10 ICLEI 2018-021 Siti Intan Nurdiana Wong Abdullah

Facebook as a Learning Tool among Undergraduate Students of Private Higher Learning Institutions in Malaysia

Siti Intan Nurdiana Wong Abdullah*^a, Dominic Wong^b ^aFaculty of Business, Communication & Law, INTI International University, Nilai, Negeri Sembilan, Malaysia ^bFaculty of Accountancy, Finance & Business, Tunku Abdul Rahman University College, Kuala Lumpur, Malaysia *Corresponding Author: sitiintan.abdullah@newinti.edu.my

Abstract:

The Malaysian Education Blueprint 2015-2025 stresses on the importance of harnessing the power of technology-based learning to make Malaysia a high-income nation. To achieve this aim, private higher learning education institutions are required to use blended learning modes for at least 70% of their programme starting with undergraduate programmes. Currently, millennials age between 18 and 34 years old in Malaysia are one of the highest users of social media especially Facebook (FB). Among many other e-learning tools such as Blackboard[™], Moodle, and Course Networking (CN) but FB is a powerful social media tool that has influenced many university students' lives and has become an integral part of their learning environment. Thus, this study aims to determine the usage of Facebook as a learning support tool especially among undergraduate students in Malaysia's private higher learning education institutions. This study is drawn from TAM (Technology Acceptance Model), which has been a widely used model for predicting user acceptance of innovations but with an inclusion of perceived interactivity. Empirical results from 225 respondents in three private learning institutions in Malaysia through questionnaire confirmed that together, perceived usefulness, perceived ease of use and perceived interactivity explained nearly 60% of the variance in attitude towards Facebook as an e-learning tool. All hypothesized relationships were significantly positive with perceived interactivity as the highest contributor and subsequently confirmed that attitude led to usage intention. Based on these findings, recommendations were proposed to enhance undergraduate students' perception towards Facebook's effectiveness, convenience and mutual collaboration to produce more positive attitude and intention to use it as a learning tool.

Keywords: Social networking sites, FacebookTM usage, e-learning tool, private higher learning institutions

Introduction

Over the years, the Malaysian Higher Education system has been improving and it continues to evolve. The Ministry of Higher Education (MOHE) recognises the pivotal role of technology in higher education to keep Malaysian youths ahead of the global landscape. Based on the Malaysian Education Blueprint 2015-2025 it is with high hopes that the implementation of the developed roadmap will bring the nation towards achieving a high-income status.

Grounded on five pillars of aspiration - access, quality, equity, unity, and efficiency, Malaysia targets to increase higher education enrolment from 48% to 70% and increase the employability rate to more than 80% by 2025 (MOHE, 2015). Besides, the private higher

learning institutions (HLI) are expected to grow 5.1% annually to 2.5 million students by 2025. This would mean that for Malaysia to become the preferred education hub among The Association of Southeast Asian Nations (ASEAN), private HLIs will be a main contributor to the higher education scene.

Moving forward, ten specific shifts were outlined and one of these transformation shifts that have been identified in the blueprint to steer Malaysia's higher education system towards its dream is to harness the power of technology-based learning. With this said, private HLIs needs to move towards technology-based teaching and delivery methods through utilising blended learning mode as a pedagogical approach. Private HLIs are required to use blended learning modes for at least 70% of their programmes offered, starting with undergraduate programmes (MOHE, 2015). The concept of blended learning received high acceptance as it is perceived as more effective especially among millennials (Tselios et al., 2011).

Based on a survey conducted on Internet users by Malaysian Communications and Multimedia Commission (MCMC) in 2016, Malaysia has the seventh highest internet penetration rates among Asian countries at 78.8%. Moreover, the study found that among these internet users, 96.5% of them were Facebook users, compared to WeChat (61%), Instagram (46%), and Youtube (42%) (MCMC, 2016). In 2017, 37.57% of the population in Malaysia accessed Facebook and it is expected to increase to 45.06% in 2021 (Statista, 2017). Facebook remained the highest social media being used in Malaysia ahead of other social media platforms (Sani, 2018). Various studies have proven that Facebook can be a useful tool in promoting collaborative and cooperative learning due to its unique social and technological functions (Irwin et al., 2012). Kabilan et al., (2010) found that university students in Malaysia actually believed that Facebook is useful in assisting them to learn English language. The integration of this instructional support tool is said to offer a myriad of opportunities to engage with university students and enhance their overall learning experience (Ouf et al., 2010).

