

A Cybergogy Model for Promoting Financial Literacy among Secondary School Students

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The younger generation has not yet realised the importance of financial literacy and most of them are materialistic. An integration of technology into teaching financial literacy can promote students' learning interest. The aim of this study is to develop a financial literacy cybergogy model to promote human values, practices and accountability among secondary school students. This study employed survey design and consisted of two stages: 1. develop the questionnaire; 2. develop and examine the construct of the model. The confirmatory factor analysis measurement model 1 with four latent variables, accountability, decision making, human value and practices was constructed with 24 items. The FLC measurement model 1 did not meet threshold, a revision was needed. The revised FLC measurement model 2 presented Chi-square/df=2.186, GFI=.936, AGFI=.903, CFI=.900, RMSEA =.060, and all the values fitted within the acceptable value. This indicated an acceptable model fit. After producing a good fit FLC measurement model, a second order CFA was conducted. All the values met the required threshold. Students' with good financial planning will experience well-being until their retirement. A comparative study with other countries will become the future direction of this research.

Key words: *Financial literacy, cybergogy model, secondary school students, human value, accountability*



Introduction

Malaysians consider themselves good with financial literacy, however they are unaware that they are financially illiterate (Murugiah, 2016; Mohd. Samsuri, Iiyani & Siti Aishah, 2017). Moreover, the topic of financial literacy is seldom discussed among the younger generation (Mohd Samsuri, et al., 2017). The younger generation has not realised the importance of financial literacy (Yahaya, Zainol, Abidin, & Ismail, 2019), and most of them are materialistic. Their spending behaviour has been influenced by materialistic media messages from the internet (Abdul Adzis, Abu Bakar, & Kadir @ Shahar, 2017). In other words, the younger generation lack human values, and they are easily influenced by electronic media. Furthermore, most of the younger generation also lack parental engagement because most of their parents are focus on a career and earning a living.

School teachers always complain about the burden of their workload. Most of them are more examination-oriented because school students need to sit for the public examination which is *Sijil Peperiksaan Malaysia* or the Malaysian Certificate of Education (Ministry of Education, 2013). This public examination is a requirement for students to pursue tertiary education. As a result, most teachers are busy preparing the students for the examination by doing all types of exercises rather than instilling any moral values. In reality, teachers in 21st century need to enhance competence with values, knowledge and skills (Abdullahah, Sulongb & Abdul Rahim, 2020).

On the other hand, the moral values in school consist of 14 values, namely belief in God, compassion, gratitude, responsibility, humanity, respect, love, justice, courage, honesty, diligence, cooperation, moderation and tolerance (Ministry of Education, 1983). The syllabus always emphasises good conduct of the students in terms of courtesy and respect to the elders. Beginning from 2017 students study the value of moderation, decision making and problem solving (Vishalache, 2016, June 19), but financial literacy is only a small segment when teaching the value of moderation. Furthermore, moral education is a non-examinable subject, so many teachers and students classify this subject to be unimportant and the time allotted for moral education is substituted with other examination subjects (Chang, 2013) like mathematics and languages. Teachers' teach values and monitor the students' conduct through their daily school behaviours, but not how much money they spend. If teachers implemented positive attention toward financial literacy in their classrooms, the students' behaviour would be influenced (Perle, 2016). However, how can the teachers have extra time to monitor students' behaviour especially in terms of spending and saving behaviours? The best way is to cultivate students' self-control of their own expenditure. Moreover, the scope of human values such as accountability, decision making, and ability to overcome obstacles are broader than moral values, and teachers do not have time to instil these values in lessons. Financial literacy is of growing importance in developed and developing countries (Mohd Abdullah & Nur Atiqah, 2018; Abdul Halim & Curugan, 2016). Therefore, instilling basic knowledge of financial

literacy is practical. Since students are attracted to new technology, new learning possibilities are easy to create with the advancement of ICT (Anelka Aziz, 2018). An integration of technology into the teaching of financial literacy can promote students' learning interest which is in line with Malaysia Education Blueprint 2013 2023 (Ministry of Education Malaysia, 2013) and Education 4.0. On the other hand, there is an emerging trend in online learning to provide increased interaction and engagement in secondary school education. Most importantly, a proper cybergogy model can be designed for school students who are financially illiterate in Malaysia. The aim of this study is to develop a financial literacy cybergogy model to promote human values, practices and accountability among secondary school students.

