The Impact of COVID-19 Crisis upon the Effectiveness of E-learning in Higher Education Institution

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Abstract

The infestation of the world pandemic has significantly changed the landscape of teaching and learning experience in Malaysia. Particularly for the institution under study, E-learning, previously used as the support medium to face-to-face classroom teaching, has become the primary medium of teaching and learning amid Covid-19. E-learning platform has replaced the face-to-face classes. Even though it is only a temporary approach, less is known in terms of its effectiveness. The present paper intends to examine the factors contributing to E-learning's effectiveness in a Higher Education Institution in Malaysia amid the COVID-19 crisis. The Technology Acceptance Model underpinned the conceptual framework. This study investigated

the relationship between the independent variables (perceived usefulness, perceived ease of use, and self-motivation) and E-learning effectiveness. The data were collected through an online self-administrated questionnaire using Google form and received a total of 354 respondents. The data were analyzed using SPSS and Smart PLS. The findings revealed that perceived usefulness, perceived ease of use, and self-motivation positively influenced E-learning's effectiveness. This paper concluded that regardless of whether as the support medium or the primary medium in the teaching and learning process, the determinant to E-Learning effectiveness is still perceived the same. This study also supports the TAM proposition while incorporate self-motivation in measuring learning effectiveness.

Keywords: E-Learning, Perceived usefulness, Perceived ease of use, Self-Motivation, Smart PLS, COVID-19.

Introduction

Against the COVID-19 outbreak setback, the government and tertiary are launching various policies worldwide to continue teaching activities to contain the virus. There are technologies available for online education, but the usage and implementation transpire many problems (Dhawan, 2020). E-learning is adopted worldwide, but it only acts as an additional platform for sharing learning materials. Thus, making E-learning a secondary option instead of prioritizing it is the primary teaching and learning medium. In other words, students still depend on and comfortable with the face-to-face classroom interaction with the lecturers to experience learning.

This pandemic affects global citizens' elements, particularly in the education sector, crucial for learning outcomes during the COVID-19 pandemic. On March 25, the Prime Minister of Malaysia announced the first phase of the movement control order (MCO), which lasted until March 31, 2020. It was extended to a second phase that lasted until April 14, followed by a third phase from April 15 to April 28 (Povera, 2020). Although the education activities were on hold for two weeks at the beginning of MCO, the schools' teaching and learning and the higher education institutions were later instructed to be conducted online (Ida Lim, 2020, Landau, 2020).

E-learning is the technological tools such as computers and web-based services that are used for teaching and learning. The E-learning application provides internet, audio, video, CDROM, and satellite TV (Raheem, 2020). As Cathy and Farah (2020) mentioned, education technology had existed even before the pandemic, which started with an Edtech investment of billions of dollars in 2019. The online education market is expected to raise $350 billion in 2025.

According to Ghareb & Mohammed (2016), E-learning is a tool that has already acted as a learning platform for a long time ago. E-learning needs to have a specific detail so that it is easy to be accessed and used by students.   However, most online educations are treated as secondary and regards as a supporting learning platform.

The institution understudy has developed its online learning platform to support the teaching and learning process. This platform enables learning support in which lecturers upload all the lesson and assessment plan, learning materials and notes for the lecture.   Additionally, the platform is also used for conducting assessment such as quizzes, midterm exams or any form of tests.   The students are either answer questions directly through the platform or submit assessments through the platform. However, the Covid-19 pandemic has affected the education sector and forced traditional face to face learning to become virtual learning.   To replace face to face classes, the institution subscribes to Microsoft Teams for conducting real-time lessons.

Problem statement

With the current COVID-19 crisis globally, students in Malaysia are currently adapting to a new teaching and learning approach through E-learning or online learning platforms. These cause many concerns for the students as adopting a new study platform may not be comfortable for every student. There are several barriers in using an E-learning platform that students' may feel would eventually affect their performance. These barriers focus on students' perceived usefulness towards the E-learning platform, perceived ease of use of students towards E-learning platforms, and self-motivation (Wang et al., 2013).

