

Sub Theme: Fostering Lifelong Learning

Antecedents of Intention to Further Study Using Online Distance Learning among Online Distance Learning Students

Zahir Osman*,
zahir_osman@oum.edu.my

Ratna Khuzaimah Mohamad,
ratna_mohamad@oum.edu.my,

Liana Mohamad
liana_mohamad@oum.edu.my

Faculty of Business and Management
Open University Malaysia

Abstract

The online distance learning (ODL) market has become very competitive with the emergence of new ODL higher education institutions. Further, many traditional universities are switching from face-to-face classes to ODL systems for some of their programs. Therefore, it is very challenging for the ODL institutions to ensure their students remain with them if the students want to continue their studies to a higher level. This study aims to assess the direct and indirect influence of perceived social ability, perceived usefulness, and self-management learning on attitude and intention. The Technology Acceptance Model theory was adopted to clearly define the probability of current ODL's students will stay with their current ODL institutions if they intend to further their study. 421 responses were used in data analysis and Smartpls 3.0 was employed to investigate the direct and indirect relationship among the constructs. The study's statistical results have demonstrated that perceived social ability, perceived usefulness, and self-management learning has positive and significant direct influence on attitude and indirect influence on intention. Likewise, an attitude has a positive and significant direct influence on intention. Therefore, this study is vital to draw attention to the factors influencing ODL students' intention to study further using online distance learning.

Keywords: perceived social ability, perceived usefulness, self-management learning, attitude, intention

1.0 INTRODUCTION

Historically, education was vital to gaining knowledge and understanding one's surroundings. Education was the formal sharing of knowledge, skills, and values. In this digital age, many people are interested in technology-related activities which as online education. Online education can take place anywhere and at anytime. As a result of the study flexibility offered to students, online learning has grown globally. Rapid technological advancements have forced higher education institutions to innovate their programmes. Many universities now offer students both traditional face-to-face instruction and online distance learning. E-learning and online distance learning have been used interchangeably; however, they are not synonymous. According to Maheshwari and Thomas (2017) and Nichols (2003), e-learning involves using web-based technologies in and out of the classroom. Meanwhile, online learning was defined as fully online learning where students learn outside of class and are not required to be present in class. This was deemed the same as online distance learning (Diana et al., 2005). According to Junco et al. (2013), online academic programmes can provide well-organized and suitable ways for students to achieve learning outcomes. In Malaysia, open distance learning (ODL) higher education institutions compete with private and public universities, especially during the Covid-19 pandemic. Prior to the Covid-19 pandemic, there were three main private ODL higher education providers in Malaysia: Open University Malaysia (OUM), Wawasan Open University (WOU), Asia eUniversity (AeU), and now more private universities such as Universiti Tun Abdul Razak (UNIRAZAK), Asia eUniversity (AeU), Al-Madinah International University (MEDIU) and International Centre for Education in Islamic Finance (INCEIF) are shifting towards online distance learning (MOHE, 2011). Lifelong learners are working adults seeking higher academic qualifications. After graduation, they can choose between ODL and non-ODL higher education institutions. According to Tait (2018), the UK's Open University UK lost students due to rising fees. Higher education institutions in Malaysia that offer free Massive Open Online Courses (MOOCs) to students face stiff competition. Another issue for ODL higher education institutions in Malaysia was retaining current ODL students. This study will help ODL higher education institutions develop strategies to keep current students studying with them. To ensure that students stay with the same ODL, the ODL will improve their programme delivery and services. This study can help policymakers design policies and regulations governing ODL higher education institutions. This study will also examine the direct and indirect relationships between variables such as social ability and intention to study further using online distance learning.

