), whereas the 18 – 29 age group had the lowest level of e-learning quality (M=3.48, SD=0.54). The >55 age group also had the highest level of e-learning use (M=3.30, SD=0.88), while the 30 – 55 age group had the lowest level of e-learning use (M=3.21, SD=0.69). However, despite the different levels between the three age groups, there was no significant difference on organizational learning, $F(2, 258) = 0.56$, $p = .57$, e-learning quality, $F(2, 258) = 0.50$, $p = .60$ and e-learning quality, $F(2, 258) = 0.18$, $p = .83$.

4.2.3 According to Department

Table 4 shows that the levels of organizational learning and e-learning quality were moderate for participants from both the non-technical and technical departments. However, the level of e-learning use was high for participants from the non-technical departments and moderated for participants from the technical departments.There was no significant difference for organizational learning, $t(259) = 1.79$, $p = .07$, although the non-technical department (M=3.77, SD=0.43) scored higher than the technical department (M=3.49, SD=0.62). There was a significant difference for e-learning quality, $t(259) = 2.39$, $p = .01$, and e-learning use, $t(259) = 3.12$, $p = .00$,for the non-technical department (M_{EQ}=3.87, SD_{EQ}=0.45; M_{EU}=3.75, SD_{EU}=0.62)compared to the technical department participants (M_{EQ}=3.51, SD_{EQ}=0.59; M_{EU}=3.19, SD_{EU}=0.70).

4.2.4 According to Working Experience

Table 4shows that the levels of organizational learning and e-learning quality were moderate across all the working years of the participants. The level of e-learning use was high for participants who had been working for more than thirty years and moderate for participants who had been working for less than 30 years.Although there were only two e-learners who had worked for more than 30 years, they had the highest level of organizational learning and e-learning use (M_{OL}=3.85, SD_{OL}=0.21; M_{EU}=3.60, SD_{EU}=0.84) but the lowest level of e-learning quality (M=3.26, SD=0.52). The nine e-learners who had worked between 21 and 30 years had the highest level of e-learning quality (M=3.71, SD=0.72). The 173 participants who had worked between 1 and 10 years had the lowest level of organizational learning (M=3.47, SD=0.60), while the 77 participants who had worked for 11 – 20 years had the lowest level of e-learning use (M=3.21, SD=0.61). However, despite the different levels between the four working experience groups, there was no significant difference on organizational learning, $F(3, 257) = 0.79$, $p = .50$, e-learning quality, $F(3, 257) = 0.75$, $p = .52$ and e-learning use $F(3, 257) = 0.56$, $p = .63$.

4.2.5 According to Job Position

Table 4shows that the levels of organizational learning, e-learning quality and e-learning use was moderate for both management and non-management job positions.There was a significant difference for organizational learning, $t(259) = 3.05$, $p = .00$, and e-learning quality, $t(259) = 2.66$, $p = .00$, for participants in management positions (M_{OL}=3.74, SD_{OL}=0.58; M_{EQ}=3.73, SD_{EQ}=0.56) compared to non-management positions (M_{OL}=3.45, SD_{OL}=0.61; M_{EQ}=3.49, SD_{EQ}=0.58). There was no significant difference for e-learning use, $t(259) = 1.86$, $p = .06$, although management positions (M=3.40, SD=0.67) scored higher compared to non-management positions (M=3.19, SD=0.71).

5. Discussion

Overall, the levels of organizational learning, e-learning quality, and e-learning use were found to be moderate.The moderate levels indicate the employees may not be acquiring the optimum level of learning needed to support individual and organizational growth. There is room for improvement in organizational learning, e-learning quality, and e-learning use by the employees, management, and stakeholders in the organization.

The findings showed an interesting dichotomy with regards to gender. Male e-learners had higher levels than females in organizational learning, e-learning quality, and e-learning use. The high number of male participants in this study compared to female participants is similar to other studies that found the oil and gas industry, in general, is dominated by male workers (Williams et al., 2014).Furthermore, the results also revealed that employees above the age of 30 had higher levels of organizational learning and e-learning quality, while those above the age of 55 had the highest e-learning use compared to younger employees. In terms of working experience, employees who had more than 30 years of working experience had higher levels of organizational learning and e-learning use, while those who had more than 21 years of working experience had the highest level of e-learning quality compared to newer employees. The findings for the age and work experience could be a result of the low turnover rate at the research site. Employees who joined the company tended to stay for a long time and become increasingly integrated with the learning culture. Despite the small number of non-technical e-learners who were more administratively inclined, they had higher levels of organizational learning, e-learning quality, and e-learning use compared to e-learners who worked intechnical departments. The findings also showed that e-learners in management positions had higher levels of organizational learning, e-learning quality,

and e-learning use compared to non-management e-learners. It indicates there are different work requirements and experiences between non-technical and technical, and management and non-management participants.

