INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS & SOCIAL SCIENCES

Vol 12, Issue 6, (2022) E-ISSN: 2222-6990

Exploring the Moderation Effects of Gender Differences and Self-Efficacy in the Adoption of E-Learning Systems

Norliana Omar, Siti Marlia Shamsudin, Norhayati Zamri & Noor Saatila Mohd Isa

Faculty of Accountancy, Universiti Teknologi MARA, Perak Branch, Tapah Campus, 35400 Tapah Road, Perak, Malaysia

Email: norli793@uitm.edu.my, sitim008@uitm.edu.my, norha266@uitm.edu.my, noors464@uitm.edu.my

To Link this Article: http://dx.doi.org/10.6007/IJARBSS/v12-i6/13913 DOI:10.6007/IJARBSS/v12-i6/13913

Published Date: *21* June 2022

Abstract

Current and exponential developments concerning information and communication technologies have triggered significant shifts in the education area, resulting in individuals being exposed to the new advancement systems such as e-learning. With regards to this issue, the objective of this study was to investigate adoption of e-learning in higher education among undergraduates accounting students. Perceived usefulness and perceived ease of use are the two independent variables tested in this study. The moderating effect of gender differences and self-efficacy on the adoption of e-learning additionally has been examined in this study to fill the gap. All accounting students in UiTM Tapah were selected to be the respondents of the study. In terms of data collection, questionnaires were distributed through an online platform. The findings revealed that perceived usefulness and perceived ease of use have positive and significant associations with e-learning adoption among accounting students. For the moderating relationship, the outcomes of gender differences and self-efficacy were proved to have no moderating effect on the e-learning adoption. Thus, the findings of this study provide some useful implementations to the academic institutions and governing authorities to design further practical and adaptable e-learning approaches to ensure successful implementation of virtual learning for the upcoming years.

Keywords: E-learning, Gender, Perceived Ease of Use, Perceived Usefulness, Self-Efficacy

Introduction

The swift development in the economic, social, political and education in Malaysia has been at a commendable level and even at the Asian level, Malaysia has become the talk of the town. One of the factors that increased the development of education in Malaysia is the advancement of information technology and communication (ICT). ICT is the technology that is used to handle communications processes such as telecommunications, broadcast media,

intelligent building management systems, audio-visual processing and transmission systems, and network-based control and monitoring functions (Information and Communications Technology, 2020). In this digital era of the current ICT revolution, education sector in Malaysia is not being left behind in undergoing an andragogy and pedagogy digital transformation. Recent rapid growth of educational technology has shown the reality that students are now more literate in the use of technology. The concept of borderless learning at the current pace of technology such as online learning is capable of revolutionizing education apart from minimizing the physical limitations of traditional learning. The usage of online learning is not only believed to improve the interest and reviving the students' mind but also has been recognized as a stimulant of a successful teaching and learning process. Due to this impetus of online or e-learning, developed countries have long recognised it and implemented the practices. E-learning is actually an online learning process that use the Internet either the use of e-mail and discussion space between students and lecturers where they do not need to be on the discussion platform at the same time; or through media support such as video conferencing and chat rooms which is known to have the potential to support the development and advancement of students' learning process.

Many higher education institutions are now offering a variety of online learning models and options but studying each of these elements and making sure they fit for students can be a tricky process especially when the transition from traditional learning into e-learning was rapidly performed. Since the outbreak of the Pandemic Covid-19, lecturers and students have to make rapid transitions in adjusting to new life norms, through e-learning in the teaching and learning process. In relation to that, Universiti Teknologi MARA (UiTM) has introduced a platform by assembling all e-learning systems on campus that can be used by students and lecturers that is called uFUTURE. This e-learning platform not only serves as a medium for lecturers to upload lecture content, but students can evaluate the lecturers' teaching and even the management can monitor the e-learning process in each faculty.

