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Identification Factors Affecting E-learning Satisfaction during Pandemic Period among Students at UiTM Melaka Malaysia

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This research was based on a survey of students in Universiti Teknologi MARA (UiTM), a higher learning Institution in Malaysia about their satisfaction towards e-learning. This research attempted to find out the effect of some demographic factors and other potential factors on the satisfaction of the e-learning system. The sample consisted of 106 respondents from different courses. The tool used was Technology Adoption Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT). 14 questions were divided into three main factors such as perceived ease of use, self-efficacy and institutional support. The study will be not only beneficial to lecturers but also institution in order for them to understand better about the students' e-learning satisfaction so that their performance can be improved. The study questionnaire developed is reliable and valid instrument which can be utilize to discover the e-learning satisfaction among students at UiTM Melaka. The result of this study determined that perceived ease of use, self-efficacy and institutional support are the factors that addresses e-learning satisfaction.

Key words: *e-learning satisfaction, e-learning self-efficacy, perceived ease of use, institution support, COVID pandemic*

1. Introduction

The implementation of online learning in Malaysian Higher Learning Institutions started in the late 1990s (Hussin et al., 2009). Online learning has been on the rise for the last two decades, more and more people undertake all part of their training via e-learning or virtual classes. In the year 2020 March, under the impact of the Covid-19 pandemic, all the physical classes have had to switch to online teaching platforms. It became an essential tool for keeping the nation's students educated during a period of uncertainty. For safety of the health of staffs and students, starting from 23rd of April 2020, Universiti Teknologi MARA (UiTM) has implemented the Online Distance Learning (ODL) to accommodate to their education system.

This paper contains five major sections. Section 2 briefly described the related literature review of previous works on the flow theory with its dimensions, and its relationship with the online service quality and acceptance. In Section 3, a description of the research method and the overall process of data collection and analysis were discussed. Section 4 relates to the discussion and the interpretation of the results. Finally, Section 5 comprised conclusion and recommendations.

2. Literature Review

2.1 Demographic Factors

2.1.1 Gender Differences

In generally noted that computing is gendered, which was women is opting out from IT. Therefore, some researchers claim that women are disadvantaged in online courses. But some researchers argue that women achieve better results than the men. (Mae McSporran & Stuart Young, 2016; Shahzad et.al., 2021) Avner Caspi, Eran Chajut, Kelly Saporta (2008) found that men over-proportionally spoke at the face-to-face classroom whereas women over-proportionally posted messages in the web-based conference. Mae McSporran & Stuart Young (2016) found that the course favours women are seemed to be more motivated, better at communicating online and at scheduling their learning. Lowes, Susan et al. (2016) found that females were more active than males and that a higher degree of online activity and discussion forum viewing and posting was associated with better final grades, but the correlation was stronger for males than it was for females. Heather Lea Harvey, Sanjai Parahoo, Mohammad Santally (2017) found that no significant differences based on gender for millennials but identified three significant antecedents of student satisfaction for both males and females: university reputation; physical facilities; and instructor empathy. Yuk, et al. (2021) found that no significant differences between male and female students in live online learning readiness during the coronavirus (COVID-19) pandemic in the higher education sector.

2.1.2 Program of Study

There was a research show correlation between program of study and satisfaction of e-learning (Islam, 2011). The research show that program of study was found to have significant effect on the satisfaction on E-learning. However, is also experimental that across program of study, continued incremental the use of learning technology would finally lead to the point of disappointing returns, whereby initial technology motivation to learn course material become student's suffers (Pantazis, 2001).

H1a: There is a significant relationship between gender of UiTM student and E-learning satisfaction during the pandemic period.

H1b: There is a significant relationship between program of study of UiTM student and E-learning satisfaction during the pandemic period.