According to Dhawan (2020), some students face difficulties interacting with their lecturers as they feel the need for two-way interaction. E-learning platforms make it harder to achieve two-way interaction; thus, the learning outcome is not achievable through students' eyes. For example, students cannot raise their hands like they are used to and are not comfortable asking questions in the middle of e-lectures.

Lynch (2020) mentioned that E-learning might have different acceptance levels for every student, as some students may accept E-learning methods, while others might find it difficult to understand. Many online learning platforms can be used, such as Google Meet, Microsoft Teams, Voov, Superstar, and Zoom. Some difficulties may surface with technology, such as downloading, login, installation errors, and video and audio problems (Dhawan, 2020). These problems may occur due to poor internet connection, a flawed system in digital devices such as laptop, mobile phone, and computer.

According to Fyans and Maehr (1987, as cited in Kim and Frick, 2011), it was found that motivation has a strong relationship with academic performance. Despite this, students are facing low motivation to study through the E-learning platform. Based on the previous study, Kim and Frick (2011) indicated that some students would perform better in the E-learning platform because they are less concerned with making social interaction.   Similarly, some may feel that

social interaction between friends or lecturers is essential for them to encourage them to succeed in the E-learning session. In the study of Rovai et al. (2007, as cited in Harandi, 2015), graduates and undergraduates' motivation found that undergraduates feel less motivated in E-learning than graduates. Lawa et al. (2010, as cited in Harandi, 2015) found that a supportive instructor will increase students' learning motivation in an E-learning environment. According to Sandybayev (2020), the shift from traditional learning to online learning has made the students face difficulties adapting to it. Thus, it has become one of the aspects that decreases the student's motivations.

As mentioned above, E-learning has only been an additional or support material in the educational platform. However, it has now become the primary mode of teaching and learning due to COVID-19 issues. Previously, there are many types of research regarding the effectiveness of E-learning. Still, in this new situation that has never been happened, where the education sector has been forced to change teaching immediately, and learning occurs, not much reference is available. Hence, it is vital to investigate the effectiveness of E-learning during the current context.

This present paper intends to answer the following question: do perceive usefulness, perceived ease of use, and self-motivation influence E-learning's effectiveness as the primary teaching and learning process during the COVID-19 crisis?

Literature Review

The effectiveness of E-learning

According to Somayeh et al. (2016), learning is a development of information, skills and decision making that eventually leads to a shift in their action. E-learning has now become what could not be ignored; moreover, it has been widely used as technology has been circling people's lives. According to Salamat et al. (2018), E-learning utilizes technology to access the educational curriculum. The study has shown that by using E-learning, the youth will have more advantages as it motivates them to do their work without others' help.

Based on previous studies, E-learning's effectiveness can be seen through satisfaction and learning outcomes from the learning experience (Moloney et al., 2011, as cited in Noesgaard and Orngreen, 2015). Other studies have shown that E-learning effectiveness is measured by comparing two E-learning methods that are interactive and non-interactive with traditional learning (Panyajamorn et al., 2018), which resulted in the interactive method being better than other learning methods.

When the Covid-19 pandemic struck the world, many sectors have been forced to change how they usually conduct their work. The social distancing precautions have reduced the interpersonal contact to minimize community transmission that usually could spread rapidly in a dense social community like the university campus. Thus, the education sector has responded to

the pandemic with "emergency E-learning", which forces rapid changes from traditional learning to an online learning system (Murphy, 2020). İn this case, rapid changes happen in a way where students are not introduced first towards e-learning and unfortunately have no choice but to adapt to the change to receive education amidst the pandemic.