However, to ensure effective e-learning methods, there are several issues that need to be considered such as environmental control construction, adequate training, accessibility to technology as well as support of educational institutions that implement e-learning methods. Other vital variables are the level of gender differences and self-efficacy towards the adoption of e-learning. When scrutinizing previous literatures, (Kanwal et al., 2020; Goswami & Dutta, 2016; Venkatesh & Morris, 2000) evidently showed an ambiguous view about gender dissimilarities on the adoption and the way they embrace the new technological innovations in higher education's learning environment. According to the current review, gender dissimilarities play an important role in moderating certain relationships between different influencing variables. Thus, it is satisfactory to say that the moderating role of gender needs further exploration as there has been no agreement on its impact in the technology adoption. Consequently, to fill up this omission part, there is an essential need to discover the moderating role of gender in the adoption of e-learning in higher education institutions. The findings could display different cultural values amongst public universities in Malaysia. Apart from that, there were insufficient insights about the moderation role of self-efficacy on the adoption processes of different learning innovation scope (Chien, 2012; Hayashi, 2004) and little understanding are obtainable on how students perceived self-efficacy moderates key relationships of adoption e-learning towards its variants (Ang et al., 2021). It is notable that previous investigations to discover the moderating role of self-efficacy and the role of

gender are limited and thus there is a need to bridge this important knowledge gap in the present literature.

Thus, the objectives of this study are

1. To examine the relationship between perceived usefulness and e-learning adoption.
2. To examine the relationship between perceived ease of use and e-learning adoption.
3. To examine the moderating effects of gender differences between: i) perceived usefulness and e-learning adoption; ii) perceived ease of use and e-learning adoption.
4. To examine the moderating effects of self-efficacy between: i) perceived usefulness and e-learning adoption; ii) perceived ease of use and e-learning adoption

This study provides a new insight into e-learning study in terms of perceived usefulness, ease of use of e-learning together with the moderating effect of gender and self-efficacy from a sample of the largest university in Malaysia, University Teknologi MARA (UiTM). This research is considered as a new leap in learning innovation study, where the findings can be used to continue teaching and learning in a more systematic and orderly manner in the future, especially for this institution itself or other higher institutions as a whole.

Literature Review

Perceived Usefulness

Over the years, e-learning has become a powerful medium of learning that has been widely implemented and accepted in most higher education institutions globally. Some literature supports that e-learning is more convenient and flexible compared to face-to-face classes as today's students prefer something simpler, easier, and mobile to facilitate their learning (Liaw & Huang, 2013; Alsabawy et al., 2016). Nowadays, if we have an internet connection, we can be connected to the entire educational world no matter where we live. The required materials used for online learning are kept in the universities database and can be freely downloaded anytime at no cost. Therefore, some students prefer e-learning due to its cost-effectiveness. Through the online platform, the students can access various materials, information and software that is comparatively cheap rather than purchasing expensive textbooks. Furthermore, the content of e-learning can be assessed anywhere at any time, which has contributed to the perceived usefulness in facilitating learning (Liaw & Huang, 2013). As long as there is an internet connection, the student can access the virtual classroom from anywhere. Thus, the students can study at their own pace, place, and no need to travel, thus saving time. The flexibility of online learning will also increase the student's adoption of the learning curve.

E-learning also contributes in learning and sharpening the students' skills. Nowadays, the company expects their employees to become problem solvers and think outside the box. Therefore, the students need to acquire a new set of skills or improve the existing skills to get an advantage when seeking the job and improve the way the brain works. The students can seize the opportunities to join online courses to obtain the necessary skills, competencies, and knowledge to compete in the global market. Additionally, e-learning also increases collaboration across the networks, offering different skills that can be found online regardless of geographical boundaries. The new skills learned can help to build confidence and increase the chances to collaborate with others. Thus, e-learning can accommodate everyone' needs as everyone can study at their own time, comfort and availability. Hence, the following hypothesis is developed:

H1: There is a positive influence on the perceived usefulness towards e-learning adoption.

