International Journal of Evaluation and Research in Education (IJERE)
Vol. 11, No. 3, September 2022, pp. 1218~1225
ISSN: 2252-8822, DOI: 10.11591/ijere.v11i3.22622

Factors that influence Malaysian-based financial literacy model among teenagers

Khoo Yin Yin[1], Rohaila Yusof[2], Wei Chooi Yi[3]
[1]Department of Economics, Sultan Idris Education University, Perak, Malaysia
[2]Department of Accounting and Finance, Sultan Idris Education University, Perak, Malaysia
[3]Department of Finance, Tunku Abdul Rahman University, Perak, Malaysia

Article Info

Article history:

Received Jul 29, 2021
Revised Jun 13, 2022
Accepted Jul 4, 2022

Keywords:

Factors
Financial literacy
Human values
Practices
Secondary school
Structural equation modeling

ABSTRACT

Most of the young generation do not realize the importance of decision making, money-saving, and budget planning. Consequently, a total of 47% of bankruptcies in Malaysia occurred among young adults between the ages of 18-35. Young individuals account for the majority of bankruptcies, public awareness of financial literacy should be raised. More effective teaching in secondary school has attracted researchers' attention. One of the general objectives of the Malaysian curriculum for the students is to practice moral values. Money-saving can be considered as one of the moral values. Still, school teachers have to cover many other academic topics, and they always feel overburdened with all types of examination-oriented textbooks. Students' value towards money and attitude influence their financial decision. Other factors needed in financial literacy are decision-making and accountability. This study aimed to examine factors that influence students' human values in financial literacy. This study had instilled human values to encourage students to practice time-saving, decision making, money-saving, and other values related to their well-being in the future. The survey was employed in this study. Then, a video that integrated financial literacy and human values with a Malaysian-based real-world learning experience was created in stage two. In addition, the questionnaire was administered to 327 secondary school students after they watched the video. The structural equation modeling method was used to determine the factors that influenced the financial literacy model. The findings from the analysis retained four elements: practices, decision making, accountability, and human values. Future research can focus on a comparative analysis with neighboring countries.

This is an open access article under the CC BY-SA license.

Corresponding Author:

Khoo Yin Yin
Faculty of Management and Economics, Sultan Azlan Shah Campus, Sultan Idris Education University
35900 Tanjung Malim, Perak Darul Ridzuan, Malaysia
Email: khoo@fpe.upsi.edu.my

1. INTRODUCTION

Nowadays, most young people do not realize the importance of decision-making, money-saving, and monthly budget planning. Consequently, a total of 47% of bankruptcies in Malaysia occurred among the young generation between the ages of 18-35 [1], [2]. Public awareness of financial literacy should be raised since a majority of bankruptcies occur among young adults. More effective teaching in secondary school has attracted researchers' attention. However, developed countries such as Australia have designed a new curriculum in primary school for young students to promote financial literacy at the early stage [3]. The

educators in the developing countries realized that students would be confronted with economic issues that would significantly impact their lives as some might become the breadwinners after secondary school.

In contrast, a condition in developing countries is not the same. Financial literacy is not a stand-alone subject in the South East Asian countries such as Indonesia, Philippines and Malaysia curriculum. Most of the knowledge about financial literacy is only integrated or instilled in other subjects such as moral education, economics, languages and other subjects. One of the general objectives of the Malaysian curriculum for primary school pupils and secondary school students is to practice moral values [4]. Money-saving can be considered as one of the moral values. Still, school teachers have to cover many other academic topics, and the teachers always feel overburdened with all types of examination-oriented textbooks [5]. As a non-exam subject, many teachers and students consider this subject unessential, and in many schools, the time allotted may be concise. However, the Malaysian government realized the importance of financial literacy and its consequences; financial literacy has launched as a cross-curricular element in Malaysia's curriculum in 2017, followed by the Malaysian financial network in 2019. Even with the efforts from the Malaysian government, the most challenging part is teachers still neglect this important life skill due to lack of training and content knowledge. However, Malaysia is not alone; many teachers in other countries such as the United States of America (USA) also face the same problem [6].