2.2 Perceived Ease of Use (PEOU)

According to Venkatesh and Bala (2008) which is in line with Alomary and Woollard (2015), assessing PEOU variable, it is based on 6 key factors (computer self-efficacy, perception of external control, computer anxiety, computer playfulness, perceived enjoyment, and objective usability). Perceptions of ease of use affect the user perception on the usefulness of the new technology. When the individual evaluates that the technology is easy to use, then he will easily know how to use it in work or learning activities. Furthermore, the level of perceived ease of use on certain technology will have direct effect on the perception of usefulness an that technology. In addition, the consideration of an individual whether or not to apply the new technology will be strongly depends on the level of ease of use on it. Its finding is easier if the used technology there will be create a greater interest of the individuals to use it (Barhoumi, 2016; Khan & Woosley, 2011; Heng et al.,2021). Hence, the harder the technology is to apply, the lower the interest of an individual's interest in using it, and the slower the individual to adopt on it (Venkatesh & Bala, 2008). Stavros A. Nikou (2021) showed that positive overall attitude of University's students about online distance education, with relatively high levels of perceived ease of use, perceived usefulness, perceived interest and digital competences increase and a preference towards blended modes of delivery.

H2: There is a significant relationship between Perceived ease of use (PEOU) of UiTM student and E-learning satisfaction during the pandemic period.

2.3 Self-efficacy

The online learning has been broadened to support learners' learning processes. A lot of attention has been given to academic self-efficacy (ASE) in educational psychology as an influential factor to enhance academic performance (Satoru Yokoyama, 2019). Adnan Aldholay, Osama Isaac, Zaini Abdullah et al. (2018) showed that self-efficacy have a

positive impact on user satisfaction and actual usage; that actual usage significantly predicts user satisfaction; and that both user satisfaction and actual usage have a positive impact on student performance. Chattavut Peechapol, Jaitip Na-Songkhla et al. (2018) stated that self-efficacy expectations are based on four major sources of information: enactive mastery experience, vicarious experience, verbal persuasion as well as physiological and affective states. Guomin Chen, Yingwei Jin, Wang Liang, Yang Liu (2021) found that middle school students' self-efficacy affects the identity about online learning resources' perceived quality and their purchase intention for online learning resources. Tzung-Jin Lin (2021) indicated that the students' online technical skills could serve as a basis for successfully participating in online learning activities and tasks.

H3: There is a significant relationship between self-efficacy of UiTM student and E-learning satisfaction during the pandemic period.

2.4 Institutional Support

An individual's intensity of confidence in the infrastructure and organizational facilities supports the use of the system (Paul et al., 2015). This variable is constructed based on the variables found in previous theories namely perceived behavioural control (TPB, C-TAM-TPB), facilitating condition (MPCU) and compatibility (IDT). Unified Theory of Acceptance and Use of Technology (UTAUT) recommended that the institutional support was not significant in predicting intention (behavioural intention) when performance expectancy and effort expectancy coexists (Chanchary & Islam, 2011). These variables are formulated has a direct relationship with behavioural variables and have age and experience moderating variables (Seliaman & Al-Turki, 2012). Venkatesh et al. (2012) highlights that the institutional support factors and resources that exist increase individual's trust; it can support activities known as "facility conditions" (Heng et al., 2022). Previous studies have emphasized the role of convenience conditions on satisfaction and intention to using e-learning system (Alam et al., 2021).

H4: Institutional support significantly influences UiTM students' E-learning satisfaction during the pandemic period.

3. Data and Research Methodology

3.1 Conceptual Framework

Information and communication technology (ICT) development was among important strategic forces that would transform Malaysia to a knowledge based economy. The Covid-19 pandemic has transformed ways on how we conduct classes. Therefore, the study seeks the ideal sampling frame to identify the factors that affected students' satisfaction on e-learning during the pandemic in higher learning Institution Malaysia. The study adapted model from Davis's (1989) Technology Adoption Model (TAM) and Venkatesh and Davis (2000) Unified Theory of

Acceptance and Use of Technology (UTAUT) to measure the variables in the study. These instruments widely used by lots of researchers for similar study.