Perceived Ease of Use

Traditionally, the students must be physically present in the classroom for the learning to take place. However, e-learning has become a good opportunity. Students can now participate in classes anywhere to receive education as long as they have the internet and computers or gadgets to get online (Baber, 2021). In general, entering the traditional universities or colleges is expensive as they come together with other experiences and facilities such as academic buildings, hostels, community services, support staff, sports teams and many other amenities. The cost of maintaining all the facilities and operating costs will be reflected in the students' tuition fees that not all students can afford. Therefore, online learning is more convenient for the students who cannot afford to pay a higher cost of education as the cost is cheaper and affordable than traditional education. Furthermore, online learning is also a good option for students who are struggling between study and work because now they can continue to enjoy the flexibility of online learning without giving up either their work or study anymore.

Various online platforms can provide information to assist the students based on their needs and eventually enhance their learning patterns. Online learning will allow great interaction and communication between the students and teachers. The information will be shared instantaneously so that everyone can be benefited together from all the countries in the world. According to Liaw & Huang (2013), the student can participate in the online discussion or forum and ask questions without limitation to improve their understanding. The use of many digital platforms for discussion, accessing and sharing information has also fostered the learning process as the geographical boundaries do not restrict information. Online tools such as reading materials, video games, video lectures and simulation are often used by the teachers to guide the students in the learning process. The students can digest the materials easily based on their own pace and time, thus increasing their productivity and better retention of information.

The objective of e-learning is to ensure the effectiveness of online teaching and to promote and motivate the positive attitude toward students' academic achievement. Some students are struggling to adapt to the face-to-face classroom method due to their shy personalities. Thus, e-learning is a better option for learning approaches for them. With e-learning, the students can engage in more active conversations with their teachers to monitor their performance and identify learning gaps faster. Additionally, e-learning can lead to less intimidating participation in the class than face-to-face, which leads to more effective participation from both teacher and the students.

Furthermore, for weak students, effective video-based learning used by the teachers is helpful to assist them to understand better because they can repeatedly watch the video as needed until they fully understand. By doing so, their performance can be improved as well. Online learning requires self-discipline and a tremendous amount of motivation as the students are responsible for their studies, but it can be easily used if done correctly. Thus, the study hypothesized that:

H2: There is a positive influence on the perceived ease of use towards e-learning adoption.

The Moderating Effects of Gender

Gender has been identified as a major element in understanding human adoption of technology. It has a role in technology adoption in the area of information technology

(Venkatesh & Morris, 2000) including computers, email services, electronic data management systems, and so on (Goswami & Dutta, 2016). The effect of different genders' use of technology has been discussed in previous studies. Venkatesh and Morris (2000) introduced a new software system to examine gender differences in technology use. The study discovered that these two variables had a significant relationship, with perceived usefulness influencing more men in deciding to utilise technology. The perceived ease of use, on the other hand, were more influenced the women's decision. Later, Goswami and Dutta (2016) reached the same conclusion, indicating that the willingness to adopt new technology has a substantial effect by gender diversification. In particular, the study discovered that males are more technologically competent than females.

The moderating effect of gender differences on e-learning adoption, however, has revealed a variety of results based on previous research. Kanwal et al (2020) studied a group of students from Pakistan's Virtual University. One of the moderator variables included in examining the significant components of e-learning adoption and acceptability was gender. They came to the conclusion that gender influences learners' judgments of the usefulness and ease of use of e-learning systems for performing effectively and improving skills and capabilities in professional development. Both perceived usefulness and perceived ease of use are key determinants of male learners' desire to use e-learning as they are more career-oriented and professionally devoted to embracing new technology. In contrast, while implementing the Learning Management Systems (LMSs), gender differences do not affect on the strength of the relationship on perceived usefulness or perceived ease of use (Al-Azawei, 2019). This might imply that learners, regardless of gender, who had a positive impression of ease of use and usefulness of technology were more inclined to use it in the future. Hence, the study proposes the following hypotheses:
H3: The effect of perceived usefulness on e-learning adoption is more strongly for males than for female students.
H4: The effect of perceived ease of use on e-learning adoption is more strongly for males than for female students.