Studies showed that financial education is significant to financial literacy [7]–[9]. An individual that lacks of financial literacy cannot manage their money wisely. Young adults always spend beyond their means [10]–[12], this situation happened in Malaysia too [13]. The financial literacy level is alarming among young adults [14]. Researchers also said that low-income household normally has low-income financial literacy. Central Bank of Malaysia [15] reported that 75% of the Malaysian difficulty to raise RM1000 (240 USD) for emergency use. In addition, less than 25% of Malaysians had any investment. This report also showed that 60% of Malaysians do not have long term retirement planning. The survey's findings also reported that over 3,000 Malaysians who participated did not have a proper financial plan to manage their spending and debt. The situation worsened during pandemic COVID-19 because so many people lost their jobs, and 60% of Malaysian struggled to survive for more than a week. Another study from Mokhtar *et al*. also showed a similar report [16]. Nevertheless, the teachers still did not know the importance of financial literacy, and students did not have the opportunity to explore more about this life skill becoming the major problem. This report has highlighted the critical need for financial literacy to promote among the young generation. Therefore, there is a pressing need to promote financial literacy among secondary school students. Despite the growing importance of financial literacy, Malaysia does not have a proper model for secondary school students. Therefore, the purpose of the study is to examine factors that influence students' human values in financial literacy.

Therefore, educators need to develop a proper financial literacy learning model to enhance human value such as decision-making and accountability. On the other hand, practices are also emphasized in this model. Economics consists of financial literacy, but students don't need to take this subject even in upper secondary school. As a result, instilling basic financial literacy knowledge is practicable. Since students and technology are aligned to create new learning possibilities [17], [18] in Education 4.0, integrating technology into financial literacy can promote students' learning interests that are in line with the current trend.

In addition, digital learning showed its impact on learning for almost all the subjects and skills include financial literacy. Digital tools such as videos have received much attention because they have always been claimed as an audiovisual learning medium that offers real-world examples with rich contextual details that can promote financial literacy [19]–[22]. There is an emerging trend in online learning to increase interaction and engagement in secondary school education due to online learning advancement [23], [24]. Most importantly, a proper model integrated with the real world can be designed for financially illiterate school students. Researchers believed that learning combined with the real world can enhance students' holistic learning [25].

Students need financial knowledge, values, accountability and practices to make sound financial decisions. The value refers to financial literacy's value covering a wider scope than what the students learnt in secondary school. Previous research showed that students' financial literacy scores positively value money and integrity [26]. Financial literacy influences decision-making substantially, and older people tend to make better financial decisions [27]. On the other hand, practices are related to students spending or saving money [28]. Secondary school students are accountable for their savings and spending after learning financial literacy across the curricular. Based on these, four hypotheses were suggested as: Accountability of students influences by financial literacy (H_1); Students' decision-making influences by financial literacy (H_2); Students' value influences by financial literacy (H_3); and Students' practice in saving and spending influences by financial literacy (H_4).

There are a lot of literature reviews that show different learning models in financial literacy. Previous models demonstrated the relationship between financial literacy with attitude or behavior. Many models are tailored to adults or college students. However, a financial literacy learning model for secondary

school students is limited. This study contributes to this literature by examining the factors that influence the secondary school financial literacy model. This model has presented more micro perspectives such as value, accountability, decision-making, and practices than the previous models [29]–[32]. Previous models only emphasized behavior changes in saving, spending and purchasing. The element of values and accountability became the study's novelty because most financial literacy models only emphasize behavioral changes and financial knowledge. In addition, the financial literacy model that is customized for secondary school students is limited. Literature showed that an individual with good values have a happy life and are significant to well-being [33]. The second contribution of this study is to investigate the relationship between factors in the Malaysian based financial literacy model.

In order to examine factors that influence students' human values, the main author has extended the theory of planned behavior as the conceptual framework of this study as shown in Figure 1. The three main elements in the theory of planned behavior (TPB) [34] are attitude, subjective norm (beliefs about attitudes toward a behavior), and perceived behavioral control. TPB was selected because it has better predictive power than other models. In this theory, an attitude refers to people who have an intention and subsequently influence his/her behavior. Factors in my proposed model, attitudes refer to value towards money and accountability. Students should have positive value towards money, which means that they should save or earn money legally. They also need to be responsible to save their money or spending money. Subject norms refer to decision making. The perceived behavioral control refers to practices, students being able to control their spending behavior if teachers teach financial literacy cross-curricular with digital tools. On the other hand, students should be able to practice good saving behavior. The integrated financial literacy into the curriculum influences students' perceived behavior control in decision-making, accountability, and practices. The intention to change the behavior of an individual is influenced by digital learning provided to him.