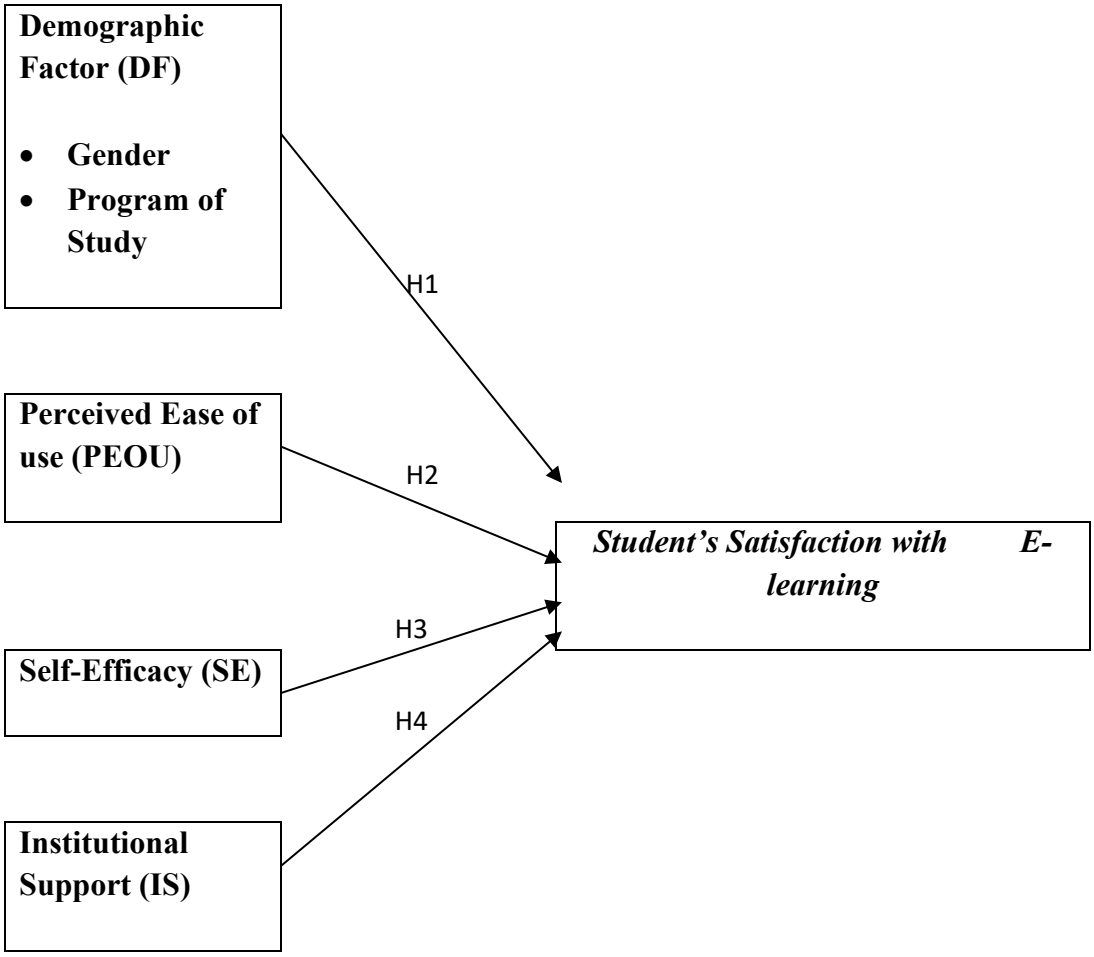

Figure 1 Path Model of e-Learning Satisfaction

3.2 Methodology

The core aims of this study are to investigate whether personal factors of students (gender, geographic location and programme register), perceived ease of used (PEOU), institute support (IS) and self-efficacy (SE) towards student's e-learning satisfaction (SAT). Preliminary collection data for this study though Google form questionnaire. Survey questionnaire was sent out to 140 respondents as ideal sample size. However, only around 76% completed Google form was returned. Therefore, only 106 set of survey forms can be utilized in this study and transferred data in Statistical Packages for the Social Sciences (SPSS) for analysis purposes. Some of data analysis tools including descriptive analysis, correlation and cross tabulation were used on the data collected.

The questionnaire instrument is designed in English to ask question on 5 various e-learning related matters. The dependent variables in this study was student's e-learning satisfaction (SAT), with lower score of 1 reflects the tendency very unsatisfied towards online learning and the higher score of 5 means very satisfied with e-learning. The independent variables were PEOU, IS and SE in references to a 5-point likert scale 1 (strongly disagree) to 5 (strongly agree). The questions were adopted and adapted from the "Online Instructor Satisfaction Questionnaire", was created by Bolliger and Wasilik (2009).

4. Result and Discussion

The finding of the study in Table 1 displays the respondents' socio demographic profile. Out of the 106 students, 25 were males and 81 females. As this selected university is a local university which located in Melaka, unsurprisingly, a majority of the students are from the nearby state, i.e. Johor (25%), Selangor (24%), Melaka (13%) and Negeri Sembilan (11%). All of these students were diploma management courses. Majoring courses wise, majority of respondents from business studies (79.2%) follow by hotel and tourism (20.8%).