In spite of the popularity of Facebook among the millennials, it was developed for social interaction purpose and as such, the usage of this social media platform as a learning tool still lacks of supporting evidence. Furthermore, based on a critical literature review conducted by Manca & Ranieri (2013), they uncovered that Facebook have only been partially implemented and various parties having differing opinion on its usage in the educational context. So, the question here is whether millennials especially undergraduate students would perceive Facebook as a learning tool in terms of its usefulness, ease of use and interactivity and if they would subsequently have the intention to use it for their studies? In sum, the main aim of this study is to test the TAM by examining the role of perceived usefulness, perceived ease of use and perceived interactivity in predicting attitude and towards the students' intention to use Facebook as a learning tool.

Literature Review

Seventy percent of higher learning institutions globally say that students' use of social media is the biggest market driver for higher education organizations to invest in social media platform (Hootsuite, 2017). Globally, Facebook's most active users are the highest at 59% among the millennials (Statista, 2017). Millennials spend on an average 6 hours per week on social media (Nielsen, 2017). Whereas in Malaysia, millennials aged between 18 and 24 years old are the highest users contributing 34.5% followed by those aged 25-34 years (29.5%) and 13-17 years (16.3%) (Borneo Post, 2013). Facebook is currently the most popular social networking site, and students have expressed positive feelings on their experience using Facebook in blended learning mode (Auster, 2015).

Generally, blending learning is understood as the conduct of a course using a combination of face-to-face and online learning method (Brown et al., 2013). Millennials or also known as Generation Y lived their lives in the digital era and they are exposed to web-

based learning or e-learning (Weyland, 2011). Because of millennials preference towards using technology, blended learning tends to appeals to them. The emergence of Facebook as a social media platform have enhance its usability as a learning support tool especially among the millennials. Numerous studies conducted on higher learning institutions have motivated them to pay more attention in applying a more interactive platform to improve students' participation and overall learning experience (Tan et al., 2014; Khader et al., 2014).

In previous studies, TAM is applied to measure behavioural intention towards using a new invention and subsequently to predict the adoption of it (Davis, 1989). Developed based on theory of reasoned action (TRA) to examine computer's usage behaviour, TAM posited that perceived usefulness and perceived ease of use led to attitude. Perceived usefulness is the degree to which the individual believes that using the particular innovation will help to improve their performance whereas perceived ease of use means it's the degree of internal belief of the individual effort that is required to use the particular innovation (Davis, 1989). According to the theory, an individual's intention to use an invention is influenced by their attitude towards it and attitude can be defined as the individual's unfavourable or favourable assessment towards the object (Eagly & Chaiken, 1993). In other words, an individual's overall attitude towards the innovation or system is an antecedent to his or her intention to use it (Hsu & Lu, 2004). Inconclusively, there were other studies that have found that the relationship between attitude and intention to use were insignificant (Özbek et al., 2015).

Since its introduction in computer innovation, TAM has also been applied to explain user acceptance of innovation in various other fields of study such as manufacturing, tourism, hospitality, banking, automotive and education (Yang & Lin, 2011; Di Pietro et al., 2012; Ke et al., 2012; Engwanda, 2014; Ambak et al., 2016; Yang, 2017; Krishanan et al., 2017). Consequently, various scholars have also attempted to extend the TAM in order to improve its applicability. Due to the increase of global attention on e-commerce platform, scholars have included constructs such as perceived trust and perceived risk to measure consumers' willingness to adopt the usage of e-commerce in view of technological barriers faced such as fraud (see Kim, 2012). Besides, Moon and Kim (2001) introduced the construct 'Perceived Playfulness' that has since been empirically tested by Chung and Tan (2004) in the context of internet interaction and Padilla-meléndez et al., (2013) in the context of Moodle usage among university students. On the other hand, Yang & Lin (2011) included Perceived Enjovment instead in their model on the usage of Facebook to support problem-based learning among employees. In most of their studies, it was conclusive that there was a direct significant relationship towards the users' attitude and among those recent findings is that sense of playfulness had the strongest influence on the users' learning attitude (Liao et al., 2015).