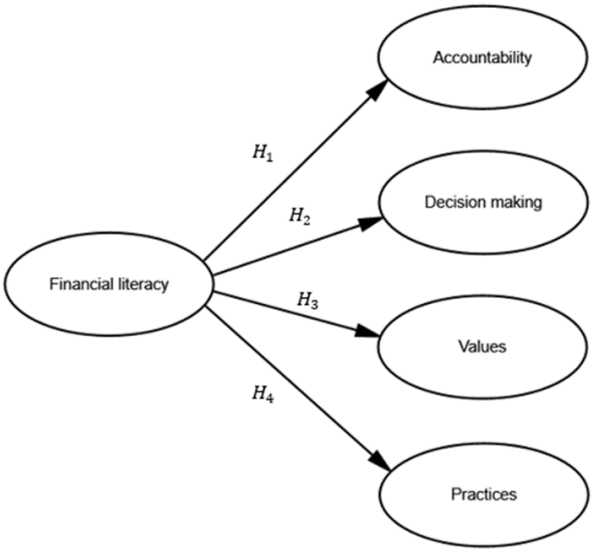

Figure 1. Conceptual model of study

2. RESEARCH METHOD

The data was collected on a survey in Peninsular Malaysia. The respondents were selected using random cluster sampling from four public schools in five different cities. A set of questionnaires consisting of 50 questions with five points Likert scale was employed in this study. The questionnaire was developed based on the theory of planned behavior and human values. Questions related to demographics, students' human value, practices, decision making, and accountability financial literacy were included in each construct.

A group of Malaysian financial planning council experts and secondary school expert teachers verified the validity test. Before the actual study, a pilot test was employed among 100 students using exploratory factors analysis and Cronbach's alpha. Structural equation modelling ran the data of actual research. In a randomized trial, we sent out about 500 questionnaires by hand and email. We found an effect of the type of questionnaire by email on the response rate is only 65.4%. During the actual study, 327 secondary school students were selected from Peninsular Malaysia.

A mobile web that was designed in this study was used to teach financial literacy. During class, teachers can use either the web or mobile applications. This mobile web was created incorporated with the secondary school economics curriculum. It consisted of notes, videos, financial quizzes, and a financial calculator tailored to students' secondary expenses. Real-world questions were inserted in each video. Teachers need to attend a briefing session. They have to understand their learners before incorporated their lessons with financial literacy. The short-term learning goal is in line with the national agenda, promote financial awareness among students, enhance their financial knowledge and help them to plan their own weekly budgets. Planning a proper retirement plan is the long-term learning goal because financial literacy is an essential skill needed in life. The learning outcome goal was followed by Bloom with the level creating. Each student needs to plan their budget within six weeks.

3. RESULTS AND DISCUSSION

The reliability of the data had been tested before conducting the exploratory factor analysis (EFA). Since there were five subscales in the questionnaire, Cronbach's alpha had been carried out for each construct. Table 1 shows the findings of Cronbach's alpha for each construct. The findings were reliable as they exceeded 0.70 [35]. Only one item (Item 31) was deleted due to the low value of Cronbach alpha. Before conducting the EFA, linearity was assumed to ensure that the data were normally distributed. In addition, the skewness and kurtosis tests were conducted to examine the normality of the data. The correlation matrix explained the exploratory factor analysis of varimax components analysis with the extraction method. The Kaiser-Meyer-Olkin (KMO) and Bartlett's test findings were .727 ($p<.05$), showing appropriate items from each factor. In other words, the results imply that correlations between variables are zero because the correlations matrix differs significantly from an identity matrix.

Table 1. Cronbach's alpha for each construct

Subscale	Items	Item deleted	Cronbach Alpha
Practices	13	-	.764
Decision making	13	-	.803
Accountability	12	1	.840
Human value	12	-	.851
Total	50		

The 50-item questionnaire was examined by exploratory factor analysis, which was designed to index four constructs: practices, decision making, accountability, and human values. As a result of the existence of five factors, those factors with loadings greater than .4 were chosen for inclusion in the EFA. The process of extraction was carried out for those factors with loadings less than 4. Table 2 illustrates the factor loading for the four constructs.

The four factors have explained a total of 40.79% of the total variance. The first factor- "Practices," explained the majority of the whole variability. The first-factor "Practices" explained 17.157% of the variance. Factor two refers to decision-making, explained 6.712%. Factor three relates to accountability, explained 6.482% of the variance. The fourth factor, the human values, explained 5.398% of the variance.