Table 1 Demographic Characteristic of Respondents (n=106)

Category	Frequency	Total (%)
Gender		
Male	25	23.6
Female	81	76.4
Geographic Location		
Kedah	1	0.01
Pulau Pinang	2	0.02
Perak	12	0.11
Selangor	25	0.24
KL	8	0.07
Putrajaya	3	0.03
Melaka	14	0.13
Negeri Sembilan	12	0.11
Johor	26	0.25
Pahang	3	0.03
Programme Enrolled (Major)		
Business Studies	84	79.2
Hotel and Tourism	22	20.8

Table 2 Reliability Analysis

Construct	Cronbach's Alpha	No of items
Perceived ease of use	0.731	3
Self-efficacy	0.738	3
Institute support	0.715	3
E-learning satisfaction	0.773	5

A reliability analysis was conducted to ensure that the questionnaire items used in this study were reaching the level of reliability and validity. As shown in table 2 above, all the Cronbach's Alpha values of the variables fall at the acceptable level which were greater than 0.70 (Sekaran & Bougie, 2016). As this study aimed to identify the relationship between few significant factors with student e-learning satisfaction, correlation analysis was conducted to measures the hypotheses. Table 3 below suggested by Salkind (2012), is used to indicate the strength of relationships between variables in this study.

Table 3 Strength of Correlation

Correlation	Range
0.80 to 1.00	Very Strong
0.60 to 0.79	Strong
0.40 to 0.59	Strong enough
0.20 to 0.39	Weak
0.00 t 0.19	Very Weak

Source: Salkind (2012)

4.1 Correlation Analysis

Correlation analysis is used in this study to describe the relationship between the dependent variable of satisfaction towards e-learning and all of it independent variables, which are demographical factors, perceived ease of used, institute support, and self-efficacy.

4.1.1 The relationship of gender and e-learning satisfaction

In table 4 the mean value of gender in this study was 1.7642 which shows that most of the student who participates was female. The table 5 r-value (-0.073) from the result of analysis means that there is negative relationship between gender and e-leaning satisfaction. Hence, 0.073 of the r-value showed that the relationship between these two variables was weak relationship. However, the p-value was exceed 0.05 ($p = 0.456$) implies that there were no significant relationship between gender and dependent variable of e-learning satisfaction. In brief, there is enough evidence to support null hypothesis.

Table 4 The mean and standard deviation of gender and e-learning satisfaction

	Mean	Std. Deviation	n
Gender (Gender of Student)	1.7642	.4265	106
SAT (E-learning Satisfaction)	3.1348	.4975	106

Table 5 The correlation of gender and e-learning satisfaction

		Gender of Student	SAT (E-learning Satisfaction)
Gender of Student	Correlation	1	-.073
	Sig. (2-tailed)		.456
	N	106	106
SAT (E-learning Satisfaction)	Correlation	-.073	1
	Sig. (2-tailed)	.456	
	N	106	106

4.1.2 The relationship of register program and e-learning satisfaction

Table 6 shows the standard deviation and the mean score of register program towards SAT were 1.2075 and 0.4074 respectively shows that majority of the respondents come from program of business studies. While table 7 revealed that a no relationship in between register program and individual e-learning Satisfaction at a value of ($r = 0.099$, $p > 0.05$). Register program seems to have no effect at all on student's satisfaction towards online learning in this higher education institution. Thus, there is enough evidence to support null hypothesis that register program have no significant in increase student's e-learning satisfaction.

Table 6 The mean and standard deviation of register program and e-learning satisfaction

	Mean	Std. Deviation	n
Register program	1.2075	.4074	106
SAT (E-learning Satisfaction)	3.1348	.4975	106

Table 7 The correlation of register program and e-learning satisfaction

		Register program	SAT (E-learning Satisfaction)
Register program	Correlation	1	.099
	Sig. (2-tailed)		.456
	N	106	106
SAT (E-learning Satisfaction)	Correlation	.099	1
	Sig. (2-tailed)	.456	
	N	106	106

4.1.3 The relationship of Self-efficacy and e-learning satisfaction

In the Table 8, the mean of the self-efficacy in this study was 2.9057, which means that most of the students' current self-efficacy was high. Table 9 showed that the r-value was 0.529, which means that it has a positive relationship between self-efficacy and e-learning satisfaction. When the self-efficacy increases by 1 point, it will lead to positive change of 0.529 points of individual e-learning satisfaction level, the relationship between these two variables was strong. Besides that, there were significant relationship between dependent variable of e-learning satisfaction and independent variable of self-efficacy, where the p-value exceeds the significant level of 0.01. In concise, there is enough evidence to support alternative hypothesis.