Literature Review

Financial Literacy

Researchers posited that financial literacy is the understanding and knowledge of financial concepts and the ability to make an effective financial decision (Fox, Bartholomae & Lee, 2005). While the National Financial Education Council (2019) defined financial literacy as the personal ability to apply financial knowledge and skills to manage lifetime resources effectively for well-being. Meanwhile, Beverly and Burkhalter (2005) postulate that financial literacy refers to skills and knowledge to manage money effectively. Financial education involves the introduction of financial education and integration into school curriculum. While financial education concerns all ages, the education of the younger generation especially secondary school students on financial issues has become more important, since they will face more financial risks because of more sophisticated financial products, compare with their parents (OECD, 2012). The integration of financial literacy in school curriculum relies on the resources, expertise and commitment of the teachers and accountability of the parents and society to educate the younger generation (OECD, 2012). However, interactive and experiential learning such as through video can be integrated into the curriculum to make the learning more meaningful.

Financial literacy has been implemented in overseas many years ago. Higher education in the United States has organised best practices of financial literacy (US Financial Literacy and Education Commission, 2019). On the other hand, a survey carried out in Malaysia has found that the level of Malaysian financial literacy needs to improve in terms of knowledge, saving and budgeting, readiness for unexpected life events and planning for retirement (Financial Education Network, 2019). All the initiatives for financial education and policies are able to improve the financial well-being of Malaysia.

Cybergogy model promotes values

Cybergogy education is a learning environment using a virtual interface for the advancement of cognitive, emotional and social well-being (Wang, 2006). The model is also recognised as an innovative model for instructional design using ICT, as illustrated in the model below.

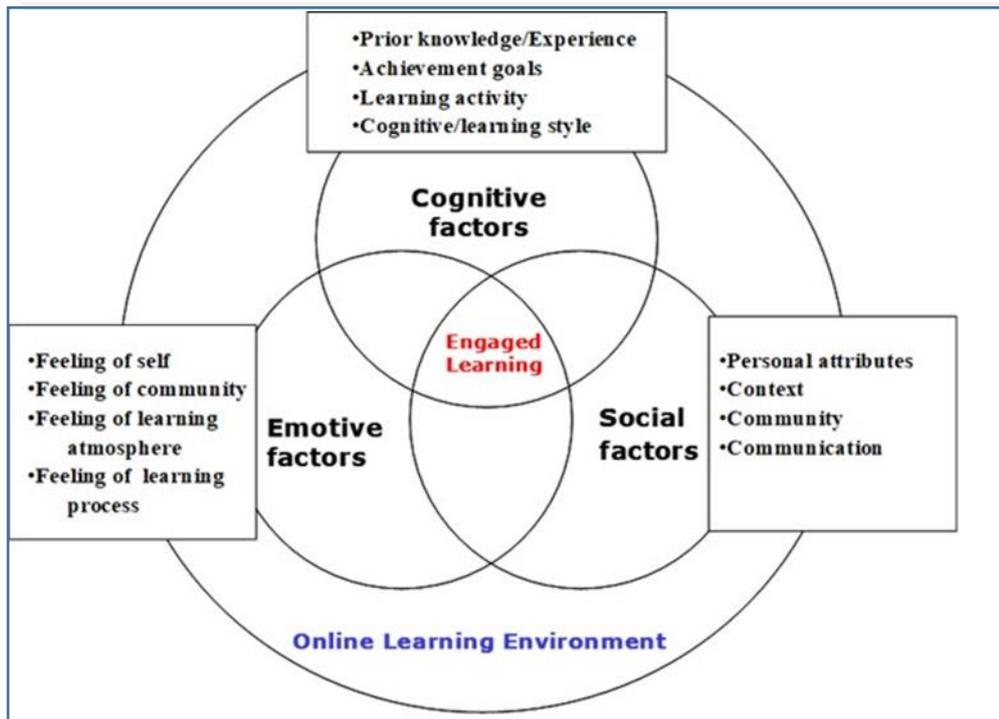


Figure 1: Cybergogy Model

Source: Wang (2006).