The Moderating Effects of Self Efficacy
Self-efficacy contains two fundamental issues which are individual belief and internal self-control. It has been defined by Bandura (1997), as the belief in one's ability to plan and carry out the tasks at hand. A person with high self-efficacy will inspire himself regardless of the obstacles he may confront in achieving his own intended goals. The person with low self-efficacy, on the other hand, would strive to avoid any obstacles since he believes he probably lacks abilities. According to Sim et al (2020), in the online learning environment, learners' self-efficacy is related to their perception that online learning helps them to study online resources independently, become more disciplined, and take responsibility for their actions. They discovered that the adoption of online learning has been influenced by students with a high level of self-efficacy. The substantial effect is most likely due to their experience with blended learning before implementing entirely online learning. As a result, individuals may have practical knowledge of technology as it applies to online learning. Latip et al (2020) in another study also found that self-efficacy has a positive effect with acceptance of e-learning, suggesting that self-efficacy is impacted by their impression of the system's ability to improve their educational success, support from others, as well as their feelings towards the system.

Rather than addressing the relationship of self-efficacy with e-learning adoption, the moderating influence of self-efficacy in e-learning adoption has received less attention. However, this issue has been brought to light by a few studies. Self-efficacy may be required for e-learning to be successful, which specifically refers to computer self-efficacy since students may see the challenge of computer abilities when adopting e-learning (Chien, 2012 & Hayashi, 2004). Chien (2012) conducted extensive research on the usage of e-learning to conduct employees training in the financial service industry. The study indicated that computer self-efficacy is a significant moderator variable affecting the efficiency of e-learning when the system is working properly. This suggests that e-learning training will be more successful if the system is well-functioning and the employees have a high level of self-efficacy when it comes to computers. In a different point of view, Hayashi et al (2004) hypothesised that those who have higher perceived usefulness of e-learning systems may be affected by the high level of computer self-efficacy. According to the results, the moderator variable of computer self-efficacy did not influence on future readiness to use e-learning. However, there is another interesting finding by (Ang et al., 2021). They found a direct weak relationship between perceived self-efficacy with perceived usefulness and perceived ease of use. This might be because they are familiar with social media platforms and have no difficulty using Open Learning as an e-learning platform.

Even though the potential influence of perceived usefulness and perceived ease of use can be moderated by self-efficacy in the adoption of e-learning, there has been little research to examine this relationship. Therefore, this research is crucial in understanding the role of self-efficacy in moderating the influence of perceived usefulness and perceived ease of use factors on e-learning adoption. Hence, the study proposes the following hypotheses:
H5: The effect of perceived usefulness on e-learning adoption is stronger for students with high self-efficacy than for students with low self-efficacy.
H6: The effect of perceived ease of use on e-learning adoption is stronger for students with high self-efficacy than for students with low self-efficacy.

Framework of this study is presented in Fig. 1.