Table 8 The mean and standard deviation of self-efficacy and e-learning satisfaction

	Mean	Std. Deviation	n
Self-Efficacy	2.9057	.6765	106
SAT (E-learning Satisfaction)	3.1348	.4975	106

Table 9 The correlation of self-efficacy and e-learning satisfaction

		Self-Efficacy	SAT (E-learning Satisfaction)
Self-Efficacy	Correlation	1	.529***
	Sig. (2-tailed)		.000
	N	106	106
SAT (E-learning Satisfaction)	Correlation	.529***	1
	Sig. (2-tailed)	.000	
	N	106	106

*** Correlation is significant at 0.01 level (2-tailed)

4.1.4 The relationship of PEOU and e-learning satisfaction

In the Table 10, the mean of the PEOU in this study was 3.3868, which means that most of the students' current PEOU level was high. Table 11 showed that the r-value was 0.676, which means that it has a positive relationship between PEOU and e-learning satisfaction. It indicated that these two variables was strong relationship. If PEOU level of student increases, I will automatically cause to positive change on individual e-learning satisfaction level. Besides, there were significant relationship between dependent variable of PEOU and independent variable of self-efficacy, where the p-value was lower than significant level ($p < 0.01$). Therefore, there is enough evidence to support alternative hypothesis, which student's satisfaction level in e-learning is depend on PEOU.

Table 10 The mean and standard deviation of PEOU and e-learning satisfaction

	Mean	Std. Deviation	n
PEOU	3.3868	.6933	106
SAT (E-learning Satisfaction)	3.1348	.4975	106

Table 11 The correlation of PEOU and e-learning satisfaction

		PEOU	SAT (E-learning Satisfaction)
PEOU	Correlation	1	.676***
	Sig. (2-tailed)		.000
	N	106	106
SAT (E-learning Satisfaction)	Correlation	.676***	1
	Sig. (2-tailed)	.000	
	N	106	106

*** Correlation is significant at 0.01 level (2-tailed)

4.1.5 The relationship of IS and e-learning satisfaction

Table 12 shows the standard deviation and the mean score of institute support towards SAT were 0.6389 and 3.3349 respectively. While table 13 revealed that a strong relationship in between institute support and individual e-learning Satisfaction at a value of ($r = 0.479$, $p < 0.05$). Institute support seems to have a certain levels of effect on student's satisfaction in this higher education institution. Thus, there is enough evidence to support alternative hypothesis that institute support significant increase student's e-learning satisfaction.

Table 12 The mean and standard deviation of IS and e-learning satisfaction

	Mean	Std. Deviation	n
Institute Support	3.3349	.6389	106
SAT (E-learning Satisfaction)	3.1348	.4975	106

Table 13 The correlation of IS and e-learning satisfaction

		Institute Support	SAT (E-learning Satisfaction)
Institute Support	Correlation	1	.479***
	Sig. (2-tailed)		.000
	N	106	106
SAT (E-learning Satisfaction)	Correlation	.479***	1
	Sig. (2-tailed)	.000	
	N	106	106

*** Correlation is significant at 0.01 level (2-tailed)

As the outcome from this study, table 14 below suggested that the factor of self-efficacy, perceived ease of use and institute support have a strong relationship to increase student's satisfaction towards e-learning. While three main hypotheses which involve personal factors namely gender, program register and geographic location have not supported. Hence, this study answered all four hypotheses of H1 until H4; and the results are shown in table below.