Figure 1. The Conceptual Framework

10th International Conference on Language, Education, and Innovation $14^{th}-15^{th}$ April, 2018

Shifting from that, past studies have seek to unravel the motivation of innovation acceptance and as Facebook is a social media platform, its ability to initiate and continuously allow interaction often draw users to it (Richter & Koch, 2007). Largely, the more attractive the perceived interaction, the more likely the users have a positive attitude towards the innovation (Khader & Almasri, 2014). In service sector especially, empirical studies have confirmed that interactions are crucial in influencing customer consumption and interaction in social media marketing have also significantly affected customer equity (Kim & Ko, 2012; Chang et al., 2014). In the higher education sector, several studies supported this notion especially with the trend in teaching and learning that is leaning from more traditional method to an interactive multimedia method that allows the users to connect with others in discussion boards or live chat rooms (Drave, 2000; Siau et al., 2006). Especially when Facebook is a social media platform that thrives on interaction. More than ever, the interactivity of this social network site plays a crucial role in influencing the students' attitude and usage because the interaction enables the students to develop and increase their knowledge levels through communication and mutual sharing of information (Al-Rahimi et al., 2013; Liaw et al., 2007). Perceived interactivity as an extended construct of TAM can be defined as the degree to which the users perceive the two-way interpersonal communication between user to user and user to system that occurs when a user interacts with a computer-mediated communication tools (Mollen & Wilson, 2010). Although some empirical studies have been conducted to test perceived interactivity of mobile websites (see Coursaris & Sung, 2012) vet, perceived interactivity specifically on Facebook in facilitating learning is not fully established especially in the context of undergraduate students of private higher learning institutions in Malaysia. Thus, this study is on the quest to further pursue a confirmation that perceived usefulness, perceived ease of use and perceived interactivity of Facebook as a learning tool will all have positive influence on the undergraduate students' attitude and their usage intention as depicted in Figure 1 below. In addition, it is also hypothesized that perceived usefulness, perceived ease of use and perceived interactivity have indirect relationships with usage intention.

Methodology

This study undertaken applied the deductive perspective of testing the extended TAM. As such, a quantitative approach was used to conduct this study using online questionnaires that were distributed through Facebook messenger and the private institutions' e-learning portals. A non-probability convenience sampling was applied whereby the unit of analysis were undergraduate students. As the objective of this study is to uncover the students' attitude and usage intention towards Facebook. The questionnaires were distributed to undergraduate students from three private higher learning institutions in Malaysia that were selected on the basis that they have the highest numbers of undergraduate programmes offered and accredited (MQA, 2017). This was to give a better representation of the findings, however the names of the institutions has been omitted as agreed to respect the privacy of the data collected from the respective institutions.

Based on the data published for 2015, total enrolment of students in the private higher learning institutions are 580,928 (Department of Statistics Malaysia, 2016) and subsequently the total undergraduate student population for the three pre-selected institutions are 41,000 as of 2016 (StudyMalaysia.com, 2017). Based on 95% confidence level and 5% margin error to determine the sample size, 384 online questionnaires were distributed within a two-month's timeframe by the researchers equally among the three institutions (Krejcie & Morgan, 1970). It yielded a total of 225 responses (58.6% response rate) only that was used for the further analysis using SPSS 23.0 software.

In terms of the questionnaire development, it contained a total of 22 questions inclusive of four socio-demographic questions. Perceived usefulness (PU) and perceived ease of use

(PEU) constructs were measured using six and five items respectively that were adapted and reworded from Davis (1989, 1993) to suit the context of Facebook as the learning tool whereas perceived interactivity (PI) were measured by four items that were adapted from Khader & Almasri (2014). Similarly, a five-point Likert scale (1 = strongly disagree to 5 = strongly agree) was applied in this questionnaire to measure the constructs as per previous studies (Tan et al., 2014; Al-Rahimi, 2013). Factor analysis and reliability analysis were examined and scrutinised. Subsequently, the descriptive analysis was used to show the demographic characteristics of the respondents and further inferential analyses provided answers to the research objectives outlined earlier. The following section discusses the main findings and implications of it.

Findings

The demographic profile of the survey respondents is summarized in Table 1. As depicted, the majority (61.3%) of the respondents were female students. In terms of the nationality of the students, 94.2% of the respondents were local students compared to only 5.8% comprising of international students. Majority (86.7%) of them were aged between 17 to 19 years old. In terms of the current level of studies undertaken, 60% of them were currently enrolled in a degree program while the rest (40%) are in the diploma program.