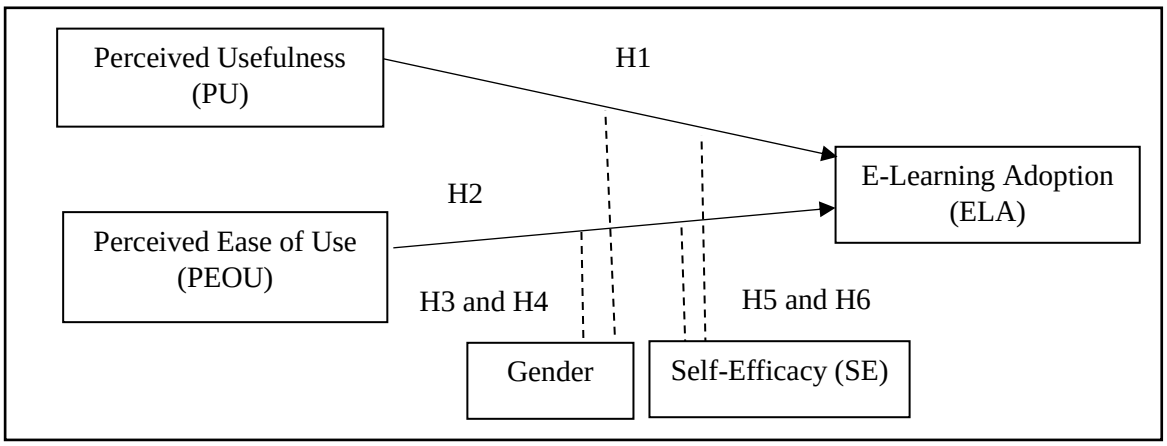

Fig. 1: Research Framework

Research Methodology

Data Selection

Current research employs descriptive analysis and quantitative methodology approaches. The population of this study is accounting students in UiTM Tapah which represent a large population of accountancy diploma students as compared to other Private Finance Initiative (PFI) campuses. The structured questionnaires were disseminated to the students with a different background for example with Diploma in Accountancy (DIA) and Diploma in Accounting Information Systems (DAIS) starting from 1st January 2021 till 28th February 2021. The students were selected during the October 2020 to February 2021 academic session where the total population number of students was 1,892 students. For data collection, survey questionnaires were utilized as a medium to examine the factors influencing students' acceptance for e-learning. The full set of questionnaires were circulated through an online survey using Google Form. In terms of selection of accounting students to be included as a sample of this study, a simple random sampling technique was used. As the respondents are randomly selected from the sampling frame, all students have an equivalent chance to be participated in the study. Overall, 330 valid responses were accepted in which the minimum required sample size of 1900 population supposedly to be only 320. In determining the appropriate sample size, this figure also has satisfied several rules of thumb. Sample size of 330 is considered to be appropriate in this study which is consistent with Sekaran and Bougie (2013) who stated that sample size in research should be between the ranges of 30 to 500.

Measurement of Variables

All the questions in the survey were ordinarily adapted after the prior research obtained through an in-depth analysis of literature which is revised suitably in the environment of UiTM Tapah accounting students. This study uses questionnaire surveys that consist of three parts. Section A needs the respondents to fulfill their demographic information for instance gender, course of study, current semester, geographical location for e-learning and availability of internet access. Section B consists of 25 questions, asks about the respondents' perceived usefulness (5 questions), perceived ease of use (4 questions), self-efficacy (11 questions), and e-learning adoption (5 questions). Perceived usefulness and perceived ease of use were adapted from well-established instruments and fairly tested for validity and reliability (Venkatesh et al., 2003; Venkatesh & Bala, 2008). Self-efficacy was adapted from Schmitz (2013). Meanwhile, e-learning adoption was adapted from the development and validation of (Kurt & Tingoy, 2017). A seven-point interval scale ranging from: (1) strongly disagree to (7) strongly agree was used to measure all the variables. By using a seven-point Likert scale, it will provide additional variance and offers respondents with a wider range of choices.

Data Analysis

Statistical Package for Social Science (SPSS) software was utilised to analyse the data. For mean scores analysis, descriptive statistics was conducted in this study to find out the scores for perceived usefulness, perceived ease of use, self-efficacy as well as e-learning adoption. Hierarchical multiple regression analysis was used to investigate the association of perceived usefulness, perceived ease of use, gender, self-efficacy and e-learning adoption as well as their significance.

Demographic Information

Based on the analysis of demographic and preferences information in Table 1, most of the respondents are undergraduate students taking a course of study Diploma in Accountancy (77.9%) as compared to Diploma in Accounting Information Systems (22.1%). In terms of gender, the respondents are mainly among female students (78.8%) whereas the remainder of the population are among male students. Majority of the respondents are among semester 3 students. In respect of geographical location, students mostly stayed in urban areas when the e-learning was conducted (43.9%). Most students use mobile data internet connectivity via their smartphone (51.5%) for their e-learning as compared to other devices. By mobile data connectivity, respondents can easily get access to the internet anytime and everywhere with particular speeds depending on the location.