Confirmatory factor analysis (CFA) evaluated the measurement model's adequacy in Figure 2. Although Chi-square/df=2.480 is less than the cut-off value of 5, goodness-of-fit index (GFI)=.849, adjusted goodness of fit index (AGFI)=.819, and comparative fit index (CFI)=.760 values were all less than the.90 thresholds. With a threshold of.08, the root means square error of approximation (RMSEA) value of.067 was acceptable. As a result of examining the modification index, the model was revised. The researchers removed items with a high degree of modification.

Referring to Figure 3, Chi-square/df=2.155, GFI=.935, AGFI=.905, CFI=.900, and RMSEA=.600 were all the required threshold. Due to all the indexes had reached the required level, no deletion source modification was needed. Table 1 displays the path analysis and its significance. All of the p values are.05, indicating that they are all significant. These findings demonstrated that the free light chains (FLC) model's sub-constructs are highly significant.

The following hypotheses have been answered based on the results of Table 3: Accountability of students influences by financial literacy (H_1); Students' decision-making influences by financial literacy (H_2); Students' value affects by financial literacy (H_3); Students' practice in saving and spending influences by financial literacy (H_4).

Table 2. The principal axis analysis factor analysis

Item	Factor loading				Communalities
	1	2	3	4	
P19	.660				.689
P4	.642				.672
P9	.631				.586
P1	.609				.698
P10	.546				.662
P5	.535				.726
P8	.529				.630
P3	.524				.533
P9	.517				.532
P7	.457				.642
P38		.760			.717
P40		.740			.763
P39		.738			.687
P29		.502			.529
P41		.495			.628
P30		.489			.731
P22		.452			.675
P26		.742			.770
P27		.720			.611
P25		.621			.545
P28		.599			.797
P23		.470			.513
P48			.840		.743
P49			.783		.668
P47			.615		.554
P46			.448	.661	.520
P35					.570
P36				.607	.531
P34				.450	.529
P32				.421	.547
P33				.409	.632

