APPLICATION OF TECHNOLOGY ACCEPTANCE MODEL (TAM) TOWARDS ONLINE LEARNING DURING COVID-19 PANDEMIC: ACCOUNTING STUDENTS PERSPECTIVE

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ABSTRACT

Teaching and learning approach for higher education institution in Malaysia has dramatically changed due to the emergence of Coronavirus (Covid-19) in the early year 2020. The rapid spread of Covid-19 has impacted the education system where all higher institutions need to move for online learning. This sudden situation has affected students to accept changes in the learning method from physical classes to virtual classes. However, there are some challenges in practicing online learning. For instance, technical difficulties such as limited internet access as well as the coverage and speed of internet would disrupt their classes. Besides, students' enthusiasm towards learning is decreased because of inconvenience environment at home. In between that, students might not have an interest in accepting online learning. Therefore, this study aims to examine the factors of students' acceptance for online learning in a higher education institution. Technology Acceptance Model (TAM) has been proven to be a theoretical model to explain students' acceptance of online learning. There are two constructs which are perceived usefulness and perceived ease of use will be applied in this study that mediate to attitude towards online learning. Hence, this study is targeted undergraduate accounting students at Universiti Tunku Abdul Rahman (UTAR), Kampar Campus. The data collection is analyzed through Structural Equation Modeling (SEM) with the use of Partial Least Square approach (PLS). As a conclusion, this study is expected to encourage students to perform online learning consistently and free from any obstacles like internet problems. It is also to encourage university to further improve the online learning process and its platform.

Keywords: online learning, technology acceptance model (TAM), perceived usefulness, perceived ease of use, accounting student.

INTRODUCTION

Due to the recent worldwide Covid-19 pandemic, many countries are facing turbulences in maintaining the stability of its political, economy and social welfares. Most of sectors in a country are being affected due to this pandemic and no exception for sectors in Malaysia in struggling to fight Covid-19. One of the sectors that badly affected in Malaysia is a higher education institution. Because of that, the method of learning is totally changed whereby face-to-face learning activities (physical classes) are no longer practical and replaced to online learning method (virtual classes). Online learning can be described as a distance learning where students and lecturers are in other location but still can be interacted by using the Internet (Bartley & Golek, 2004). The common terms that also used are e-learning, tele-learning, computer-assisted learning, web-based learning and virtual learning (Sing & Thurman, 2019; Moore, Dickson-Deane & Galyen, 2011). It is difficult to develop a definition of online learning because the terms are same concept that refer to distance learning (Perry & Pilati, 2011; Park & Choi, 2009; Ally 2004). However, both e-learning and online learning are using the internet to interact between students and lecturers (Moore et al., 2011). But they can be differentiated with students' freedom where e-learning can be accessed independently compared to online learning where students have to interact face-to-face with the lecturers to perform online class. Therefore, the term of online learning will be applied in this study to identify the factors that influence students' acceptance towards online learning.

Since Covid-19 pandemic has spread, most of the higher institutions have changed the learning method from physical class to online learning. Therefore, some difficulties faced by both students and lecturers. In particular, technical difficulties such as limited internet access as well as the coverage and speed of internet would disrupt online classes. Landrum (2020) highlighted the technology infrastructure must be well equipped to ease the online learning process. It also can enhance students' ability to perform online classes and satisfy with perceived usefulness of online learning. Park (2009) mentioned another problem of online learning is a web-based education platform. On the other hand, students' enthusiasm towards learning is decreased because of inconvenience environment at home. Hence, students might not have an interest in accepting online learning. Saade (2003) stated many universities faced enormous difficulty in online learning that cannot meet students' expectations and may cause unexpected failure (Kilmurray, 2003). Because of that, students being discontented, dissatisfied and displeased with their online learning experience (Bristow, Shepherd, Humphreys & Ziebell, 2011).