Table 14 Hypothesis Results

Hypothesis Statement	Coefficient Correlation , r	Results
H1a: There is relationship between gender and student E-learning satisfaction	-0.073	Not Supported
H1b: There is relationship between register program and student E-learning satisfaction	0.099	Not Supported
H2: There is relationship between self-efficacy and student E-learning satisfaction	0.529	Supported
H3: There is relationship between perceived ease of use and student E-learning satisfaction	0.676	Supported
H4: There is relationship between institute support and student E-learning satisfaction	0.479	Supported

5. Conclusion

This study supported the argument that TAM is efficient as a references as a theoretical model to understand and tool shed light on behavioural satisfaction to use e-learning among students. Recently, the study's results show the way to the researcher that this model well represents the data collected. In the field of e-learning, not much study has been conducted to identify the factors causing students' satisfaction with e-learning during Covid-19 period. Therefore, the present study highlighted such factors in UiTM which represented one of the main Malaysian higher education institutions. The findings revealed enhancement of students' perceptions (self-efficacy and perceived ease of use) of e-learning and their satisfaction. Besides, factor includes institute support address in this study because it also affects satisfaction of students. The study also prove demographic factors not really affect the e-learning satisfaction in this period. For further scope study in the same issue, bigger sample which coverage more students from different branches will directly increase reliable level of the research outcome. Since this studies only run in public university, students from private universities should be involve in future studies.

References

Adnan Aldholay, Osama Isaac, Zaini Abdullah et al. (2018). An extension of Delone and McLean IS success model with self-efficacy: Online learning usage in Yemen. *International Journal of Information and Learning Technology*, 35(4): 285-304. https://doi.org/10.1108/IJILT-11-2017-0116

Alam, M. M., Ahmad, N., Naveed, Q. N., Patel, A., Abohashrh, M., & Khaleel, M. A. (2021). E-Learning Services to Achieve Sustainable Learning and Academic Performance: An Empirical Study. *Sustainability*, 13(5): 2653. https://doi.org/10.3390/su13052653

Alomary, A., & Woollard, J. (2015). How is Technology Accepted By Users? A Review of Technology Acceptance Models and Theories. Proceedings of The IRES 17th International Conference, London, United Kingdom, 21st November 2015, ISBN: 978- 93-85832-48-2, 1-4.

Avner Caspi, Eran Chajut, Kelly Saporta (2008). Participation in class and in online discussions: Gender differences. *Computer & Education*, 50(3): 718-728. https://doi.org/10.1016/j.compedu.2006.08.003

Barhoumi, Chokri. (2016). User acceptance of the e-information service as information resource: A new extension of the technology acceptance model. *New Library World; London*, 117(9/10): 626-643. https://doi.org/10.1108/NLW-06-2016-0045

Bolliger, D. U., Inan, F. A., & Wasilik, O. (2014). Development and validation of the online instructor satisfaction measure (OISM). *Journal of Educational Technology & Society*, 17(2): 183-195.

Chanchary, F.H., and Islam, S. (2011). Mobile learning in Saudi Arabia – prospects and challenges, in: Paper Presented at the International Arab Conference on Information Technology (ACIT'2011), Zarqa University, Jordan.

Chattavut Peechapol, Jaitip Na-Songkhla et al. (2018). An Exploration of Factors Influencing Self-Efficacy in Online Learning: A Systematic Review. *International Journal of Emerging Technologies in Learning*, 13(9): 64-86. https://doi.org/10.3991/ijet.v13i09.8351

Davis, F.D. (1989). Perceived Usefulness, Perceived Ease of Use, And User Acceptance of Information Technology, *MIS Quarterly* , 13(3): 319-340. https://doi.org/10.2307/249008

Guomin Chen, Yingwei Jin, Wang Liang, Yang Liu (2021). Study on the influence of middle school students' self-efficacy on the willingness to use online learning platform. *International Journal of Electrical Engineering & Education*, 0(0): 1-23. https://doi.org/10.1177/0020720920984030

Heather Lea Harvey, Sanjai Parahoo, Mohammad Santally (2017). Should Gender Differences be Considered When Assessing Student Satisfaction in the Online Learning Environment for Millennials? *Higher Education Quarterly*, 71(2):141-158. https://doi.org/10.1111/hequ.12116

Heng, H. K., Ithnan, I. H. M., Yeap, C. K., & Lai, P. Y. (2021). Identification Factors Influencing E-learning Satisfaction during COVID-19 Pandemic Period among Students at a Malaysia Private Instituition. *Social and Management Research Journal*, *18*(2), 153-171.https://doi.org/10.24191/smrj.v18i2.14906

Heng, H. K., Wang, R. X., Peng, F. G. S., Z Abidin, I.S., Vejaratnam, N., Abdullah, N.& Abdullah, A. S. (2022). The Mediating Role of Institutional Support on Relationship between Technology Acceptance Model (TAM) and Student Satisfaction to Use E-Learning during Covid-19 Pandemic: The Study of Private University in Malaysia. *International Journal of Special Education (IJSE)*, 37(3): 742-752.