Al-Rahmi et al. (2015) stated that E-learning is an action of getting knowledge using a computer network-based environment. The development of E-learning has been crucial for universities as it gives many advantages to the universities. According to Bourdeaux and Schenack (2016), E-learning has been offered to higher education students, most likely adult students aged 25 years and older. These are because E-learning can offer flexibility towards these adult students that need to balance their responsibilities. Thus, it means that universities have offered E-learning for quite some time, but it is not fully utilized until now. Rudy (2007, as cited in Al-Rahmi et al., 2015) stated some of the advantages that E-learning offers are less dependency on time, and students can feel less shy asking questions. They can access materials easily from anywhere and at any time.

Technology Acceptance Model (TAM)

Studies and research on technology acceptance have been done a lot, especially in information systems. According to Masrom (2007), studies on technology acceptance can be observed through two organizational and individual levels. Studies on individual levels will emphasize the acceptance of the technology. İn term of acceptance is defined as a favourable decision that a person made towards the innovation (Taherdoost, 2017).
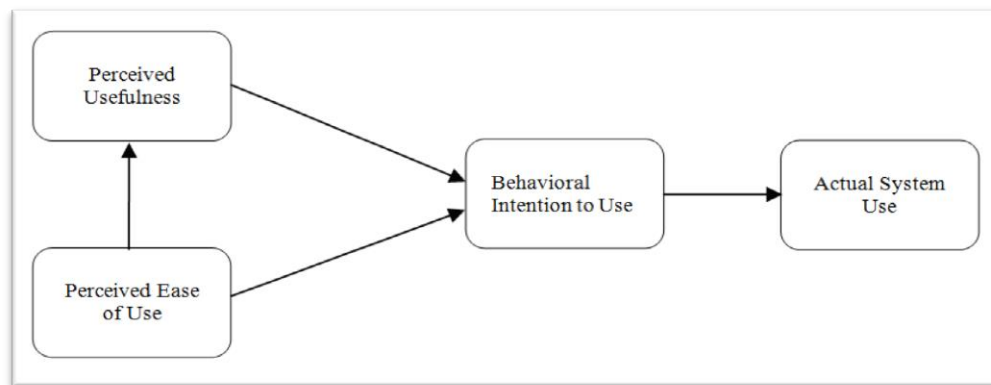

Figure 1. The Technology Acceptance Model (Davis, 1989)

The Technology Acceptance Model (TAM) is a model that focuses on predicting and assessing users in terms of accepting technology. Davis proposed the Technology Acceptance Model, as shown in figure 1 in 1989. The model is used to study the relationship on perceived usefulness, ease of use and attitudes and intention of adopting technology (Sun et al., 2008). On the other hand, according to Wu (2009, as cited in Farahat, 2012), the very core idea of the

Technology Acceptance Model (TAM) is when users' acceptance towards technology is determined through their perceived usefulness and perceived ease of use.

Perceived usefulness and perceived ease of use are the determinants for adopting new technology, considering E-learning as a new technology currently used. İn previous research shows that when perceived usefulness and perceived ease of use are more significant, the new technology's attitudes will be more positive (Tabak and Nguyen, 2013). However, in terms of an E-learning context, the perceived usefulness and ease of use are positively related with a behavioural intention on the new technology and not focusing on users' attitude towards the E-learning (Lee, 2008, as cited in Tabak and Nguyen, 2013).

Similarly, in a study by Al-Rahmi et al. (2015), the Technology Acceptance Model is not descriptive, yet it evaluates E-learning acceptance. The technology acceptance model was used in various studies involving E-learning, such as improve E-learning in terms of communication by Norliza in 2010, strategies for E-learning implementation by Yahya in 2009, and its effectiveness E-learning implementation at UTM by Rizka in 2009. These prove that most E-learning researchers use the technology acceptance model (TAM) to measure the outcome.

Perceived Usefulness

Perceived usefulness is defined as users' belief that technology can improve their performance. According to Selim (2003, as cited in Tabak and Nguyen, 2013), perceived usefulness represents users' extrinsic motivation towards using new technology. Thus, in terms of E-learning, perceived usefulness will involve the users' beliefs on E-learning to enhance their class performances. According to Tabak and Nguyen (2013), perceived usefulness can be predicted through perceived ease of use. For example, when users see that using a system is easy or dismisses extra efforts, they will likely believe that the system could improve their performance.