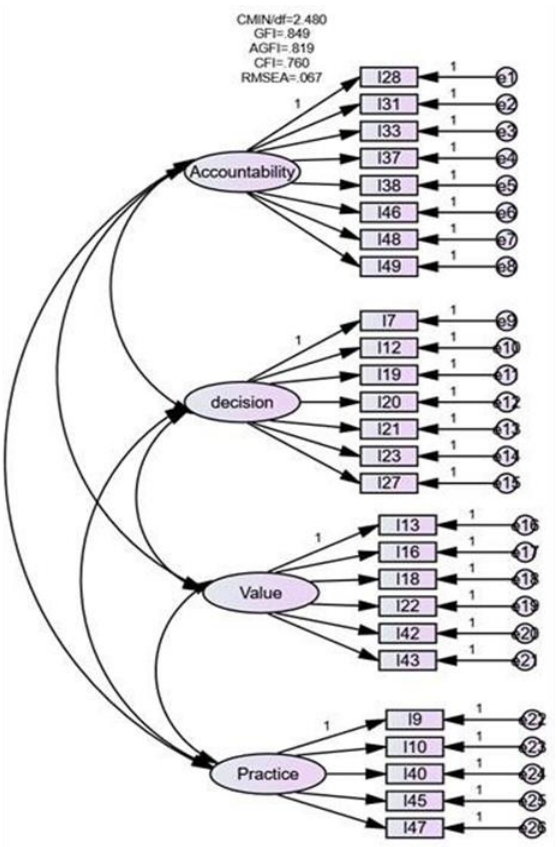

Figure 2. FLC measurement model

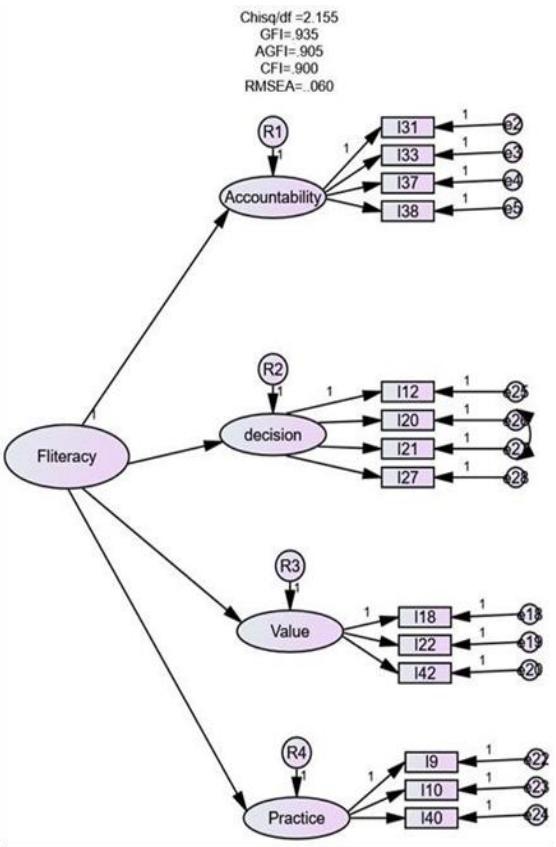

Figure 3. FLC measurement model 3

Table 3. The path analysis

Estimate		SE	CR	P	Results		
Accountability	<---	F.literacy	.171	.066	2.580	.010	Significant
Decision making	<---	F.literacy	.869	.277	3.133	.002	Significant
Values	<---	F.literacy	.121	.048	2.536	.011	Significant
Practice	<---	F.literacy	-.138	.058	-2.388	.017	Significant

Based on the analysis, all the constructs were significant to financial literacy. A positive attitude towards saving could promote financial literacy [36]. The present study also showed similar findings, attitude in the model measured by values. If a student has positive values towards money, it means that students with positive values have better financial literacy. They can control the spending behaviors. These findings are also in line with the findings of Aydin and Selcuk [26]. Previous model indicated adults' behaviors towards financial literacy would change with motivation from the external force [37]. The external forces were salary or debt. Although this study's findings also indicated the factors that influence the changes of behaviors after learning financial literacy with digital tools. In contrast, the external force that causes the changes is learning financial literacy incorporated in the curriculum with digital tools.

An individual with financial literacy makes a better financial decision in saving and spending [38], [39]. Prior studies also pointed out that the person with financial knowledge will be responsible for his spending decision. The findings of this study are in line with previous studies. Students' decision making and accountability influences by financial literacy. A previous study reported financial literacy related significantly to students' practice in saving and spending; however, proper decision making also contributed to effective financial well-being [40]. The findings of this study confirmed the previous result. In other words, practices in saving or spending behavior of an individual influence by financial literacy.

Utilizing digital tools could enhance student's financial literacy, some recommendation was derived from this study. Several recent studies [41], [42] suggested that integrating digital technology in the classroom may enhance students' knowledge easily and engage them in learning. Material design is the key point to promote financial literacy. A good plan and structural learning materials can attract students to learn financial literacy. Fun learning elements such as short videos clip with the component of financial literacy, quiz and short notes are the materials that are suitable to develop. Teacher training is another crucial element to consider; it is challenging to promote financial literacy without proper teacher training.

4. CONCLUSION

After using the factorial analysis by principal component with varimax rotation, the exploratory factor analysis was used to validate the questionnaire with four factors. Each factor contains enough items to represent each construct. 40.79 percent of the total variance was accounted for by the four variables. A positive correlation ranging from .409 to .840 was also discovered in the study. FLC measurement model was developed using confirmatory factor analysis. A perfect fit of the FLOWERING LOCUS M (FLM) measurement model was obtained after removing redundant and highly correlated items, with Chi-square/df=2.155, GFI=.935, AGFI=.905, CFI=.900, and RMSEA=.600. Accountability, decision-making, human value, and practice are the four constructs of this FLM model. All of these elements are significant.

In the context of education, financial literacy should be implemented in a way that promotes human values. Given the importance of personal financial literacy in society, the findings of this study will benefit economics students, educators, the community, and the nation. Educators also agree that financial literacy skill is a critical life skill that enables students to master the skills of decision making and accountability. Financial literacy also has become very important because it relates to an individual's well-being. A well-planned financial future can ensure the students' well-being until retirement. The impact on society is significant because students will increase their personal savings, investments, and retirement plans. As a result, they will become good financial decision-makers. The significance of the study includes the contribution to identifying the factors that influence the financial literacy model that is tailored to Malaysian secondary schools, which considers our culture, values and accountability. This research also enhances students' critical awareness of financial literacy. The integration of the digital learning tool can make the financial literacy lessons more meaningful. The limitation of this study is the research is only carried out in Malaysia; future research can do a comparative analysis with neighboring countries.