Table 1
Summary of Demographic Profile

Variables	Sub	Frequency	Percent
Gender	Male	70	21.2
	Female	260	78.8
Course of study	Diploma in Accountancy (DIA)	257	77.9
	Diploma in Accounting Information Systems (DAIS)	73	22.1
Semester	1	79	23.9
	2	4	1.2
	3	128	38.8
	4	6	1.8
	5	113	34.2
Geographical location	Rural area	42	12.7
	Sub-urban area	143	43.3
	Urban area	145	43.9
Internet access	Fixed internet line	97	29.4
	Free WIFI	49	14.8
	Mobile data	170	51.5
	Portable broadband	14	4.2

Descriptive Analysis

Descriptive statistics for the variables used in this study were presented in Table 2 The minimum and maximum for all variables is within 1 (strongly disagree) and 7 (strongly agree). The mid-point value of this scale is 4 that indicates 'uncertain'. Based on the result, the mean scores for perceived usefulness, perceived ease of use and self-efficacy are 4.10, 4.29 and 4.68 respectively. These mean scores are all slightly above the mid-point. This shows that accounting students to some extent faced all the related aspects below which influence their e-learning adoption.

Table 2
Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Perceived Usefulness (PU)	330	1.00	7.00	4.10	1.259
Perceived Ease of Use (PEOU)	330	1.40	7.00	4.29	1.067
Self-Efficacy (SE)	330	1.75	7.00	4.68	1.099
E-Learning Adoption (ELA)	330	1.89	7.00	4.75	1.013
Valid N (listwise)	330				

Validity and Reliability Analysis

Based on the finalized data collection, Table 3 displays the analysis of Cronbach's alpha test. All the independent, moderator and dependent variables have reached beyond the satisfactory level of .6 with the Cronbach's alpha values of .907, .889, .934 and .921 respectively. It can be concluded that all the constructs in the questionnaires were reliable and valid, which led to the dependable research outcomes.

Table 3
Reliability Analysis

	Cronbach's Alpha	N
Perceived Usefulness (PU)	.907	5
Perceived Ease of Use (PEOU)	.889	4
Self-Efficacy (SE)	.934	11
E-Learning Adoption (ELA)	.921	5

Discussion of Results

Using a hierarchical multiple regression approach, variables are entered in steps where the first regression model enters only the test variables. While the second and third model enters the moderator variables respectively. Table 4 as per Model 1, shows a positive and statistically significant influence of perceived usefulness on e-learning adoption (β = .408; p = .000) where the students believe that utilization of e-learning is capable to accommodate their needs in enhancing their academic productivity. Correspondingly, H1 was accepted. From this study, the findings were parallel with the previous literature by Alsabawy et al. (2016) and Liaw and Huang (2013).

Secondly, the analysis showed a positive and statistically significant effect of perceived ease of use on e-learning adoption (β = .259; p = .000) where students assume that e-learning is a simple process to understand and effort freeness. H2 was also accepted, consistently with the finding from (Baber, 2021). A favourable sensation about the usefulness and practicality of e-learning ordinarily experienced by the students will led them to capture more intention to accept this revolution of education. When the students realize that the outcome of e-learning is fruitful for them, requires less effort to use and feel comfort to handle it, then the e-learning will be deemed as an effective method of education. Evidently, perceived usefulness and perceived ease of use were proved to be the significant contributors in the adoption of e-learning among the undergraduate accounting students in UiTM Tapah.

Table 4
Multiple Regression Analysis between Variables for E-learning Adoption

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	Perceived Usefulness (PU)	.481	.068	.408	4.677	.000
	Perceived Ease of Use (PEOU)	.296	.068	.259	9.134	.000

Dependent Variable: E-Learning Adoption

However, in terms of moderating effects, this study as per Table 5 Model 2, validates that there is no interaction of gender differences irrespective male or female students as a moderator since it does not strengthen the effect between, i) perceived usefulness and e-learning adoption; ii)perceived ease of use and e-learning adoption. Thus, H3 and H4 were rejected, which is similar to Al-Azawei (2019) who found that gender does not considerably affect the strength between views of the usefulness and ease of use in the acceptance of technology. Regardless of gender, if students had a favourable impression of ease of use and usefulness of technology, they will be more persuaded to use it in the future.