2.0 LITERATURE REVIEW

In 1989, Davis, Bagozzi, and Warshaw introduced the technology acceptance model based on the theory of reason action (Fishbein & Ajzen, 1975). This model aimed to see certain system acceptability and recognize the alteration factors. TAM model substituted TRA's attitude measurement of perceived ease of use and usefulness. Perceived utility and ease of use influenced the intent to adopt new technology. The TAM framework displayed the direct connection between perceived usefulness and behavioral intention. Nevertheless, subsequent studies have proven that perceived usefulness significantly influences individual attitudes. Abbasi et al. (2011) defined intention as an individual cognitive process readiness to execute certain behavior. The main factor determining a system's success is the intention (Chang et al., 2017). The Technology Acceptance Model states that perceived ease of use, utility, and attitude influence intention.

2.1 *Perceived Social Ability*

Laffey et al. (2006) defined social ability as the ability to connect with others and use social context and tools to achieve goals. It describes how students perceived social interaction while interacting with peers and completing tasks in online learning environments. Laffey et al. (2006) found that social ability predicted the relationship between learning acceptance and satisfaction. Students with strong social skills engage more frequently. Tantatape & Lee (2012) in their study on 872 students in South Korea and United State have found that perceived social ability has a positive and significant influence on intention to continue online learning. Rice et al. (2013) found that perceived social ability influences attitude positively and significantly in their study of 1552 students. Perceived social ability and attitude were positively and significantly related in Ghobadi et al. (2020) study of 750 Iranian students. According to a study on 2076 students in Norway by Sørli et al. (2021), perceived social ability influenced students' attitudes. Given this, the following hypotheses were proposed

H₁: Perceived social ability has a positive and significant influence on attitude to further study using online distance learning.

H₂: Perceived social ability has a positive and significant influence on intention to further study using online distance learning.

H₃: Attitude mediates the relationship between perceived social ability and intention to further study using online distance learning.

2.2 *Perceived Usefulness*

Perceived usefulness was one of the important elements in TAM. Perceived usefulness is the level at which users believe the system can be improved (Davis, 1989). Davis (1989) claims that perceived usefulness influenced both attitude and intention. It is suggested by Davis (1989) and Venkatesh et al. (2000) that users develop a positive attitude towards a technology if it is useful. Studies have shown the impact of perceived usefulness on attitude (Al harbi & Drew, 2014; Ashraf et al., 2014). According to Lin et al. (2011), perceived usefulness (PU) is the degree to which people believe online learning can help them achieve their learning and teaching objectives. Past studies have shown that perceived usefulness has a positive and strong impact on attitude (Martinho et al., 2018; Ritter, 2017). Perceived usefulness also influences the intention to learn online (Abdullah et al., 2016; Martinho et al., 2018). In the study of 325 Indian students, Dhanya & Ambilikumar (2020) discovered that perceived usefulness positively and significantly influences attitude and intention. Given this, the following hypotheses were proposed:

H₄: Perceived usefulness has a positive and significant influence on attitude to further study using online distance learning.

H₅: Perceived usefulness has a positive and significant influence on intention to further study using online distance learning.

H₆: Attitude mediates the relationship between perceived usefulness and intention to further study using online distance learning.

2.3 *Self-Management Learning*

Self-Management Learning (SML) is defined by Smith et al. (2003) as the ability to recognize self-discipline and hold independent learning. SML signifies a student's self-discipline and ability to participate in highly independent learning environments. Students were physically separated from their lecturers and peers, which required them to manage and control their learning tasks (Yang, 2013). Self-management was deemed an important determinant of educational settings because it permitted the performance of affirmative learning. It was the main learning outcome and achievement antecedent (Al-Adwan et al., 2018; Al-Adwan & Khidor, 2020). Students who can self-manage their learning are more likely to attain good learning outcomes. Rashid & Asghar (2016), state that self-management learning may improve academic performance. Broadbent (2017) supported that SML was an important antecedent of student academic performance. Moreover, Kizilcec et al. (2017) found that students with higher levels of self-regulated learning skills outperform students with lower levels of self-regulated learning skills. Given this, the following hypotheses were proposed:

H₇: Self-management learning has a positive and significant influence on attitude to further study using online distance learning.

H₈: Self-management learning has a positive and significant influence on intention to further study using online distance learning.

H₉: Attitude mediates the relationship between self-management learning and intention to further study using online distance learning.