Other than that, perceived usefulness indicates that using technology results from users' enhanced learning performance (Faqih, 2016). Perceived usefulness has been used widely used to measure adoptions and acceptance, especially in E-learning researches. Previous research on E-learning showed perceived usefulness positively determined users' behavioural intention to use the E-learning platforms. İn fact, according to Faqih (2016), undergraduate students have the same findings to support the previous research.

According to Alsabawy et al. (2016), identifying the study's perceived usefulness can contribute to E-learning systems' effectiveness. The reliability of perceived usefulness in research to predict using technology is confirmed in David, Bagozzi and Warshaw's previous study in 1989. Najmul (2013) stated that perceived usefulness towards the E-learning context is necessary as previous studies failed to focus on the unique characteristics.

The users' ratings on perceived usefulness will be based on what the users believe in. İn depth, if the user sees the technology (E-learning) is beneficial for them, the ratings will be

higher (Al-Azawei and Lundqvist, 2015). Another study supported this notion: students would only accept the E-learning system if they perceive that their learning experience and performance will be better (Salloum et al., 2019). Next, a study by Tamara Almarabeh (2014) stated that both perceived usefulness and perceived ease of use are the factors that affect students in using E-learning, with perceived usefulness being the most significant factor on the students.

H1: Perceived Usefulness has a positive relationship with the effectiveness of E-learning

Perceived ease of use

Perceived ease of use is defined as "the degree to which an individual believes that using a particular system would be free of physical and mental effort" (Davis, 1986, as cited in Azawei and Lundqvist, 2015). Past studies of Gefen et al. (2003, as cited in Daneji et al., 2017) have reported a positive link between perceived ease of use and information technology adoption. Bhattacherjee (2001, as cited in Daneji, 2017) mentioned that perceived ease of use substantially impacted the satisfaction level and consistency to use the information system. In the online learning platform, perceived ease of use means students would not need to spend a lot of time and effort. Daneji (2017) also revealed that perceived ease of use was recognized and explained in TAM, boosting its continued usage.

According to Almarabeh (2014), perceived ease of use and perceived usefulness are the factors that influence the students' responses to the use of E-learning. However, perceived ease of use influences more the usage of E-learning by the students themselves. Lee (2010, as cited in Kwok, 2015) stated that when students feel that the E-learning platform is convenient, they appear to spend more time on the learning material, which resulted in higher engagement. Kwok (2015) mentioned students would feel happy with the systems when the E-learning is simple and straightforward.

Moon and Kim (2001, as cited in Ong et al., 2003) brought up that the individual will be more confident to engage in the E-learning platform if using the IT is not that difficult and complicated. As a student, it is normal for them to have many assessments and assignments that need to be completed. Hence, Huang et al. (2020) stated that students are more interested in using technology in their learning session if technology usage involves a minimal degree of effort. Huang et al. (2020) also mentioned students would resist using the technology entirely if it is complicated despite the benefits they may receive by using the technology in the E-learning platform.

Previous research of Punnoose (2012) is more likely to use E-learning if they view the system as easy to use. Thus, in the E-learning platform, it should be more user-friendly and cost-efficient. Ibrahim et al. (2017) found that system self-efficacy, perceived ease of use, and E-learning intention are essential factors that influenced higher education students to use the E-learning platform. Salloum et al. (2019) found that the degree of user-friendliness and perception of the usefulness weres considered the strongest determinants to use the E-learning platform. The

developers indeed must build a system that is both practical and easy.

Abdullah and Toycan (2017) claimed that perceived usefulness and perceived ease of use positively influence their perspective to use the technology. Abdullah and Toycan (2018) claimed that factors that lead to E-learning applications' success are based on the technology's easiness and accessibility. Thus, it concludes that perceived ease of use has a vital significance towards using the technology.