Table 1Summary of Demographic Profile

Profile Factors	Particulars	f	%
Gender	Male	87	38.7
	Female	138	61.3
Nationality	Local	212	94.2
	International	13	5.8
Age	17-19 years	195	86.7
	20-22 years	30	13.3
Level of Studies	Diploma	90	40
	Degree	135	60

Reliability analysis was conducted to determine the internal consistency of the measurement items used in the questionnaire. In order to refine the measurement scale, a factor analysis was also conducted to examine the factor loadings of the items. Based on the findings of the factor analysis and reliability analysis, the results are as presented in Table 2 respectively.

Construct	Factor Loadings	Cronbach Alpha of coefficient	
Perceived Usefulness		0.866	
PU1	0.653		
PU2	0.809		
PU3	0.488		
PU4	0.816		
PU5	0.721		
PU6	0.691		
Perceived Ease of Use		0.793	
PEU1	0.742		
PEU2	0.453		
PEU3	0.656		
PEU4	0.733		
PEU5	0.582		
Perceived Interactivity		0.868	
PI1	0.607		
PI2	0.781		
PI3	0.805		
PI4	0.780		
Attitude		0.605	
Variance	explained = 63.7%, KMO = 0	.913	

Table 2Factor Analysis and Reliability Analysis Results

As observed in Table 2, the factor loadings exceeding the value of 0.45 were considered statistically significant and Cronbach's alpha value ranges from 0.605 to 0.868 indicating that all the measurement items used for the respective constructs all met the criteria (Hair et al., 1998).

Since the objective of this study is to test the TAM by examining the role of perceived usefulness, perceived ease of use and perceived interactivity in predicting attitude towards intention to use Facebook as a learning, a multiple regression analysis was undertaken to determine the proposed relationship between the antecedents (perceived usefulness, perceived ease of use and perceived interactivity) and attitude. As theorized, the model summary presented in Table 3 below explained a significant proportion of the variance in attitude. The prediction model was statistically significant, F (3, 221) = 109.995, p <0.05. The coefficient of determination (R^2) is 0.599, which indicates that 59.9% of the dependent variable (attitude) is explained by the three predictors (perceived usefulness, perceived interactivity).

30

Model	1	Unstandardized	Standardized	t	Sig.**
		Coefficients	Coefficients		
	В	Std	Beta		
		Error			
(Constant)	.253	.179		1.410	.160
PerceivedUse	.321	.064	.297	4.979	.000
PerceivedEase	.262	.058	.261	4.522	.000
PerceivedInteractivity	.330	.060	.333	5.463	.000
	.599		Durbin Watson		1.94
Adjusted R ²	.593		F value		109.995

Table 3 Results of Multiple Regression Analysis

a. Dependent Variable: Attitude

** Significant at p<0.05,

In terms of the hypotheses testing, the results presented in Table 3 indicated that all three variables had positive significant relationship towards attitude. The standardized beta coefficient for perceived interactivity is reflected as the highest contributor of the variance in attitude at 33.3% with a significance value of 0.000, followed by perceived usefulness (29.7%, p=0.000) and lastly, perceived ease of use (26.1%, p=0.000). From this outcome, it is concluded that Facebook is perceived as a useful tool for disseminating information and providing opportunity for communication, which is adjacent to the findings of previous studies (Coklar, 2012; McCarthy, 2010).

Table 4

Results of Regression Analysis

Model	Un	standardized	Standardized	Т	Sig.**
	C	Coefficients	Coefficients		
	В	Std	Beta		
		Error			
(Constant)	.665	.254		2.616	.010
Attitude	.740	.073	.562	10.155	.000
	.316		Durbin Wat	son	1.833
Adjusted R ²	.313		F Value		103.118

a. Dependent Variable: Usage Intention

** Statistically Significant at p<0.05

As presented in Table 4 above, the linear regression relationship was statistically significant, F (1, 223) = 103.118, p <0.05. Additionally, the standardized beta coefficient for attitude is found to be 0.562 with a significance value of 0.000, which indicates that attitude explains 56.2% variance in usage intention. Notably, the findings confirmed that all three factors could influence the students' attitude and consequently their attitude towards the usage of Facebook. The relationship between attitude and usage intention has long been established by and Fishbein and Ajzen (1975). This finding also provides reinforcement that the constructs of perceived ease of use and perceived usefulness are significant as established in TAM (Davis, 1989; Davis, 1994; Davis &Weidenbeck, 2001). The result of this study also supports the notion that attitude does have a significant influence on their usage intention which is contradicting with the findings of Özbek, et al (2015).