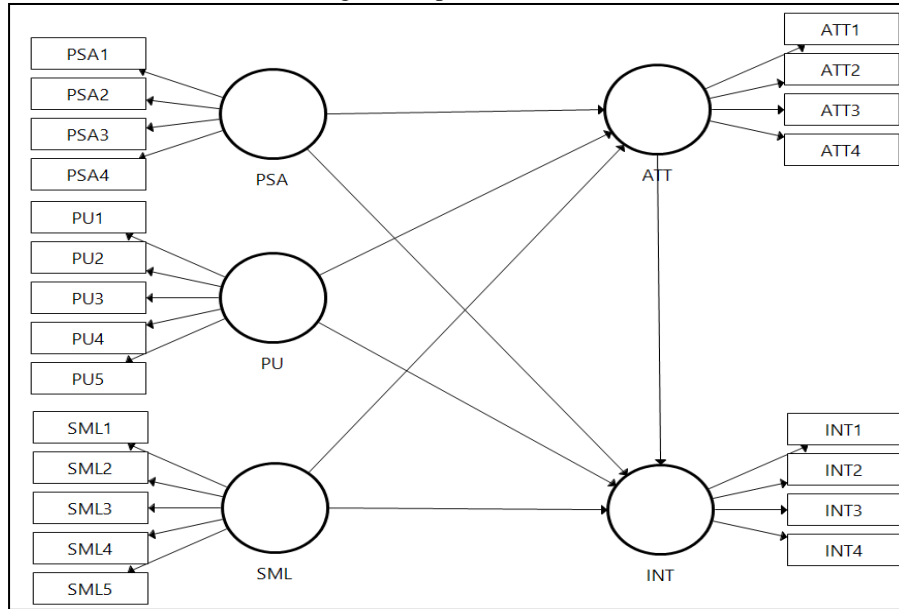
2.4 *Attitude*

Kaplan (1972) defined attitude as a tendency to react favorably or unfavorably to a certain event. Davis (1989) defined attitude as a user's specific behavior linked to a system. Initially, in the TTAM model, the attitude was hypothesized to impact intention. Tosuntaş et al. (2015) found that attitude preceded intention in many studies on online learning acceptance. Teo et al. (2017) and Chu & Chen (2016) found that attitude strongly influences intention. In their study of 181 college students, Zakaria & Nordin (2020) discovered that attitude positively and significantly impacts the

intention. According to Vamvaka et al. (2020), attitude and intention are positively and significantly related in 441 Greek students. Given this, the following hypothesis was proposed

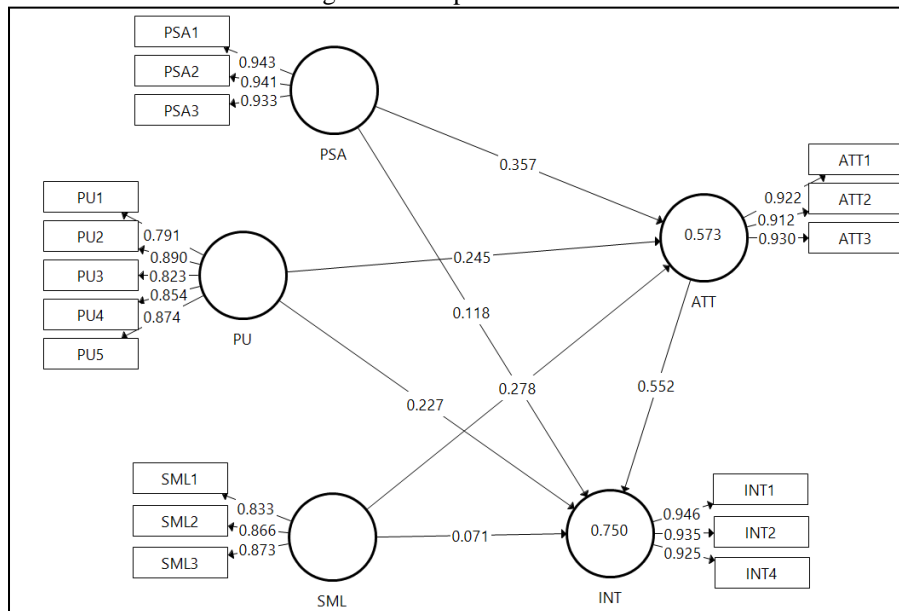
H_{10} : Attitude has a positive and significant influence on intention to further study using online distance learning.