H2: Perceived ease of use has a positive relationship to the effectiveness of E-learning

Self-motivation

The motivation was described by Paris and Turner (1994, as cited in Nurshahidah et al., 2020) as the driver of learning. This notion was supported by Howe (1998, as cited in Nurshahidah et al., 2020) that the source of human learning is motivation. By engaging in these activities, it requires a lot of time, resources, and effort. Howe (1998, as cited in Nurshahidah et al., 2020) stated that the students would attend the learning session only when there is an incentive or a high level of motivation. However, E-learning, especially amid COVID-19, does not positively impact the students' motivation to learn. This condition is because it requires a high cost of Internet usage, time taking, dedication and energy (Nurshahidah et al., 2020).

Widjaja and Chen (2017) mentioned that learning's effectiveness is when students have a high motivation level. This was supported by many researchers where motivation is divided into two types which are intrinsic motivation and extrinsic motivation. According to Widjaja and Chen (2017), they are more focused on extrinsic motivation, which is about user behaviour. Even so, Agarwal (2000, as cited in Widjaja and Chen, 2017) claimed that intrinsic motivation still plays a vital role. Studies of Afzal et al. (2010, as cited in Harandi, 2015) mentioned that intrinsic and extrinsic motivation positively affects students' academic achievement. It also stated that internal and external motivation are factors that improve the student's success. Many studies have indicated that there is indeed a positive correlation between both motivation and learning effectiveness (Widjaja and Chen, 2017).

The use of technology in online learning does not mean it can drive the motivation of the students. El Seoud et al. (2014) mentioned that E-learning had led to less engagement between the students and lecturers. Lecturers need to consider their students' motivating factors because online teaching's future direction can be associated with students' enthusiasm (El Seoud et al., 2014).

Past studies of Kim and W. Frick (2011, as cited in Harandi, 2015) indicated that motivation during self-directed E-learning was a powerful predictor that helped shift the person to become positive. Research of Bhuasiri et al. (2012, as cited in Harandi, 2015) claimed that other than understanding the technology and change of learner behaviour, motivation is also critical in developing a successful E-learning in developing countries. As referring to Kim and W. Frick

(2011), four things make the students have a high level of motivation and satisfied with the E-learning platform which is a) they interpret the material as necessary to their lives; b) they are technologically fluent; c) they are more inspired both at the beginning and during E-learning, and d) they interpret e-learning as "just right" for them. However, some students feel E-learning is not suited for them as they prefer to work along with friends or receive guidance from the lecturers. Thus, these students think self-directed E-learning is not suitable for them and not motivated to enjoy the learning session (Kim and W. Frick, 2011).

H3:Self-motivation has a positive relationship with the effectiveness of E-learning.

Methodology

Population and Sampling Procedures

This research is quantitative-based and used the online questionnaire as the survey instrument to gather the data regarding the effectiveness of E-learning in the higher institution amid the COVID-19 crisis. The platform used in this research is a Google Form to gather the respondents quickly during social distancing, and it is more cost-saving and time-efficient. Respondents in this study were taken from Bachelor students studying at a private university in Kuala Lumpur. Bachelor students' total population is 2796; therefore, the sampling size required is at least 338. Random sampling was used where each person in the population has an equal possibility of being selected. A total of 354 data was collected.

Research Instruments

The questionnaire consists of 28 questions with 5 sections, Section A, Section B, Section C, Section D, and Section E. Section A is about the demographic section that provides an individual's demographic profile. The demographics variables questioned are age, gender, course, semester, and preferences. Section B to section E consists of items to measure the variables in which the items were adopted and adapted from previous studies. The variables in Section B is about self-motivation. The items were adopted from Wang (2013); variables in Section C is perceived usefulness. The items were referred from Al Maroof and Al-Emran (2018), variables in Section D is on perceived ease of use which the items was taken from a study of Ramirez-anormaliza (2015) and Nadia et al. (2013). Lastly, section E talked about the dependent variable, which is the effectiveness of E-learning, and the items were adopted from the studies of Hussaini et al. (2020) and Burac et al. (2019). The scaling applied in this study is the 5-point Likert scale of 1-strongly disagree, 2-disagree, 3-neutral, 4- agree, and 5-strongly agree.