More clearly, these current findings suggest that gender dimensions have demonstrated perceptions and preferences which are similar, thus might not result any difference in students' intentional behavior towards e-learning adoption in UiTM Tapah. Furthermore, it indicates that this adoption of e-learning technology indirectly affects both genders equally, and therefore both genders can be targeted using the same educational approaches. Prior research study by Calisir et al (2009) consistently found that the moderating effect of gender is incredibly limited in various information technology adoption contexts.

Additionally, according to Table 5 Model 3, there are no moderating effects of the students' level of self-efficacy for the regression coefficient as it does not strengthen the effect between, i) perceived usefulness and the e-learning adoption; s ii) perceived ease of use and the e-learning adoption Hence, H5 and H6 were rejected. Even with a high level of self-efficacy, students with positive views of the usefulness and ease of use revealed no statistical difference towards adopting e-learning. Previous study by Hayashi et al (2004) also demonstrated that moderating factor of self-efficacy has no significant influence on the intention to continue using e-learning. In other words, the result suggests that there is no significant difference as well as interaction effect between self-efficacy in undergraduates' intentional behavior towards e-learning adoption.

Due to the widespread use of technology in education, students nowadays need to embrace themselves of having positive perceptions and orientations towards adoption of e-learning systems regardless of their level of self-efficacy. No matter what are the obstacles they confronted, students need to believe and inspire themselves to be internally confident and deeply committed to implement this new approach.

Table 5
Moderation Effects of Gender and Self-Efficacy

Model	Interaction	Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
2	Perceived Usefulness (PU)	.481	.069	.408	7.007	.000
	Perceived Ease of Use (PEOU)	.294	.068	.257	4.336	.000
3	Perceived Usefulness_Gender	.062	.072	.046	.859	.391
	Perceived Ease of Use_Gender	.071	.071	.053	1.008	.314
	Perceived Usefulness (PU)	.479	.069	.406	6.961	.000
	Perceived Ease of Use (PEOU)	.293	.068	.256	4.303	.000
	Perceived Ease of Use_Self-Efficacy	.013	.069	.013	.183	.855
	Perceived Ease of Use_Self-Efficacy	.057	.072	.054	.790	.430

Dependent Variable: E-Learning Adoption

Conclusion, Limitation and Recommendation

This study explored the adoption of e-learning in higher education particularly among undergraduates accounting students in UiTM Tapah. Our findings suggest that perceived usefulness and perceived ease of use were discovered to have a significant positive influence on the students' adoption of e-learning (H1 & H2) which is consistent with the findings in the previous studies. It seems that students with a favourable attitude about the usefulness and ease of use of e-learning will have more intention to accept it in a way to gain new online learning experience. Thus, establishments of perceptions of usefulness and ease of use of e-learning are crucial to enhance the degree of acceptance and adoption of the technology as it will facilitate individuals' positive emoticons.

In terms of moderating effects, this research investigates how gender and self-efficacy differ for the association between perceived usefulness and e-learning adoption as well as perceived ease of use and student's adoption of e-learning. However, there is no interaction or moderation effect for the gender differences on e-learning adoption in the perspective of UiTM Tapah (H3 & H4). Indirectly it showed that there is no significant difference between male and female students to adapt e-learning technology where both categories undergo the similar predictors (perceived usefulness & perceived ease of use) which affect their adoption of e-learning.

Finally, variation in self-efficacy also has no moderation effect in the adoption of e-learning (H5 & H6). Even with a high level of self-efficacy, students with positive views of the usefulness and ease of use showed no statistical difference towards adopting e-learning in their daily routines. The findings of this moderation effects suggest that regardless of students' gender and level of self-efficacy, theymust embrace themselves on the adoption of advancement in the e-learning technology, which consequently enhance their self-learning abilities. Overall, all the hypotheses are supported except for the moderating effects.