Discussion

This study proposed a conceptual model based on an extended TAM to explain and understand Malaysia's private higher learning institution students' intention to use Facebook as an e-learning tool. As posited by Moon and Kim (2001), various factors could impede or

precede the attitude and usage intention of a new technology. Besides, Facebook was said to be an effective learning tool because of its flexibility especially among female university students who perceived that interactions by sharing materials increases their learning capability (Wong & Wong, 2017). Seeing that Facebook is one of the most commonly used social media platform for social interaction and interpersonal communication, this study extended the TAM by including the perceived interactivity variable. The resulting analyses confirmed that perceived interactivity was the strongest predictor of attitude among the undergraduate university students, which were similar to the findings discovered by Coursaris & Sun (2012). Alongside this finding, it can be deduced that one of the greatest advantages perceived by the students were the fast real-time feedback and the knowledge transfer that occurred during their interactions with their friends in Facebook. Moreover, they perceived that the interactions that took place helped them in getting up-to-date information and these were viewed to be the main antecedent towards their positive attitude. Additionally, the more functions that the students perceive Facebook to have in helping them to learn, the stronger their attitude are towards using it, similar to the findings of Kabilan et al., (2010) and Barczyk and Duncan (2013). Facebook gives them more flexibility in learning as the system was useful in tracking posts, enables repeat learning to take place and helps them to study at their own pace (Huang et al., 2012). This study also established that having positive attitude towards the e-learning tool leads to students being more inclined to use it (Al-Harbi, 2011).

However, just like any new system, it is a constant challenge to successfully integrate a social network site into the teaching and learning environment or use it in delivering a course in university as highlighted by Manca and Ranieri (2013). Especially when Facebook is famously more well-known as a socialising platform among university students and is more often used for their entertainment and leisure purposes (Selwyn, 2009; Madge et al., 2009). Past studies found that some students do not perceive that spending more time on Facebook for learning purposes actually results in better learning proficiency (Wong & Wong, 2016; Farbman, 2015). In other words, students do not perceive Facebook as a tool that is effective in helping them academically. This is aligned with the finding of this study that the students' perceived that the ease of using Facebook for learning purposes was the lowest contributing factor towards their attitude. As such, it is recommended that in order for Facebook to assimilate successfully as an e-learning tool, clearer guidance in terms of how to apply Facebook for learning purposes be provided for the students. The undergraduate students of these private learning institutions may be well-versed with using Facebook for socialisation purposes but they have yet to embrace and maximize the ability of this social network site in helping them achieve academic excellence through blended learning. According to Rap & Blonder (2017), in addition to the usage of Facebook in class, it is equally important for teachers to maintain their physical presence.

Conclusion

In summary, this research sought to determine the factors that influence Malaysia's private higher learning institutions students' intention to use Facebook as an e-learning tool in view of the nation's direction towards technology-based learning. As one of the highest users of this social network site, the findings showed that the private learning institutions' undergraduate students' usage intention is influenced by several factors including perceived interactivity, perceived usefulness and perceived ease of use. Attitude were also found to have a significant positive relationship towards the students' usage intention. One of the limitations of this study were in terms of the relatively poor response rate received (58.6%) from the data drawn from the three private higher learning institutions which could have affected the generalizability of the findings. A larger sample size or higher response rate would be more favourable to gather pertinent results. Future work can also take into consideration a

comparison between undergraduate and postgraduate students' view and include a multistakeholder perspective by examining the perspective of lecturers and university's management towards the usage of this social network site for learning purposes. Lastly, as only 59.9% of the attitude is explained by the three predictors, it is postulated that there could be other intrinsic and extrinsic motivators that could be further hypothesized and tested.