Hence, research assessing students' perceptions and acceptance of this online learning is necessary to further explore especially when the institutions and students are not prepared for such transformation in a short period of time due to the pandemic of Covid-19. Therefore, the objective of this study is to identify the factors influencing the online learning by using the Technology Acceptance Model (TAM) which include two important factors that refer to perceived ease of use and perceived usefulness. This study also aims to examine the relationship between independent variables on mediating variable which is attitude towards acceptance online learning behavior as a dependent variable. Furthermore, this study could encourage students to perform online learning consistently and free from any obstacles like internet problems. It is also to encourage university to further improve the online learning process and its platform.

LITERATURE REVIEW

Perceived ease of use (PEOU)

Perceived ease of use (PEOU) can be an indicator that influence students' attitude to accept online learning as a new platform for their studies. PEOU is referred to if student thinks the platform can be used easily then the platform will be useful and beneficial for them. It is consistent with Davis (1989) definition of PEOU as 'one's belief that using the system will be free of effort'. To give an idea, Taat and Francis (2020) conducted a study to examine the level of students' acceptance of e-learning and identify factors that could influence it at a teacher education institute in Malaysia. This indicates that PEOU as a convenience factor is significantly influence the students' acceptance where the e-learning can provide them with a good, detail, timely and accurate information. In addition, Johari, Mustaffha, Ripain, Zulkifli, Ahmad (2015) expected that e-learning which provide course materials will be a self-learning time for the students after the face-to-face learning online. By doing this, students can access the sharing course materials easily and subsequently accept the online learning. They found out that PEOU has a significant influence on attitude of students towards online learning. On the other hand, Farahat (2012) identified the determinants of students' acceptance towards online learning and examine how these determinants can lead to students' intention to use it. As the result, it showed that students were not perceived the easiness of learning online. It was found out that students have a negative perception that online learning is not something that is easy to use.

Perceived usefulness (PU)

Perceived usefulness (PU) also can influence students' desire to use a new platform and subsequently influence the acceptance of online learning. Davis (1989) mentioned that usefulness is concern on 'how well a person believes that using a particular system will improve their performance'. As proof, Taat and Francis (2020) stated that e-learning improves learning performance and by taking an online course it also can be increased their productivity. They showed a positive impact on the acceptance of e-learning that could enhance understanding and effectiveness of learning online. Meanwhile, Johari et al. (2015) found out that PU has significantly influence students' intention to use online learning and also influence students' attitudes to accept the online learning. Besides that, PEOU is considerable to influence PU of technology. Then as well, Farahat (2012) showed a contradict result on his study. He mentioned that students will perceive that online learning can aid them to improve their learning performance and there is a hope that they can accept to use the online learning. But the result showed that students were not be conceived as perceiving the usefulness of online learning.

Attitude and online learning

Attitude is the degree of interest related to the person's actual behavior (Farahat, 2012). Better attitude could increase the willingness person to accept new technology. It is highlighted in TAM that perceived ease of use and perceived usefulness would be the factors that influence the attitude to the person in adoption of the technology (Ramayah & Ignatius, 2005). For instance, Reis (2010) examined the attitude towards online learning of undergraduate business administration and found that students were considered to have positive attitudes towards the interaction in technology-based learning environment. More experience in online learning had a better attitude towards technology-based learning. It is consistent with the study from Prior, Mazanov, Meacheam, Heaslip and Hanson, (2016) examined the attitude is an important indicator for online learning. The result reveals the positive attitude will generate a positive outcome when the students are willing to try a new method for online learning. Likewise, Ku and Lohr, (2003) explored the culture and attitude among Chinese Students' for online learning. The study reveals the attitude towards online learning positively preferable for both Asian country and US. Conversely, Ullah, Khan and Khan (2017) conducted a study on the attitude towards online learning of undergraduate students in University of Peshawar. He found that no positive attitude due to the high difficulty level in understanding and using online learning programme without having appropriate guidance. In addition, Abdulla, (2012) studied the attitude towards online learning of college program. The result reveals insignificant relationship between attitude towards online learning and acceptance online learning behavior because students feel difficult for a calculation course.