The demographic section consists of 5 questions about age, gender, course, semester, and E-learning preference. The results show that there is only 2 group of age for Bachelor students at the institution. Most of the Bachelor students aged between 21-30 years old with 90.4%, while 18-20 years old only represents 9.6% of the total respondents. As for gender, it indicates that the female is higher by 66.9% and male with 33.1%. In the course distributions, it shows that

students from the Bachelor in Management and Entrepreneurship (BBA ME) were the highest respondents (41.5%), followed by students from the Bachelor in Accounting (BACC) 24.6%. Subsequently, students from the Bachelor in International Business (BBA IB) take up 11.6%, Bachelor in Islamic Finance (BBA IF) with 8.5%, Bachelor in Marketing (BBA MKTG) 7.1% and finally students from Bachelor of Tourism Planning and Development (BTPD) with only 6.8%. Most of the respondents are in their 6th semester with 29%, followed by the 5th semester, and third is in the 7th semester. Students from the 10th semester are the least with only 1.1% with a total of 4 students. According to the result gathered, many students do not favour E-learning as a platform for their educational learning (55.6%). There is only a slight difference between respondents who prefer E-learning (44.4%) as a platform of their educational learning and those who do not make it only 11.2 % of the difference.

Table 1. Descriptive Analysis

DEMOGRAPHIC FACTORS	CATEGORIES	PERCENTAGE (%)
AGE	18-20	9.6
	21-30	90.4
	31-40	0
	40 and above	0
	TOTAL	**100**
GENDER	Male	33.1
	Female	66.9
	TOTAL	**100**
COURSE	BBA ME	41.8
	BBA MKTG	7.1
	BTPD	6.8
	BBA IB	11.9
	BBA IF	7.9
	BACC	24.6
	TOTAL	**100**
Would you prefer E-learning as a platform for your education learning?	Yes	44.4
	No	55.5
	TOTAL	**100**

Convergent Validity Analysis

Convergent validity is the test to measure how multiple items measure the same concepts agree. Also, convergent validity refers to all items measuring a construct loading on a single construct (Hair et al., 2017). The factor loadings composite reliability (CR) and average variance extracted (AVE) are used to assess the convergent validity. Besides, Cronbach's Alpha (CA) is also used to test the convergent reliability as well. Table 2, as presented below:

Table 2. Convergent Validity

Construct	Items	Loadings	CA	CR	AVE
Perceived Ease of Useful	PEOU 1	0.822	0.928	0.945	0.741
	PEOU 2	0.890			
	PEOU 3	0.895			
	PEOU 4	0.853			
	PEOU 5	0.801			
	PEOU 6	0.897			
Self –Motivation	SM 1	0.807	0.885	0.916	0.684
	SM 2	0.849			
	SM 3	0.821			
	SM 4	0.830			
	SM 5	0.829			
Perceived Usefulness	PU 1	0.874	0.812	0.906	0.663
	PU 2	0.886			
	PU 3	0.826			
	PU 4	0.866			
	PU 5	0.577			
Effectiveness E-Learning	EL 1	0.855	0.897	0.925	0.712
	EL 2	0.847			
	EL 3	0.895			
	EL 4	0.774			
	EL 5	0.843			

Notes: CA = Cronbach's Alpha, CR = Composite Reliability; AVE = Average Variance Extracted.

Discriminant Validity

Discriminant validity is referring to the extent to which the construct is differing from one another empirically. It also measures the degree of differences between the overlapping construct (Hair, J et al., 2014). The discriminant validity can be evaluated using cross-loading of indicator, Fornell & Larcker criterion, and Heterotrait-Monotrait (HTMT) ratio of correlation (Ab Hamid, M. R. et al., 2017). Based on table 3 below indicates that there is a significant relationship between each independent variable with dependent variables. E-learning's perceived usefulness and effectiveness have a positively uphill solid relationship that is highly correlated (r = 0.809). This means people think E-learning is convenient in which can help to improve their work. Followed by self-motivation, there is a positively uphill solid correlation (r = 0.780) and has a substantial relationship with E-learning effectiveness. This shows people are willing to use E-learning as their educational platforms when they feel highly motivated.