ACKNOWLEDGEMENTS

The authors would like to extend their gratitude to Ministry of Education, Malaysia for awarding the Fundamental Research Grant Scheme (FRGS/1/2019/SS08/UPSI/02/03) and Universiti Pendidikan Sultan Idris (UPSI) that helped to manage the grant.

REFERENCES

[1] S. Hassan, M. K. K. Jati, N. H. Md Yatim, and M. A. Abd Majid, "Factors Influencing Personal Bankruptcy Among Youth in Malaysia," *Advanced International Journal of Banking, Accounting and Finance*, vol. 3, no. 7, pp. 85–91, 2021, doi: 10.35631/aijbaf.37007.

[2] Y. Y. Khoo and R. Fitzgerald, "Pocket cartoons: Learning financial literacy with mobile cartoons in Malaysia," *International Journal of Mobile and Blended Learning*, vol. 9, no. 4, pp. 49–64, 2017, doi: 10.4018/IJMBL.2017100104.

[3] L. Blue, P. Grootenboer, and M. Brimble, "Financial literacy education in the curriculum: Making the grade or missing the mark?" *International Review of Economics Education*, vol. 16, no. PA, pp. 51–62, 2014, doi: 10.1016/j.iree.2014.07.005.

[4] L. H. Chang, "Revisiting the Values in Moral Education for Malaysian schools," *Journal of Research, Policy & Practice of Teachers & Teacher Education*, vol. 3, no. 2, pp. 49–59, 2013.

[5] K. Raman and H. Yamat, "Barriers Teachers Face in Integrating ICT During English Lessons: A Case Study," *The Malaysian Online Journal of Educational Technology*, vol. 2, no. 3, pp. 11–19, 2014.

[6] F. Asiseh and V. Williams, "A descriptive study of financial literacy preparedness of teachers in North Carolina," *International Journal of Education and Human Developments*, vol. 1, no. 2, pp. 1–8, 2015.

[7] T. Kaiser and L. Menkhoff, "Does financial education impact financial literacy and financial behavior, and if so, when?" *World Bank Economic Review*, vol. 31, no. 3, pp. 611–630, 2017, doi: 10.1093/wber/lhx018.

[8] B. Compen, K. De Witte, and W. Schelfhout, "The impact of teacher engagement in an interactive webinar series on the effectiveness of financial literacy education," *British Journal of Educational Technology*, vol. 52, no. 1, pp. 411–425, 2021, doi: 10.1111/bjet.13013.

[9] F. Carpena and B. Zia, "The causal mechanism of financial education: Evidence from mediation analysis," *Journal of Economic Behavior and Organization*, vol. 177, pp. 143–184, 2020, doi: 10.1016/j.jebo.2020.05.001.

[10] A. Ceyhan, "The Impact of Perception Related Social Media Marketing Applications on Consumers' Brand Loyalty and Purchase Intention," *EMAJ: Emerging Markets Journal*, vol. 9, no. 1, pp. 88–100, 2019, doi: 10.5195/emaj.2019.173.

[11] H. R. Khan, C. K. Lim, K. L. Tan, and M. R. Khan, "Location-based social media content: A conceptual paper on travellers purchases decision," *Management Research Journal*, vol. 8, pp. 30–40, 2019, doi: 10.37134/mrj.vol8.3.2019.

[12] S. Maddodi and K. K. Prasad, "Netflix bigdata analytics- the emergence of data driven recommendation," *International Journal of Case Studies in Business, IT, and Education*, vol. 3, no. 2, pp. 41–51, 2019, doi: 10.5281/zenodo.3510316.

[13] K. Khalid and R. Ismail, "Spending profiles of Sultan Idris Education University undergraduates: a CHAID-based segmentation," *International Business Education Journal*, vol. 12, pp. 39–52, 2019, doi: 10.37134/ibej.vol12.4.2019.

[14] N. I. Mohd Aziz and S. Kassim, "Does Financial Literacy Really Matter for Malaysians? a Review," *Advanced International Journal of Banking, Accounting and Finance*, vol. 2, no. 2, pp. 13–20, 2020, doi: 10.35631/aijbaf.22002.

[15] Bank Negara Malaysia, "Financial stability report," Kuala Lumpur, 2015, [Online]. Available: https://www.bnm.gov.my/-/fspr2015.

[16] M. Nuradibah, T. Moga Dass, M. F. Sabri, and C. S. F. Ho, "A Preliminary Evaluation of Financial Literacy in Malaysia," *Journal of Wealth & Financial Planning*, vol. 5, no. June 2018, pp. 4–16, 2018.