Figure 1: Specified Model



Notes: ATT=Attitude SML=Self-Management Learning INT=Intention PSA=Perceived Social Ability, PU=Perceived Usefulness

Figure 2: Re-specified Model



3.0 METHODOLOGY

This study included ODL students from three established ODL higher institutions: Open University Malaysia, Wawasan University, and Asia e University. The survey questionnaires were developed with 22 observed variables representing five constructs that were adopted and adapted from previous studies. The non-probability snowball

sampling technique was used in this study due to the unavailability of a population frame. The constructs were measured using a five-point Likert scales ranging from strongly disagree to strongly agree. Out of 615 questionnaires distributed, 442 were collected. This gave a response rate of 71.87 per cent, sufficient for data analysis using structural equation modeling (SEM). After data screening and deletion of outliers, 421 questionnaires were confirmed and ready for data analysis. Table 2 shows the respondents' profiles of the sampled ODL students. Smartpls3 was used to analyze multivariate data and test hypotheses. Moreover, Smartpls3 was used for model measurement and structural model evaluation. This study adopted PLS-SEM for its assessment ability (Hair et al. 2010).

Table 1: Respondents' Profile

		Frequency	Percent
GENDER	Male	305	72.4%
	Female	116	27.6%
AGE	<30 Years	123	29.2%
	30-40 Years	198	47.0%
	40-50 Years	61	14.5%
	50-60 Years	33	7.8%
	> 60 ears	6	1.4%
YEAR OF STUDY	Year 1	101	24.0%
	Year 2	173	41.1%
	Year 3	95	22.6%
	Year 4	33	7.8%
	Year 5	13	3.1%
	Year 6	6	1.4%
LEVEL OF STUDY	Diploma	34	8.1%
	Degree	227	53.9%
	Master	122	29.0%
	Doctorate	38	9.0%
EMPLOYMENT	Public Sector	140	33.3%
	Private Sector	233	55.3%
	Entrepreneur	23	5.5%
	Unemployed	25	5.9%
STATUS	Single	162	38.5%
	Married	241	57.2%
	Divorced	18	4.3%

4.0 DATA ANALYSIS

Common Method Bias

According to Kock (2015), there is a problem of common method bias if the variance inflation factor (VIF) is more than 3.3. Therefore, the full collinearity test was performed to confirm whether there is an issue with collinearity and if the model has the problem of common method bias. As shown in Table 2, all factor-level after the full collinearity test demonstrated that the amount was less than 3.3. Therefore it confirmed that the model did not have any issue of common method bias.

Table 2: Full Collinearity Test

	INT	PU	PSA	SML	INT
INT		3.13	2.89	2.99	2.88
PU	3.18		3.01	2.91	2.86
PSA	3.19	2.36		2.78	2.92
SML	1.51	1.47	1.76		2.23
INT	2.42	3.03	2.93	2.89	