Furthermore, perceived ease of use also plays a vital role in E-learning's effectiveness, indicating a positively moderately uphill linear relationship (r= 0.688). If the E-learning platform is not complicated and easy to use, they are more likely to use and think it is useful. This result shows that of all three variables, perceived usefulness influences the effectiveness of E-learning the greatest.

Table 3. Discriminant Validity

	Perceived usefulness	Perceived ease of use	Self-motivation	Effectiveness
Perceived usefulness	1			
Perceived ease of use	0.694	1		
Self-motivation	0.820	0.615	1	
Effectiveness	0.809	0.688	0.780	1

Data Analysis

The purpose of data analysis was used to test the hypothesis. In this study, researchers used the SMART PLS version 3.0, a variance-based structural equation modelling (SEM). JF Hair et al. (2017) mentioned that under SEM, a two-step analytical procedure was adopted to analyze the data. Before the two-step approach can be pursued, the Google Form's data must be transferred to Microsoft Excel. After data cleaning is completed, the cleaned data be transferred into SPSS (version 23.0). The SPSS software produces some results (descriptive) shown in Table 1 and Table 2. The data transferred to the PLS-SEM software, and the first step is to evaluate the measurement model. The measurement model can be tested with convergent validity and discriminant validity. Then after the validities can be confirmed, the second step is followed by a structural model to the hypothesis.

Results

Path Analysis

Path analysis via a bootstrapping procedure with a resample of 338 is conducted to assess the structural model. Bootstrapping is a procedure whereby a large number of subsamples are taken from the original sample with replacement to give standard bootstrap errors, which in turn gives approximate t-values for significance testing of the structural path, and the bootstrap result approximates the normality of data (Hair, J. F. et al., 2019).

Table 4. Path Analysis

Hypothesis	Relationship	Beta	Std Error	t-value	p-value	R^2
H1	PEOU-> EL	0.351	0.054	6.535	0.000	
H2	SM-> EL	0.322	0.045	7.221	0.000	0.72
H3	PU -> EL	0.197	0.036	5.466	0.000	

Table 4 shows that the study results confirmed that perceived ease of use (PEOU), self-motivation (SM), and perceived usefulness are significant for E-learning effectiveness. According to Hair et al., 2019, the value of R2 for the study is more than 0.67, so that the results are more than substantial. In the study, the R^2 value is 0.72, which shows that significant to accept.

PLS-SEM

The two-step analytical procedure to show the results of the PLS-SEM can be presented. The measurement model, which has convergent validity and discriminant validity, is presented in figure 3 below. The structural model can only be analyzed after the measurement model has been validated successfully. The researcher first examined the path coefficients (β value) between constructs to identify significance using computed T-statistics (t-value).
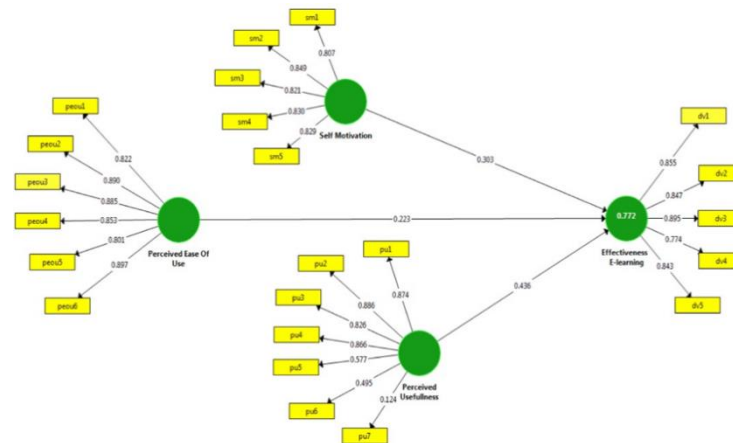