Acceptance of online learning behavior

Many previous studies on technology adoption have showed attitude as an important factor for the acceptance behavior (Hussien, 2017; Alharbi & Drew; 2014; Liu, Liao, & Peng, 2005). Bhattacherjee and Sanford (2009) demonstrate that attitude will lead to a good intention for accepting a new environment. Acceptance behavior is posited to be affected by attitude (Edison & Geissler, 2003). As such another study by Au and Enderwick, (2000) conducted a review of attitude toward technology adoption showed that there is no significant relationship with the actual use in technology.

### Technology Acceptance Model (TAM)

Technology Acceptance Model (TAM) was founded to be used in many studies to explain the users' perceived acceptance of technology. Liu, Liao & Peng (2005) found the constructs in TAM could explain continuance intention in the context of education. This result is revealed by Ibrahim, Leng, Yusoff, Samy, Masrom, & Rizman, 2017 that PEOU and PU can influence users' continuance intention toward e-learning. Similarly, Purnamasari & Advensia, 2014 explained the PEOU and PU could influence e-learning continuance intention. Hence, TAM is more appropriate to be applied in online contexts because of TAM is specific on information system usage for applying the concepts of ease of use and usefulness.

By origin, TAM was proposed by Davis (1986) as an adaption of Theory Reasoned Action (TRA) that has been proven to be a theoretical model in helping to explain and predict user behavior of information technology. Davis, (1989), showed that PEOU influence of behavioral intention through PU. PU had a direct impact on intention to use, while PEOU influence intention to use indirectly through attitude. The attitude was concerned with the user's evaluation of the desirability of employing a particular information system application. Also, behavioral intention was the measure of the likelihood of a person employing the application.

Sukendro, Habibi, Khaeruddin, Idrayana, Syahruddin, Makadada & Hakim (2020) determined that PEOU and PU and attitude have a direct and positive effect on continuance intention for e-leaning continuance intention during Coronavirus Virus Diseases 2019 (COVID19). In Malaysia there are many studies used TAM as a model for investigating the factors that influence students' acceptance for online learning in higher education institution (Wong, Teo & Russo, 2012, Arumugam, 2011, Wong, 2013, Luan & Teo, 2009). Therefore, TAM as the fundamental model with some constructs were well chosen in this study to investigate the factors that influence students' acceptance for online learning in higher education institution.

CONCEPTUAL FRAMEWORK AND HYPOTHESE DEVELOPMENT

Figure 1: Conceptual Framework
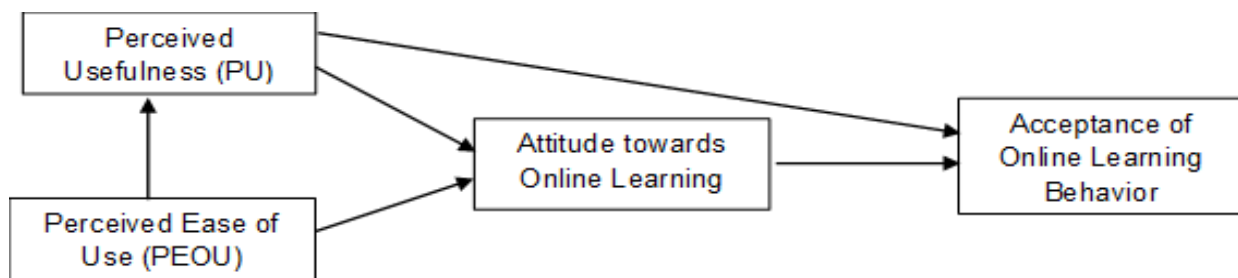
There are two independent variables that consist of PEOU and PU; and one mediating variable that is attitude towards online learning. To examine whether there is relationship between these two independent variables and one mediating variable towards acceptance of online learning behavior, the following hypotheses are developed:

H1: PEOU has a significant relationship on PU.
H2: PEOU has a significant relationship on attitude towards online learning.
H3: PU has a significant relationship on attitude towards online learning.
H4: PU has a significant relationship on acceptance of online learning behavior.
H5: Attitude towards online learning has a significant relationship on acceptance of online learning behavior.