4.1 Measurement Model

This study utilized the PLS-SEM algorithm to evaluate the structural model and substantiate construction measurement reliability and validity. Hair et al. (2017) suggested reliability and validity were the two important elements in PLS-SEM for studying outer model goodness. Firstly, the specified model was brought in (Figure 1). After the preliminary assessment of the reliability and validity of outer loading, some of the items of the respective constructs were found to have lower loadings. This has affected the construct reliability and validity, therefore needing to be deleted. Subsequent to the deletion of the lower loading items, the requirement for Average Variance Extracted (AVE) was met with all the constructs' AVE ranging from 0.717 to 0.881 (Table 3), which were greater than the threshold of 0.50, thus proving the presence of convergent validity for all latent constructs (Hair, Sarstedt, Ringle & Mena, 2012). As depicted in Table 3, the composite reliability ranged from 0.893 to 0.957 for first-order constructs and met the threshold of 0.70 and above (Hair et al., 2017). Additionally, to verify the discriminant validity presence in this study, cross-loading of the item was assessed. The results showed that all item loadings were greater than their respective cross-loadings, as shown in Table 3. To further confirm the presence of discriminant validity, Hetrotrait-Monotrait (HTMT) ratios were calculated. The results showed that all ratios of the five constructs were < 0.9, as in Table 4. (Henseler et al., 2015). The full bootstrapping was performed for HTMT. Therefore this study demonstrated the reliability and validity of the latent constructs (Hair, Hult, Ringle & Sarstedt, 2014).

Table 3: Construct Reliability, Validity & Item Loading

Construct	Item	Loading	CA	CR	AVE
ATT	ATT1	0.922	0.911 (0.882, 0.932)	0.944 (0.927, 0.957)	0.849 (0.809, 0.881)
	ATT2	0.912			
	ATT3	0.930			
SML	SML1	0.833	0.823 (0.784, 0.861)	0.893 (0.872, 0.916)	0.735 (0.693, 0.873)
	SML2	0.866			
	SML3	0.873			
INT	INT1	0.946	0.928 (0.895, 0.951)	0.954 (0.935, 0.968)	0.874 (0.826, 0.911)
	INT2	0.935			
	INT4	0.925			
PSA	PSA1	0.943	0.933 (0.910, 0.952)	0.957 (0.943, 0.969)	0.881 (0.847, 0.912)
	PSA2	0.941			
	PSA3	0.933			
PU	PU1	0.791	0.901 (0.871, 0.925)	0.927 (0.906, 0.943)	0.717 (0.660, 0.769)
	PU2	0.890			
	PU3	0.823			
	PU4	0.854			
	PU5	0.874			

Notes: ATT=Attitude SML=Self-Management Learning INT=Intention PSA=Perceived Social Ability
 PU=Perceived Usefulness CA=Cronbach Alpha CR=Composite Reliability AVE=Average Variance
 Extracted

Table 4: Hetrotrait-Monotrait (HTMT) Ratios

ATT	EXP	INT	PSA
-----	-----	-----	-----

SML	0.644 (0.546,0.731)			
INT	0.879 (0.843,0.943)	0.624 (0.530,0.701)		
PSA	0.746 (0.614,0.835)	0.512 (0.398, 0.620)	0.772 (0.657, 0.854)	
PU	0.749 (0.623,0.835)	0.587 (0.474,0.688)	0.804 (0.694,0.873)	0.88 (0.844,0.938)

Note: A two-tail percentile bootstrap test at 5% confidence interval (2.5%, 97.5%) with 5,000 sub- samples were performed

4.2 Structural Model

The evaluation of the structural model was done by assessing the path coefficient and the determination coefficient (R²) value (Hair et al., 2012). 500 sub-samples bootstrapping by using PLS were performed to confirm the significance level of the path coefficient. Table 5 reveals the result of the hypotheses testing of path coefficients (Beta), t-statistics, p-value, and confidence interval. For *hypothesis 1*, the statistical result shows that perceived social ability has a positive and significant influence on attitude ($\beta = 0.357$, $t = 5.534$, $p=0.000$); therefore, H_1 is supported. However, for *hypothesis 2*, the result shows that perceived social ability has no direct significant relationship with intention ($\beta = 0.118$, $t = 1.813$, $p=0.07$); thus, H_2 is not supported. For *hypothesis 3*, the result shows that attitude mediates the relationship between perceived social ability and intention ($\beta = 0.197$, $t = 5.350$, $p=0.000$); therefore, H_3 is supported. For *hypotheses 4 and 5*, the results show that perceived usefulness has positively and significantly influenced attitude ($\beta = 0.245$, $t = 3.336$, $p=0.001$) and intention ($\beta = 0.227$, $t = 3.413$, $p=0.001$) respectively. Thus, H_4 and H_5 both are supported. For *hypothesis 6*, it is found that attitude has a positive and significant mediating effect on the relationship between perceived usefulness and intention, and H_6 is supported. For *hypotheses 7 and 8*, the results show that self-management learning has a positive and significant influence on attitude ($\beta = 0.278$, $t = 4.873$, $p=0.000$) and intention ($\beta = 0.071$, $t = 1.967$, $p=0.05$) respectively. Therefore, H_7 and H_8 are supported. For *hypothesis 9*, the result shows that the relationship between self-management learning and intention is positively and significantly mediated by attitude ($\beta = 0.154$, $t = 3.727$, $p=0.000$); hence, H_9 is supported. For *hypothesis 10*, the result shows that attitude has a strong positive and significant influence on intention ($\beta = 0.552$, $t = 10.290$, $p=0.000$). Therefore, H_{10} is supported. Table 5 summarizes the results of hypotheses testing.