Figure 3. Measurement Model

The first model was presented with a direct path from perceived usefulness, perceived ease of use, and self-motivation. All variables show that they are significant at the p-value, 0.000, and the path coefficient of 0.303, 0.223, and 0.436, respectively. At this point, no indirect effect was hypothesized or evaluated. Based on Figure 2 above, perceived usefulness contributes the highest with 0.436 to the relationship with E-learning effectiveness. The items inside perceived usefulness that contributed most towards being the highest relationship are PU1, PU2, and PU4.

The models had:

1)   a direct path from perceived usefulness to the effectiveness of E-learning
2)   a direct path from perceived ease of use to the effectiveness of E-learning
3)   a direct path from perceived self-motivation to the effectiveness of E-learning

This study investigates the impacts of perceived usefulness, ease of use, and self-motivation towards E-learning's effectiveness in a higher education institution amid the global pandemic and social distancing order. Based on the results, students do not prefer E-learning as a primary platform in teaching and learning, with 55.6% (197 respondents) and 44.4% (157 respondents) saying they prefer E-learning which contradicts the research finding by Paechter and Maier (2010). In their research, the result indicates students put much more favourable towards E-learning rather than traditional learning.

Perceived Usefulness:

The current respondents for this study for the perceived usefulness and effectiveness of E-learning are acceptable. This means the students in this study perceived E-learning as useful towards the effectiveness of their E-learning experience in saving their time, improving their performance, increasing productivity, and increasing their efficiency. This can also be seen in past research by Faqih (2016), which states that higher perceived usefulness will indicate and motivate students to use the E-learning platform. The result is similar to Faqih (2016), and Almarabeh (2014) 's findings that perceived usefulness has the most significant determination on students' attitudes on using E-learning platforms.

Perceived Ease of Use:

The relationship between perceived ease of use and the effectiveness of E-learning showed an acceptable link. This arguably because students see perceived ease of use in the E-learning platform effectively to support E-learning's overall process. This finding is supported by past research that recognized the perceived ease of use as the most influential factor in terms of adoption by users (Huang, Teo & Scherer, 2020).

Self-motivation:

The result in this current study for the relationship between self-motivation and effectiveness of E-learning is highly correlated. Harandi (2015) also supported the result, which states a significant relationship between E-learning and students' motivation. According to Kim & W. Frick (2011, as cited in Harandi, 2015), students are more likely to be motivated to engage with E-learning successfully, thus achieving the learning objectives. This reflects that the students have their general computer skills and E-learning platform skills, influencing their self-motivation. As found by Wang (2013), students who have higher technological skills would receive better grades using E-learning platforms.

Conclusion

Way before the COVID-19 crisis, the development and adoption of technology in education were already there. However, the online learning platform has only been an additional platform in the educational sector. It is not the central platform in conducting the classes. As a result of the pandemic, the system has changed rapidly, with E-learning taking place as the primary teaching and learning mode. All universities around the world had to switch their learning style to online entirely. Indeed, this COVID-19 pandemic has wholly altered the educational system that many perceive to have lacked in its value. However, this study has proven students have been exposed to E-learning in the right way. From our result, a significant contribution is that we found students still think perceived ease of use, perceived usefulness, and self-motivation is the reason that contributes to the effectiveness of E-learning. Either during the pandemic crises or in a

normal situation, E-learning's effectiveness is still relevant to its perceived usefulness, ease of use, and self-motivation of the student to use E-learning. This paper proved that students of higher learning E-learning, although less favourable to embark on E-Learning as the primary teaching and learning approach, the approach's effectiveness is still acceptable because they perceived usefulness and perceived ease of use as acceptable. Additionally, as the students' IT literacy is relatively good, they develop self-motivated to learn online.

Conflict of interest

Funding

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