References

- Aboagye, E. O., Ansong, M. O., Dagadu, J., Antwi, H. A., & Agbezuge, E. (2016). E-Banking Preferences and Middle Class Values in Ghana. *Journal of Computer Sciences and Applications*, 4(2), 35-46
- Al-Rahimi, W.M., Othman, M.S., & Musa, M.A. (2013). Using TAM Model to Measure The Use Of Social Media For Collaborative Learning. *International Journal of Engineering Trends and Technology*. 5(2), 90-95.
- Al-Harbi, K.A. (2011). e-Learning in the Saudi tertiary education: Potential and challenges. *Applied Computing and Informatics*. 9, 31–46.
- Ambak, K., Harun, N. E., Rosli, N., Daniel, B. D., Prasetijo, J., Abdullah, M. E., & Md Rohani, M. (2016). Driver intention to use electric cars using technology acceptance model. *Journal of Engineering and Applied Sciences*, 11(3), 1524–1528.
- Auster, C.J. (2015). Blended Learning as a Potentially Winning Combination of Face-to-face and Online Learning: An Exploratory Study, *Teaching Sociology*, 44(1), 39–48.
- Barczyk, C. C., & Duncan, D. G. (2013). Facebook in higher education courses: An analysis of students' attitudes, community of practice, and classroom community. *International Business and Management*, 6(1), 1-11.
- Borneo Post (2013). 13.3 million M'sians are Facebook users. Retrieved on 17 November 2017 from http://www.theborneopost.com/2013/06/16/13-3-million-msians-are-facebookusers/
- Brown, G. A., Bull, J., & Pendlebury, M. (2013). Assessing student learning in higher education. Routledge.
- Chang, L., Tsai, C., & Yeh, S., (2014). Evaluation of green hotel guests' behavioral intention. In: Chen, Joseph S. (Ed.), *Advances in Hospitality and Leisure*, 10, 75-89.
- Chung, J., & Tan, F. B. (2004). Antecedents of perceived playfulness: an exploratory study on user acceptance of general information-searching websites. *Information & Management*, 41(7), 869-881.
- Çoklar A. N. (2012) Evaluations of students on Facebook as an educational environment. *Turkish Online Journal of Qualitative Inquiry*, 3 (2), 42-53.
- Coursaris, C. K., & Sung, J. (2012). Antecedents and consequents of a mobile website's interactivity. *New Media & Society*, 14(7), 1128–1146. http://doi.org/10.1177/1461444812439552.
- Davis, F.D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology, *MIS Quarterly*, 13(3), 319- 340.
- Davis, F.D. (1994). User acceptance of information technology: System characteristics, user perception and behavioral impacts. *International Journal of Man-Machine studies*, 38, 475-487.
- Davis, S. and Wiedenbeck, S. (2001). The mediating effects of intrinsic motivation, ease of use and usefulness perceptions on performance in first-time and subsequent computer users. *Interacting with Computers*, 13, 549-580.
- Di Pietro, L., Di Virgilio, F., & Pantano, E. (2012). Social network for the choice of tourist destination: attitude and behavioural intention. *Journal of Hospitality and Tourism Technology*, 3(1), 60–76. https://doi.org/10.1108/17579881211206543
- Drave, W. A. (2000). Teaching online LERN books. River Falls, Wisconsin.