Table 5: Hypotheses Testing Results

Hypotheses	Relationship	Beta	T Statistics	P Values	LLCI 2.5%	ULCI 97.5%	Results
H_1	PSA -> ATT	0.357	5.534	0.000	0.224	0.481	Supported
H_2	PSA -> INT	0.118	1.813	0.070	-0.016	0.238	Not Supported
H_3	PSA -> ATT -> INT	0.197	5.350	0.000	0.125	0.264	Supported
H_4	PU -> ATT	0.245	3.336	0.001	0.084	0.371	Supported
H_5	PU -> INT	0.227	3.413	0.001	0.077	0.338	Supported
H_6	PU -> ATT -> INT	0.135	3.253	0.001	0.064	0.223	Supported
H_7	SML -> ATT	0.278	4.873	0.000	0.166	0.394	Supported
H_8	SML -> INT	0.071	1.967	0.050	0.008	0.148	Supported
H_9	SML -> ATT -> INT	0.154	3.727	0.000	0.091	0.247	Supported
H_{10}	ATT -> INT	0.552	10.290	0.000	0.442	0.649	Supported

5.0 DISCUSSION

The interaction skills of ODL students will allow them to learn more effectively from their peers. ODL institutions must ensure their ODL students have strong social ability while studying so that they can form the right attitude toward ODL teaching and learning. ODL higher education institutions need to ensure their students can learn independently. ODL students must accept that they are detached from their lecturers and peers. Their academic success depends on strong self-management skills. Strong self-management learning can lead to the formation of the right attitude towards their intention to use online distance learning for their future study. Higher education institutions in ODL must develop strategies to guide their students. With the strongly perceived usefulness, the ODL students will develop an attitude

that will favor the system. This will strengthen their desire to continue studying using ODL systems. The ODL institutions must continuously improve their ODL systems so that their students can see how ODL systems can help them in their study. For policymakers, the findings of this study can provide some input to the ministry of higher of education in formulating the policy and regulation to enhance the national online distance learning system in the country.

5.1 *Conclusion*

Perceived social ability, self-management learning, perceived usefulness, and attitude are all important antecedents to ODL students' intention to use the ODL system to further their studies in the future. Enhancing perceived social ability, self-management learning, and perceived usefulness can help ODL students develop the right attitude and ultimately strengthen their intention. Future study should include non-ODL students to compare ODL and non-ODL students' intentions. In future, other variables such as peer influence, student engagement, system quality, and tutor engagement should also be considered for research model development.