This study can suggest useful insights to previous finding. The significance level of each variable emphasized in this research will offer recommendation to administrators, instructors and practitioners as for factors to be considered when realising e-learning developments inside their institutions in the future as well as considering aspects of gender and self-efficacy. Some limitations were found in this study. Firstly, the selection of students particularly in accounting courses in UiTM Tapah may restrict the generalization of the results. Upcoming research should widen the opportunity of the sample selection outside the sample of UiTM students or can conduct study on other higher learning institutions to create a true representative of the overall population. Secondly, it is recommended that potential research studies consider other contributing variables such as issues of risk and culture that could affect adoption of e-learning among students with the aim to generate more comprehension of this new approach of education.

References

Al-Azawei, A. (2019). The moderating effect of gender differences on Learning management System acceptance: a multi-group analysis. *Italian Journal of Educational Technology*, 27 (3), 257-278. https://dx.doi.org/10.17471/2499-4324/1088.

Alsabawy, A. Y., Cater-Steel, Al., & Soar, J. (2016). Determinants of perceived usefulness of e-learning systems. *Computers in Human Behavior*, 64, 843-858. https://doi.org/10.1016/j.chb.2016.07.065.

Ang, W. L., Jedi, A., & Lohgheswary, N. (2021). Factors affecting the acceptance of open learning as e-learning platform by technical course students. *Journal of Engineering Science and Technology*, 16 (2), 903 – 918.

Baber, H. (2021). Modelling the acceptance of e-learning during the pandemic of COVID-19-A study of South Korea. *The International Journal of Management Education*, 19, 100503. https://doi.org/10.1016/j.ijme.2021.100503.

Bandura. (1997). Self-efficacy: the exercise of control. *New York: W.H. Freeman.*

Calisir, F., Gumussoy, C. A., & Bayram, A. (2009). Predicting the behavioral intention to use enterprise resource planning systems: An exploratory extension of the technology acceptance model. *Manage. Res.News*, *32*(7), 597–613. https://dx.doi.org/10.1108/01409170910965215.

Chien, T. C. (2012). Computer self-efficacy and factors influencing e-learning effectiveness. *European Journal of Training and Development*, 36 (7), 670-686.

Goswami, A., & Dutta, S. (2016) Gender differences in technology usage—a literature review. *Open Journal of Business and Management*, 4, 51-59. doi: 10.4236/ojbm.2016.41006.

Hayashi, A., Chen, C., Ryan, T., & Wu, J. (2004). The role of social presence and moderating role of computer self-efficacy in predicting the continuance usage of e-learning systems. *Journal of Information Systems Education,* 15 (2), 139-154.

Kanwal, F., Rehman, M., & Asif, M. M. (2020). E-learning adoption and acceptance in pakistan: moderating effect of gender and experience. *Mehran University Research Journal of Engineering and Technology*, 39 (2), 324 – 341.

Latip, M. S. A., Noh, I., Tamrin, M., & Latip, S. N. N. A. (2020). Students' acceptance for e-learning and the effects of self-efficacy in Malaysia. *International Journal of Academic Research in Business and Social Sciences*, *10*(5), 658-674. https://dx.doi.org/10.6007/IJARBSS/v10-i5/7239

Liaw, S-S., & Huang, H-M. (2013). Perceived satisfaction, perceived usefulness and interactive learning environment as predictors to self-regulation in e-learning environments. *Computers & Education*, 60, 14-24. https://doi.org/10.1016/j.compedu.2012.07.015.

Sim, L. S. P., Sim, K. H. P., & Quah, S. C. (2020). Online learning: a post covid-19 alternative pedagogy for university students. *Asian Journal of University Education,* 16 (4), 137-151.

Schmitz, G. S. (2013). Development and validation of a student self-efficacy scale. *Journal of Nursing & Care*, 2(1), 1–6. https://doi.org/10.4172/2167-1168.1000126

Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision Sciences, 39*(2), 273–315. https://dx.doi.org/10.1111/j.1540-5915.2008.00192.x.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Towards a unified view. *MIS Quarterly, 27*(3), 425–478. https://dx.doi.org/10.2307/3250981.

Venkatesh, V., & Morris, M. G. (2000). Why don't men ever stop to ask for directions? Gender, social influence and their role in technology acceptance and usage behaviour. *MIS Quarterly*, 24(1), 115–139. https://dx.doi.org/10.2307/3250981.