- Eagly, A. H., & Chaiken, S. (1993). The psychology of attitudes. Fort Worth, TX: Harcourt Brace Jovanovich College Publishers.
- Engwanda, M. N. (2014). Factors Affecting Mobile Banking Adoption in the United States. Walden dissertation.
- Farbman, D. A. (2015). The Case for Improving and Expanding Time in School: A Review of Key Research and Practice. Updated and Revised February 2015. National Center on Time & Learning.
- Fishbein, M., & Ajzen, I. (1975). Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Researched. Reading: Addison-Wesley.
- Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (1998). Multivariate data analysis. 5th edition, Uppersaddle River.
- Hootsuite (2017). Social Campus Report: A global survey of higher education social media usage. Retrieved on 17 November 2017 from https://hootsuite.com/resources/whitepaper/social-campus-report.
- Huang, Y. M., Huang, Y. M., Huang, S. H., & Lin, Y. T. (2012). A ubiquitous English vocabulary learning system: Evidence of active/passive attitudes vs. usefulness/ease-of-use. Computers & Education, 58(1), 273-282.
- Hsu, C.L., & Lu, H.P. (2004). Why do people play on-line games? An extended TAM with social influences and flow experience. Information & Management, 41, 853-868.
- Irwin, C., Ball, L., Desbrow, B., & Leveritt, M. (2012). Students' perceptions of using Facebook as an interactive learning resource at university. Australasian Journal of Educational Technology, 28(7).
- Kabilan, M. K., Ahmad, N., & Abidin, M. J. Z. (2010). Facebook: An online environment for learning of English in institutions of higher education?. The Internet and higher education, 13(4), 179-187.
- Ke, C., Sun, H., & Yang, Y. (2012). Effects of User and System Characteristics on Perceived Usefulness and Perceived Ease of Use for the Web-based Classroom Response System. *The Turkish Online Journal of Educational Technology*, 11(3), 128–143.
- Khader, A., & Almasri, M. (2014). The influence on mobile learning based (TAM), mobile readiness (MR) and perceived interaction (PI) for higher education students, International Journal of Technical Research and Applications. 2(1), 5–11.
- Kim, J. B. (2012). An empirical study on consumer first purchase intention in online shopping: Integrating initial trust and TAM. *Electronic Commerce Research*, 12(2), 125–150.
- Krejcie, R.V. & Morgan, D.W. (1970). Determining sample size for research activities. Educational and Psychological Measurement, 30, 607-610.
- Krishanan, D., Low, L.T. & Siti Khalidah (2017). Moderating effects of age & education on consumers' perceived interactivity & intention to use mobile banking in Malaysia: a structural equation modeling approach. Proceeding of International Conference on Humanities, Language, Culture & Business, Penang. ISBN: 978-967-14835-0-3.
- Liaw, S. S., Huang, H. M., & Chen, G. D. (2007). An activity-theoretical approach to investigate learners' factors toward e-learning systems. Computers in Human Behavior, 23, 1906-1920.
- Liao, Y.W., Huang, Y.M., Chen, H.C., & Huang, S.H. (2015). Exploring the antecedents of collaborative learning performance over social networking sites in a ubiquitous learning context. *Computers* Human Behavior. 313-323. in 43. https://doi.org/10.1016/j.chb.2014.10.028.
- Manca, S., & Ranieri, M. (2013). Is it a tool suitable for learning? A critical review of the literature on Facebook as a technology-enhanced learning environment. Journal of Computer Assisted Learning, 29, 6, 487-504. DOI: 10.1111/jcal.12007.

34

- Martins, J., Gonçalves, R., Branco, F., & Peixoto, C. (2015). Social networks sites adoption for education: A global perspective on the phenomenon through a literature review, Information Systems and Technologies (CISTI) 10th Iberian Conference, 1-7.
- McCarthy J. (2010) Blended learning environments: Using social networking sites to enhance the first year experience. *Australasian Journal of Educational Technology*, 26 (6), 729-740.
- MCMC (2016). Internet Users Survey 2016. Retrieved 14 February 2018 from https://www.mcmc.gov.my/skmmgovmy/media/General/pdf/IUS2016.pdf.
- Moghavvemi, S., Paramanathan, T., Md Rahin, N. & Sharabati, M. (2017). Student's perceptions towards using e-learning via Facebook. *Behaviour & Information Technology*, 36(10), 1081-1100.
- MOHE (2015). Malaysia Education Blueprint 2015 2025 (Higher Education). Retrieved on 14 February 2018 from https://www.mohe.gov.my.
- Mollen, A., & Wilson, H. (2010). Engagement, telepresence and interactivity in online consumer experience: Reconciling scholastic and managerial perspectives. *Journal of Business Research*, 63(9–10), 919–925. http://doi.org/10.1016/j.jbusres.2009.05.014
- Moon, J.W. & Kim, Y.G. (2001). Extending the TAM for the World-Wide-Web context. *Information and Management*, 38, 217-230.
- MQA (2017). Malaysian Qualifications Register, Malaysian Qualifications Agency. Retrieved on 13 November 2017 from http://www2.mqa.gov.my/mqr/akrbyipts.cfm.
- Nielsen (2017). 2016 Nielsen Social Media Report. Retrieved on 17 November 2017 from http://www.nielsen.com/us/en/insights/reports/2017/2016-nielsen-social-mediareport.html/
- Ouf, S., Nasr, M. & Helmy, Y. (2010). An enhanced e-learning ecosystem based on an integration between cloud computing and Web 2.0. *In IEEE International Symposium on Signal Processing and Information Technology (ISSPIT)*, 2010, Helwan, Egypt. http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=5711721.
- Özbek, V., Günalan, M., Koç, F., Şahin, N. K., & Kaş, E. (2015). The effects of perceived risk and cost on technology acceptance: A study on tourists' use of online booking. *Journal* of Social Sciences, 13(2). http://doi.org/10.18026/cbusos/49782
- Padilla-meléndez, A., Aguila-obra, A. R., & Garrido-moreno, A. (2013). Perceived playfulness , gender differences and technology acceptance model in a blended learning scenario. *Computers & Education*, 63, 306–317.
- Pookulangara, S., & Koesler, K. (2011). Cultural influence on consumers' usage of social networks and its' impact on online purchase intentions. *Journal of Retailing and Consumer Services*, 18, 348–354
- Rap, S., & Blonder, R. (2017). Thou shall not try to speak in the Facebook language: Students' perspectives regarding using Facebook for chemistry learning. *Computers & Education*, 114, 69-78.
- Rauniar, R., Rawski, G., Yang, J., & Johnson, B., (2014). Technology acceptance model (TAM) and social media usage: an empirical study on Facebook. *Journal of Enterprise Information Management*, 27(1), 6 30.
- Richter A, & Koch M. (2007). Social software status quo und Zukunft. Technischer Bericht, Nr. 2007–01, Fakultät für Informatik. Universität der Bundeswehr München.
- Sani, R. (2018). Facebook is most used social media platform by M'sian students: survey. New Straits Times. Retrieved on 4 March 2018 from https://www.nst.com.my/education/2017/06/246209/facebook-most-used-social-media-platform-msian-students-survey.
- Selwyn N. (2009) Faceworking: exploring students' education-related use of Facebook. *Learning, Media and Technology*, 34 (2), 157-174.