References

- Abbasi, M. S., Chandio, F. H., Soomro, A. F., & Shah, F. (2011). Social influence, voluntariness, experience and the internet acceptance: An extension of technology acceptance model within a south-Asian country context. *Journal of Enterprise Information Management*, 24(1), 30-55.
- Abdullah, F., Ward, R., & Ahmed, E. (2016). Investigating the influence of the most commonly used external variables of TAM on students' Perceived Ease of Use (PEOU) and Perceived Usefulness (PU) of e-portfolios. *Computers in human behavior*, 63, 75-90.
- Al-Adwan, A. S., Al-Adwan, A., & Berger, H. (2018). Solving the mystery of mobile learning adoption in higher education. *International Journal of Mobile Communications*, 16(1), 24-49.
- Al-Adwan, A. S., & Khdour, N. (2020). Exploring Student Readiness to MOOCs in Jordan: A Structural Equation Modelling Approach. *Journal of Information Technology Education*, 19, 223-242.
- Alharbi, S., & Drew, S. (2014). Using the technology acceptance model in understanding academics' behavioural intention to use learning management systems. *International Journal of Advanced Computer Science and Applications*, 5(1), 143-155.
- Ashraf, A. R., Thongpapanl, N., & Auh, S. (2014). The application of the technology acceptance model under different cultural contexts: The case of online shopping adoption. *Journal of International Marketing*, 22(3), 68-93.
- Broadbent, J. (2017). Comparing online and blended learner's self-regulated learning strategies and academic performance. *The Internet and Higher Education*, 33, 24-32.
- Chang, C. T., Hajiyev, J., & Su, C. R. (2017). Examining the students' behavioral intention to use e-learning in Azerbaijan? The general extended technology acceptance model for e-learning approach. *Computers & Education*, 111, 128-143.
- Chu, T. H., & Chen, Y. Y. (2016). With good we become good: Understanding e-learning adoption by theory of planned behavior and group influences. *Computers & Education*, 92, 37-52.
- Dhanya TS, D. V. A. (2020). Impact of covid-19 on behavioral intention to use information and communication technology. *PalArch's Journal of Archaeology of Egypt/Egyptology*, 17(12), 220-235.
- Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1989). User acceptance of computer technology: A comparison of two theoretical models. *Management science*, 35(8), 982-1003.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 319-340.
- Fishbein, M. & Ajzen, I. (1975) Belief, Attitude, Intention and Behavior: An Introduction to Theory and Research, Addison-Wesley, Reading, Massachusetts.
- Ghobadi, M., Kazemnezhad Leili, E., Jafari Asl, M., & Shafipour, S. Z. (2020). The Relationship between Social skills and Attitude towards Substance Abuse among High School Students. *Journal of Holistic Nursing And Midwifery*, 30(3), 151-158.
- Hair Jr., J.F., Black, W.C., Babin, B.J. and Anderson, R.E. (2010) Multivariate Data Analysis: A Global Perspective. 7th Edition, Pearson Education, Upper Saddle River.
- Hair, J. F., Sarstedt, M., Ringle, C. M., & Mena, J. A. (2012). An assessment of the use of partial least squares structural equation modeling in marketing research. *Journal of the academy of marketing science*, 40(3), 414-433.
- Hair, J.F., Hult, G.T.M., Ringle, C.M. and Sarstedt, M. (2014) A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). Sage Publications Inc., Thousand Oaks, CA.