[17] A. Aziz Hussin, "Education 4.0 Made Simple: Ideas For Teaching," *International Journal of Education and Literacy Studies*, vol. 6, no. 3, p. 92, 2018, doi: 10.7575/aiac.ijels.v.6n.3p.92.

[18] P. Ramkissoon, L. J. Belle, and T. Bhurosy, "Perceptions and experiences of students on the use of interactive online learning technologies in Mauritius," *International Journal of Evaluation and Research in Education (IJERE)*, vol. 9, no. 4, pp. 833–839, 2020, doi: 10.11591/ijere.v9i4.20692.

[19] C. Işik and S. Yılmaz, "The role of ICT in general economics teaching: an example from Turkey," *International Journal of Education Economics and Development*, vol. 3, no. 4, p. 289, 2012, doi: 10.1504/ijeed.2012.052310.

[20] C. Nicolaou, M. Matsiola, and G. Kalliris, "Technology-enhanced learning and teaching methodologies through audiovisual media," *Education Sciences*, vol. 9, no. 3, 2019, doi: 10.3390/educsci9030196.

[21] R. Kuntze, C. (Ken) Wu, B. R. Wooldridge, and Y. O. Whang, "Improving financial literacy in college of business students: modernizing delivery tools," *International Journal of Bank Marketing*, vol. 37, no. 4, pp. 976–990, 2019, doi: 10.1108/IJBM-03-2018-0080.

[22] A. Lusardi, A. Samek, A. Kapteyn, L. Glinert, A. Hung, and A. Heinberg, "Visual tools and narratives: New ways to improve financial literacy," *Journal of Pension Economics and Finance*, vol. 16, no. 3, pp. 297–323, 2017, doi: 10.1017/S1474747215000323.

[23] K. Syauqi, S. Munadi, and M. B. Triyono, "Students' perceptions toward vocational education on online learning during the COVID-19 pandemic," *International Journal of Evaluation and Research in Education (IJERE)*, vol. 9, no. 4, pp. 881–886, 2020, doi: 10.11591/ijere.v9i4.20766.

[24] K. Rai, S. Dua, and M. Yadav, "Association of Financial Attitude, Financial Behaviour and Financial Knowledge Towards Financial Literacy: A Structural Equation Modeling Approach," *FIIB Business Review*, vol. 8, no. 1, pp. 51–60, 2019, doi: 10.1177/2319714519826651.

[25] C. K. S. Singh, E. T. Ong, and T. S. M. Singh, "Redesigning assessment for holistic learning," *Journal of Social Sciences Research*, vol. 5, no. 3, pp. 620–625, 2019, doi: 10.32861/jssr.53.620.625.

[26] A. E. Aydin and E. Akben Selcuk, "An investigation of financial literacy, money ethics and time preferences among college students: A structural equation model," *International Journal of Bank Marketing*, vol. 37, no. 3, pp. 880–900, 2019, doi: 10.1108/IJBM-05-2018-0120.

[27] J. H. Fong, B. S. K. Koh, O. S. Mitchell, and S. Rohwedder, "Financial literacy and financial decision-making at older ages," *Pacific Basin Finance Journal*, vol. 65, 2021, doi: 10.1016/j.pacfin.2020.101481.

[28] S. Y. Yew, C. C. Yong, K. C. Cheong, and N. P. Tey, "Does financial education matter? Education literacy among undergraduates in Malaysia," *Institutions and Economies*, vol. 9, no. 1, pp. 43–60, 2017.

[29] N. Lajuni, N. Abdullah, I. Bujang, and Y. Yacob, "Examining the Predictive Power of Financial Literacy and Theory of Planned Behavior on Intention to Change Financial Behavior," *International Journal of Business and Management Invention (IJBMI)*, vol. 7, no. 3, pp. 60–66, 2018.

[30] C. C. Yong, S. Y. Yew, and C. K. Wee, "Financial knowledge, attitude and behaviour of young working adults in Malaysia," *Institutions and Economies*, vol. 10, no. 4, pp. 21–48, 2018.

[31] N. Satsios and S. Hadjidakis, "Applying the Theory of Planned Behaviour (TPB) in saving behaviour of Pomak households," *International Journal of Financial Research*, vol. 9, no. 2, pp. 122–133, 2018, doi: 10.5430/ijfr.v9n2p122.