RESEARCH METHODOLOGY

Data collection method

In an effort to determine the factors that influence the acceptance of online learning, a survey questionnaire was developed through Google form with two sections (Section A and Section B). Section A was demographic data such as gender, location and total hours spend on the Internet per day. While, Section B was psychometric data that consists of two independent variables which are perceived ease of use and perceived usefulness, one mediating variable which is attitude towards online learning and one dependent variable which is acceptance of online learning behavior. The response of the statements is in the form of 5-point Likert-type scale of between strongly disagree (1) to strongly agree (5). Since this study was conducted during the movement control order caused by the Covid-19 outbreak, then by developing survey questionnaire has been seen as a good way to collect data within a short period of time. This survey questionnaire was distributed via online by sharing the Google form link to the targeted respondents which are undergraduate accounting students under Faculty of Business and Finance, UTAR, Kampar Campus.

Population

The population is determined based on the objective of the study which aims to examine the factors of accounting student acceptance for online learning. Therefore, population for this study is undergraduate accounting students from Faculty of Business and Finance, UTAR, Kampar Campus. The number of accounting students enrolled until January 2020 intake was approximately 1,100 students (Division of Admission and Credit Evaluation, UTAR). According to Sekaran and Bougie (2012), the highest sample size for a large number of populations was only three hundred and eighty-four (384). Therefore, three hundred and fifty-six (356) accounting students were selected for this study as they are the targeted respondents in order to measure the acceptance for online learning behavior. However, only three hundred and thirty-three (333) was successful collected and useable to conduct this study.

Sampling method

Sampling frame will represent of all elements in the population from where the sample is drawn (Sekaran & Bougie, 2012) such as the accounting students comprises a listing of all Year 1, Year 2 and Year 3 and some of them are from urban and rural area. Therefore, convenience sampling was used in this study to obtain the data quickly and efficiently. To be specific, this sampling method was selected because the number of undergraduate accounting students is highest compared to other courses and they are moved to online learning by using Microsoft Teams for the first time since the campus is closed due to Covid-19 outbreak. Besides that, most of accounting subject contents are calculation basis where physical class is deemed to be more practical to learn. But when the physical learning process turns into online learning it seems to be difficult for students and this can affect their acceptance of online learning.

DATA ANALYSIS

In order to test the conceptual framework and developed hypotheses, Structural Equation Modeling (SEM) with the use of Partial Least Square approach (PLS) has been employed in this study. The following tables were used to present the results showing the relationship between dependent and independent variables.

There are three sample demographic profile of respondents with respect to gender, location and total hours spend on the Internet per day. The survey showed that urban location was 57.7% and rural location was 42.3%. Majority of the respondents was female (76.9%) and male (23.1%) due to number of female students are higher in the accounting course. Meanwhile, total hours spend on the Internet per day showed that majority of the respondents were spending more than 8 hours (49.2%) on the Internet per day and there was 24.6% for 6 hours to 8 hours, 20.1% those spending 4 hours to 6 hours on the Internet per day, 5.1% those spending 2 hours to 4 hours on the Internet per day and 0.9% less than 2 hours on the Internet per day. Table 1 showed the frequencies of respondents' demographic profiles.