- Siau, K., Sheng, H., & Nah, F. H. (2006). Use of a classroom response system to enhance classroom interactivity. *IEEE Transactions on Education*, 49(3), 398-403.
- Statista (2017). Facebook usage penetration in Malaysia from 2015 to 2022. Retrieved on 17 November 2017 from https://www.statista.com/statistics/490527/share-of-the-malaysia-internet-users-using-facebook/.
- Tan, G. W. H., Ooi, K. B., Leong, L. Y., & Lin, B. (2014). Predicting the drivers of behavioral intention to use mobile learning: A hybrid SEM-Neural Networks approach. *Computers in Human Behavior*, 36, 198–213. https://doi.org/10.1016/j.chb.2014.03.052
- Tajudeen Shittu & Tunku Badariah Tunku Ahmad (2011). Investigating students' attitude and intention to use social software in higher institution of learning in Malaysia. *Multicultural Education & Technology Journal*.
- Tselios, N. K., Daskalakis, S., & Papadopoulou, M. (2011). Assessing the acceptance of a blended learning university course. *Educational Technology & Society*, 14(2), 224-235.
- Wang, H-Y., Liao, C., & Yang, L-H. (2013). What Affects Mobile Application Use? The Roles of Consumption Values. *International Journal of Marketing Studies*, 5 (2), 11-22.
- Weyland, A. (2011). Engagement and talent management of Gen Y. *Industrial and Commercial Training*, Vol.43(7), pp.439-445.
- Wong, D., & Wong, S. I. N. (2016). Frequency of accessing Facebook and learning effectiveness perceptions among students of BERJAYA University College of Hospitality. ASEAN Journal of Open Distance Learning and Learning, 8(2), 98-105.
- Wong, D. & Wong Abdullah, S. I. N., (2017), Gender Differences on Perceived Learning Effectiveness Using Facebook In Berjaya University College of Hospitality. *International Journal of Education, Psychology and Counselling*, 2(6), 93-107.
- Yang, S-H., & Lin, C-H. (2011). Factors affecting the intention to use Facebook to support problem-based learning among employees in a Taiwanese manufacturing company. *African Journal of Business Management*, 5(22), 9014-9022.
- Yang, F. X. (2017). Effects of Restaurant Satisfaction and Knowledge Sharing Motivation on eWOM Intentions: The Moderating Role of Technology Acceptance Factors. *Journal of Hospitality* and *Tourism* Research, 41(1), 93–127. https://doi.org/10.1177/1096348013515918.