While males scored higher than females across the board, only organizational learning was significantly different between males and females. The difference between the genders' job requirements and work culture in the region may have contributed to this finding. There was no significant difference for e-learning quality and e-learning use. This finding contrasts studies on the gender difference in e-learning that have found male employees are more likely to use e-learning compared to female employees because they are motivated by its perceived usefulness, whereas female employees are more concerned about the ease of using the e-learning system (Goswami & Dutta, 2016).

There was no significant difference between the age groups for organizational learning, e-learning quality, and e-learning use even though older participants scored higher than younger participants. It may be a common stereotype that younger employees are more technologically savvy and, therefore more likely to use e-learning. However, the results validate previous research that found that employees' age alone is not a determinant for e-learning. Instead, it depends on how the organization provides effective e-learning and technical support (Fleminget al., 2017).

Only e-learning quality and e-learning use were significantly different between the non-technical and technical groups. The findings suggest that the non-technical e-learners perceived the e-learning system as more likely to assist them in getting their job done. Technical e-learners, on the other hand, require more hands-on and practical training that may not be fully supported by the current e-learning system. This situation supports prior research, which found a significant relationship between e-learning job relevance and e-learning use (Larsen et al., 2009).

There was no significant difference between the three groups of working experience for organizational learning, e-learning quality, and e-learning use. This finding contradicts prior research, which found that senior employees perform better at e-learning compared to junior employees (Venkatesh&Bala, 2008; Kim, 2008).

Only organizational learning and e-learning quality were significantly different between the management and non-management participants. It indicates that e-learners in management positions have different insights and perceptions regarding the company's learning culture and e-learning system compared to e-learners in non-management positions, which validate prior research (Ashton, 2004).

6. Conclusion

This study investigated the demographic factors of corporate e-learning among e-learners of a Malaysian company. The findings revealed that there was a significant difference in organizational learning between males and females, and management and non-management e-learners. Therefore, gender and job position influence the perspective of the participants about their organization's learning environment. The study also found a significant difference in e-learning quality between non-technical and technical departments and management and non-management e-learners. This finding indicates the work scope and nature of the different departments and job positions impact the participants' view of the e-learning system in the organization. The only significant difference for e-learning use was found between the non-technical and technical departments. This finding suggests that participants in the non-technical department are more likely to use the e-learning systemcompared to the technical department. Finally, in this study, age and working experience did not have a significant difference in organizational learning, e-learning quality, and e-learning use.

7. Limitation, Recommendation, and Implication

The findings of the present study are generalizable only to the population at the research site. Therefore, more studies that gather data from multiples sites and sources, for example, from different companies or industries, are recommended. This study also does not consider the relationships between the demographic factors, organizational learning, e-learning quality, and e-learning use. Future studies could investigate how the variables affect each other or build a structural equation model that can be applied to a corporate setting.

By examining organizational learning and e-learning at the individual level, this study provides a bottom-up insight to stakeholders and managers when investing in and implementing e-learning at the organization. The findings suggest that a holistic approach is a key to effective e-learning in the organization.

As there is a significant difference between the genders for organizational learning, the management should reconsider their learning strategies and work culture in order to bridge the gender gap within the organization.

The significant difference between the non-technical and technical departments for e-learning quality and e-learning use indicates the company should seriously contemplate ways to make technical training more relevant and accessible to its e-learners as the majority of them belong to the technical line. If most of them perceive that the e-learning system would meet their needs, then the levels of organizational learning, e-learning quality, and e-learning use in the company could increase.

The significant difference in e-learning quality and e-learning use between the management and non-management participants reveals uneven access to learning. The management should strategize and elevate the non-management e-learners' levels of organizational learning, e-learning quality, and e-learning use as they make up the bulk of the company's employees.

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