Table 1: Demographic Information of Respondents (n=333)

		Frequency	Percentage (%)
Gender	Male	77	23.1
	Female	256	76.9
Location	Urban area	141	42.3
	Rural area	192	57.7
Total hours spend on the Internet per day	Less than 2 hours	3	0.9
	2 hours to 4 hours	17	5.1
	4 hours to 6 hours	67	20.1
	6 hours to 8 hours	82	24.6
	More than 8 hours	164	49.2

Cronbach's alpha value for each construct was generated. From this test, the alpha level that more than 0.9 is considered as excellent reliability, from 0.8 until 0.9 is very good reliability, from 0.7 until 0.8 is considered as good reliability, from 0.6 until 0.7 is considered as moderate reliability, less than 0.6 will be consider as poor reliability (George & Mallery, 2003). Table 2 below highlights the reliability analysis results which stated that perceived ease of use has a value of 87.7% followed by perceived usefulness is 89.3% then attitude towards online learning 83.7% and acceptance of online learning behavior 89.2%.

Table 2: Reliability Analysis Result

	Cronbach's Alpha
Perceived ease of use	0.877
Perceived usefulness	0.893
Attitude towards online learning	0.837
Acceptance of online learning behavior	0.892

In Table 3, it shows the results of relationship between two independent variables on mediating variable. The perceived ease of use has a significant on perceived usefulness ($p < 0.05$). Meanwhile, the perceived ease of use and perceived usefulness ($p < 0.05$) has a significant relationship on attitude towards online learning. Besides, perceived usefulness towards acceptance online learning behavior also has a significant relationship ($p < 0.05$). Therefore, H1, H2, H3, H4 and H5 are supported in this study. These results were consistent with the past studies (Taat & Francis, 2020; Johari et al., 2015) for PEOU and PU and (Reis, 2010; Prior et al., 2016) for attitude towards online learning. It showed that attitude towards online learning mediates both the relationship between PEOU ($p < 0.05$) and PU ($p < 0.05$) towards acceptance online learning behavior. Therefore, H5 is supported in this study.

Table 3: Result of the Structural Model

	Sample Mean (M)	Standard Deviation	T Statistics	P Values	Hypotheses
Perceived ease of use on perceived usefulness	0.867	0.016	53.907	0	H_1 accepted
Perceived usefulness on attitude towards online learning	0.573	0.071	8.152	0	H_2 accepted
Perceived ease of use on attitude towards online learning	0.82	0.023	35.216	0	H_3 accepted
Perceived usefulness towards acceptance online learning behavior	0.487	0.061	7.964	0	H_4 accepted
Attitude towards online learning to acceptance online learning behavior	0.849	0.025	34.071	0	H_5 accepted

CONCLUSION

This study represents result in examining the useful of TAM model to explain the factors that influence acceptance online learning behavior. The result is similar to previous studies (Taat & Francis, 2020; Hussien, 2017; Johari et al., 2015; Mazanov et al., 2016). One of the important findings of this study is to encourage individual intention to accept technology as a new learning platform. Students' acceptance behavior towards online learning has been influenced by mediating of attitude between perceived ease of use and perceived usefulness. This relationship validates the original TAM model where perceived ease of use and perceived usefulness are hypothesized directly to affect the attitude. In between, perceived usefulness can be directly hypothesized to online learning behavior. This is because online learning become compulsory at UTAR and considered as a convenient platform to continue study during Covid-19 outbreak.

In the context of implementation, the current online learning practices will impact the future education. The drawbacks of sudden implementation of online learning could lead Government, regulators and other practitioners to improve the online education as well as enhance the learning process. Obviously, valuable feedback from students and lecturers should be considered for future development of online education since the learning methods in higher education institutions have drastically changed due to the Covid-19 outbreak worldwide. The feedbacks could motivate the university to enhance the quality of online learning platform for the future.

This current study has focused on private university (UTAR) and undergraduate accounting students solely where results can only be obtained and generalized from them. Therefore, for future study the researchers should consider to extend the TAM model for external factors like Internet accessibility, environmental structuring and system characteristics. Besides, the researchers can expand the geographical area to other states and select several public and private universities. It is important for researchers to consider larger populations to have a better perception and view towards online learning.

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