- Hair, J.F., Hult, G.T.M., Ringle, C.M. and Sarstedt, M. (2017) A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). 2nd Edition, Sage Publications Inc., Thousand Oaks, CA.
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the academy of marketing science*, 43(1), 115-135.
- Junco, R., Elavsky, C. M., & Heiberger, G. (2013). Putting twitter to the test: Assessing outcomes for student collaboration, engagement and success. *British Journal of Educational Technology*, 44(2), 273-287.
- Kaplan, K. J. (1972). On the ambivalence-indifference problem in attitude theory and measurement: A suggested modification of the semantic differential technique. *Psychological bulletin*, 77(5), 361.
- Kizilcec, R. F., Pérez-Sanagustín, M., & Maldonado, J. J. (2017). Self-regulated learning strategies predict learner behavior and goal attainment in Massive Open Online Courses. *Computers & education*, 104, 18-33.
- Kock, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. *International Journal of e-Collaboration (ijec)*, 11(4), 1-10.
- Laffey, J., Lin, G. Y., & Lin, Y. (2006). Assessing social ability in online learning environments. *Journal of Interactive Learning Research*, 17(2), 163-177.
- Lin, K. M., Chen, N. S., & Fang, K. (2011). Understanding e-learning continuance intention: a negative critical incidents perspective. *Behaviour & Information Technology*, 30(1), 77-89.
- Maheshwari, G., & Thomas, S. (2017). An Analysis of the Effectiveness of the Constructivist Approach in Teaching Business Statistics. *Informing Science*, 20, 83–97
- Sørli, M. A., Hagen, K. A., & Nordahl, K. B. (2021). Development of social skills during middle childhood: Growth trajectories and school-related predictors. *International Journal of School & Educational Psychology*, 9(sup1), S69-S87.
- Martinho, D., Santos, E., Miguel, I., & Cordeiro, D. (2018). Factors that influence the adoption of postgraduate online courses. *International Journal of Emerging Technologies in Learning*, 13(12), 123–141.
- Ministry of Education Malaysia (MOE) (2011). *Blueprint of enculturation of lifelong learning for Malaysia: 2011-2020*.
- Nichols, M. (2003). A theory for eLearning. *Journal of Educational Technology & Society*, 6(2), 1-10.
- Diana Oblinger, E. D. U. C. A. U. S. E., Oblinger, J., Roberts, G., McNeely, B., Windham, C., Hartman, J., ... & Kvavik, R. (2005). *Educating the net generation* (Vol. 272). Brockport Bookshelf, Book.
- Rashid, T., & Asghar, H. M. (2016). Technology use, self-directed learning, student engagement and academic performance: Examining the interrelations. *Computers in Human Behavior*, 63, 604-612.
- Rice, L., Barth, J. M., Guadagno, R. E., Smith, G., & McCallum, D. M. (2013). The role of social support in students' perceived abilities and attitudes toward math and science. *Journal of youth and adolescence*, 42(7), 1028-1040.
- Ritter, N. L. (2017). Technology acceptance model of online learning management systems in higher education: A meta-analytic structural equation model. *International Journal of Learning Management Systems*, 5(1), 1-16.
- Smith, P. J., Murphy, K. L., & Mahoney, S. E. (2003). Towards identifying factors underlying readiness for online learning: An exploratory study. *Distance education*, 24(1), 57-67.
- Tait, A. (2018). Open Universities: the next phase. *Asian Association of Open Universities Journal*.

- Brahmasrene, T., & Lee, J. W. (2012). Determinants of intent to continue using online learning: A tale of two universities. *Brahmasrene, T. and Lee, JW.(2012)'Determinants of Intent to Continue Using Online Learning: A Tale of Two Universities,' Interdisciplinary Journal of Information, Knowledge, and Management, 7(1), 1-20.*
- Teo, T., Milutinović, V., Zhou, M., & Banković, D. (2017). Traditional vs. innovative uses of computers among mathematics pre-service teachers in Serbia. *Interactive Learning Environments, 25(7), 811-827.*
- Tosuntaş, Ş. B., Karadağ, E., & Orhan, S. (2015). The factors affecting acceptance and use of interactive whiteboard within the scope of FATİH project: A structural equation model based on the Unified Theory of acceptance and use of technology. *Computers & Education, 81, 169-178.*
- Vamvaka, V., Stoforos, C., Palaskas, T., & Botsaris, C. (2020). Attitude toward entrepreneurship, perceived behavioral control, and entrepreneurial intention: dimensionality, structural relationships, and gender differences. *Journal of Innovation and Entrepreneurship, 9(1), 1-26.*
- Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management science, 46(2), 186-204.*
- Yang, S. (2013). Understanding undergraduate students' adoption of mobile learning model: A perspective of the extended UTAUT2. *Journal of convergence information technology, 8(10), 969-979.*
- Zakaria, A., & Nordin, N. M. (2020). Attitude and Self-efficacy and its Relationships with Entrepreneur Intention Among Undergraduate Students. *International Journal of Academic Research in Business and Social Sciences, 10(14), 145–158.*