[32] N. F. Nasir, R. Mohd Roslin, M. N. F. Nasir, M. F. Nasir, M. A. Nasir, and N. A. Mohamed, "Decomposing Perceived Behavioural Control: Addressing Financial Literacy in Determining Muslims' Intention to Purchase Unsought Products," *International Journal of Academic Research in Economics and Management Sciences*, vol. 10, no. 1, 2020, doi: 10.6007/ijarems/v10-i1/8927.
[33] A. I. B. Aisyahrani, L. Handayani, M. K. Dewi, and M. Muhtar, "A concept of materialism and well-being," *International Journal of Evaluation and Research in Education (IJERE)*, vol. 9, no. 1, pp. 62–68, 2020, doi: 10.11591/ijere.v9i1.20424.
[34] I. Ajzen, "The theory of planned behavior," *Organizational Behavior and Human Decision Processes*, vol. 50, no. 2, pp. 179–211, 1991, doi: 10.1016/0749-5978(91)90020-T.
[35] K. S. Taber, "The Use of Cronbach's Alpha When Developing and Reporting Research Instruments in Science Education," *Research in Science Education*, vol. 48, no. 6, pp. 1273–1296, 2018, doi: 10.1007/s11165-016-9602-2.
[36] I. Widjaja, A. Z. Arifin, and M. Setini, "The effects of financial literacy and subjective norms on saving behavior," *Management Science Letters*, vol. 10, no. 15, pp. 3635–3642, 2020, doi: 10.5267/j.msl.2020.6.030.
[37] L. Fiksenbaum, Z. Marjanovic, and E. Greenglass, "Financial Threat and Individuals' Willingness to Change Financial Behavior," *Review of Behavioral Finance*, vol. 9, no. 2, pp. 128–147, 2017, doi: 10.1108/RBF-09-2016-0056.
[38] A. S. Norman, "Importance of financial education in making informed decision on spending," *Journal of Economics and International Finance*, vol. 2, no. 10, pp. 199–207, 2010.
[39] A. Lusardi, "Financial literacy and the need for financial education: evidence and implications," *Swiss Journal of Economics and Statistics*, vol. 155, no. 1, 2019, doi: 10.1186/s41937-019-0027-5.
[40] M. Meghana and K. S. Sarala, "Financial literacy and personal financial management- a review of 21st century works," *Journal of Critical Reviews*, vol. 7, no. 13, p. 2020, 2020.
[41] R. N. Abdullah, M. N. A. Azman, M. F. M. Kamal, T. J. Riu, and R. A. I. R. Yaacob, "Experiential learning: The effective application of virtual reality in teaching and learning," *Journal of Social Sciences Research*, vol. 2018, no. 6, pp. 1208–1212, 2018, doi: 10.32861/jssr.spi6.1208.1212.
[42] M. N. Nasrifan and M. A. Rahim, "Developing and evaluating a digital interactive method book for teaching and learning recorder based on Malaysian folksongs," *International Journal of Innovation, Creativity and Change*, vol. 6, no. 2, pp. 132–147, 2019.

BIOGRAPHIES OF AUTHORS

Khoo Yin Yin is an Associate Professor in Faculty of Management and Economics in Sultan Idris Education University, Malaysia. She is specialized in economics and commerce education. Her research interests are online Learning in economics, mobile Learning and quantitative research. She has won silver in International Exposition Research & Innovation in Education 2013, Bronze in Pencipta and Innovation and Gold in Invention in Education Competition 2016. She won silver International Innovation Competition 2019 and Gold in International Carnival in e-Learning 2021. She can be contacted at email: khoo@fpe.upsi.edu.my.

Rohaila Yusof is an Associate Professor in Faculty of Management and Economics in Sultan Idris University. Her research interest is teaching and learning in accounting and business education. She was ex-dean of Faculty Management and Economics. She can be contacted at email: rohaila@upsi.edu.my.

Wei Chooi Yi is an Assistant Professor at the Faculty of Business and Finance, Department of Finance, a Chairperson of Centre for Learning and Teaching in Universiti Tunku Abdul Rahman. She obtained her PhD in Economics Education from Sultan Idris Education University (UPSI), Master of Education (Economics Education) from The National University of Malaysia and Bachelor Degree in International Business (Hons) (International Finance) from Labuan International Campus, Universiti Malaysia Sabah. Her research interest fields are experimental research in education and social sciences, behavioral finance, and banking. She can be contacted at email: weicy@utar.edu.my.