Hussin H, Bunyarit F and Hussein R (2009). Instructional design and e-learning: examining learners' perspective in Malaysian institutions of higher learning. *Campus-Wide Information System*, 26(1): 4–19. https://doi.org/10.1108/10650740910921537

Islam, M. (2011). Effect of demographic factors on e-learning effectiveness in a higher learning Institution in Malaysia. *International Education Studies*, 4(1): 112-121. https://doi.org/10.5539/ies.v4n1p112

Khan, A., & Woosley, J. M. (2011). Contemporary Technology Acceptance Models and Evaluation of the Best Fit for Health Industry Organizations. *IJCSET*. December 2011. 1(11): 709-717, ISSN 2231-0711

Lowes, Susan, Lin, Peiyi, Kinghorn, Brian R. C. (2016). Gender Differences in Online High School Courses. *Online Learning*, 20(4):100-117.

Pantazis, C. (2002). Maximizing E-learning to train the 21st century workforce. *Public Personnel Management*, 31(1): p21. https://doi.org/10.1177/009102600203100103

Paul, K. J., Musa, M., & Nansubuga, A. K. (2015). Facilitating condition for E-learning adoption—Case of Ugandan universities. *Journal of Communication and Computer*, 12(5): 244-249. https://doi.org/10.17265/1548-7709/2015.05.004

Salkind, N. J., & Rainwater, T. (2006). *Exploring research. Upper Saddle River*, NJ: Pearson Prentice Hall.

Satoru Yokoyama (2019). Academic Self-Efficacy and Academic Performance in Online Learning: A Mini Review. https://www.frontiersin.org/articles/10.3389/fpsyg.2018.02794/full

Sekaran, U., & Bougie, R. (2016). Research methods for business: A skill building approach. John Wiley & Sons.

Seliaman, M.E., and Al-Turki, M.S. (2012). Mobile learning adoption in Saudi Arabia. *World Academy of Science, Engineering, and Technology*. 69, 391–393.

Shahzad, A., Hassan, R., Aremu, A. Y., Hussain, A., & Lodhi, R. N. (2021). Effects of COVID-19 in E-learning on higher education institution students: the group comparison between male and female. *Quality & quantity*, 55(3): 805-826. https://doi.org/10.1007/s11135-020-01028-z

Stavros A. Nikou (2021). A Snapshot of University Students' Perceptions About Online Learning During the Covid-19 Pandemic. Smart Innovation, *Systems and Technologies,* 249: 123-134. https://doi.org/10.1007/978-981-16-3930-2_10

Tzung-Jin Lin (2021). Exploring the Differences in Taiwanese University Students' Online Learning Task Value, Goal Orientation, and Self-Efficacy Before and After the COVID-19 Outbreak. *Asia-Pacific Edu Res*, 30(3):191–203. https://doi.org/10.1007/s40299-021-00553-1

Yuk Ming Tang, Pen Chung Chena, Kris M.Y.Law et al. (2021). Comparative analysis of Student's live online learning readiness during the coronavirus (COVID-19) pandemic in the higher education sector. *Computer & Education*, 168: 1-17. https://doi.org/10.1016/j.compedu.2021.104211

Venkatesh, V., & Bala , H. (2008). Technology Acceptance Model 3 and a Research Agenda on Interventions. Journal Compilation 2008, Decision Sciences Institute, 39(2): 273-315. https://doi.org/10.1111/j.1540-5915.2008.00192.x

Venkatesh V. & Davis F.D. (2000). A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies. Management Science, 46(2): 186-204. https://doi.org/10.1287/mnsc.46.2.186.11926

Venkatesh, V., Thong, J. Y., & Xu, X. (2012). Consumer acceptance and use of information technology: extending the unified theory of acceptance and use of technology. *MIS quarterly*, 36(1): 157-178. https://doi.org/10.2307/41410412