As supported by Grunduz, Alerndag, Yasar & Erdem (2016) a Cybergogy learning model can be embed within problem based learning. . With problem based learning, the environment has a positive influence on learning. Through an online platform, better social interaction and communication competences can be instilled through discussion (Muresan, 2013). Values, beliefs, practices, and rules can be implemented in teaching activities when implementing any school program (Dikovic, 2016). Young people can learn how to become responsible citizens through their daily experiences (Eurydice, 2012). With rapid technology advancement, the integration of values and awareness in school curricula such as financial knowledge can help students cultivate good habits. Promoting human values in the classroom brought benefits to the students (Corzo & Castaneda, 2017). However, schools must play a leading role in terms of integral citizens for the wellbeing of society.

Cybergogy model promotes accountability

The word “accountability” is described as an obligation to account for actions (Brundrett & Rhodes, 2011). According to Gilbert (2012), accountability can be taught directly or indirectly associated with a learning model or framework. In other words, it can embed with technology, such as within a cybergogy learning model. Accountability can be improved through education. Benavot and Smith (2019) shared their views in a report that stated students are citizens in a country; their accountability can influence policymakers in the long run while providing voice and choice in the short run.



Methodology

This study employed a survey design with a quantitative approach. The financial literacy instructional model consisted of two stages:

Stage one: Develop the questionnaire

First of all the researchers read the literature reviews intensively based on the books and journals that related to financial literacy theory, cybergogy, online learning and human values. The researchers organised the related literature reviews and developed the conceptual framework, the questionnaire, followed by the model.

Secondly, the researchers designed the model based on financial literacy content knowledge integrated in Form 4 economics curriculum and instilled elements of human values such as decision making, accountability and ability for problem solving to overcome obstacles. This was followed by designing the teaching and learning activities based on the ASSURE Model (Heinich, Molanda & Rusell, 1993). The ASSURE Model was made up of A-analyse learners, S-state learning objectives, S-Select media and materials, U-Utilise Media and Materials, R-Require learner, and E- Evaluation.

Stage two: Develop and examine the construct of the model.

The researchers developed four videos related to students' real world experience, with the content of financial literacy in high school (Form 4) economics syllabus and elements of human values, in a Malaysian-based context. The researchers started with a quantitative strand using a survey design. The questionnaire was administrated to 327 Form 4 economics students. Students from one of the states in Malaysia were selected. The samples were selected according to simple random sampling (class basic). The random sampling according to class was done in order to avoid the interruption of the proper school system. This process involved examining and validating the model. Analysis of the model was conducted by using the Structural Equation Modelling.

Instrument

A set of questionnaires called the Financial Literacy Cybergogy Questionnaire (FLCQ) which consists of 50 questions with 5 point Likert scale was used as the instrument of the study. The questionnaire was developed based on the theory of planned behaviour and human values. A Validity and reliability test was employed during the pilot test.

Pilot test

The pilot test was employed before conducting the actual research. A total of 100 economic's students from one high school participated in the pilot test. The students that participated in the pilot test would not join in the actual study. The purpose of conducting the pilot test was to test the validity and reliability of the questionnaire. A group of experts was employed to check the validity of the questionnaire. The reliability of the questionnaire was calculated by Cronbach Alpha .816.

Data Analysis Procedures

The analysis was carried out through various statistical techniques. The Structural Equation Modelling was conducted to the address research questions.

Findings

Confirmatory factor analysis was employed to answer research question 2 and 3. Prior to running the confirmatory factor analysis, principal axis factor analysis with varimax rotation was conducted to verify the construct and dimensions of the FLCQ questionnaire. A total of 327 form four students answerswere taken as samples. The assumptions of independent sampling, normality test, linear relationship between pairs of variables were met before conducting the principal axis factor analysis with varimax. The value of Kaiser-Meyer-Oklin was .780, exceeding the recommended cut off of .6 (Kaiser, 1974).

Based on the model, the research design addressed four constructs: practice, decision making, accountability and human values. The first factor accountability accounted for 11.956% of the variance followed by the second factor decision making 6.006%, value 5.734% and practice 4.906%.

The Financial Literacy Cybergogy (FLC) confirmatory factor analysis measurement model 1 with four latent variables was constructed with 24 items in Figure 1. Since this is the reflective construct because the single-headed arrow flows from each construct onto items. The first construct practice remained at 8 items, second construct decision making remained at 7 items, third construct value remained at 6 items and last construct practice remained at 5 items. In another word, students 'accountability' has an effect on financial literacy. Students' decision making has an effect on financial literacy. Students' human value has effect on financial literacy. Students' practice in expenditure has an effect on financial literacy.

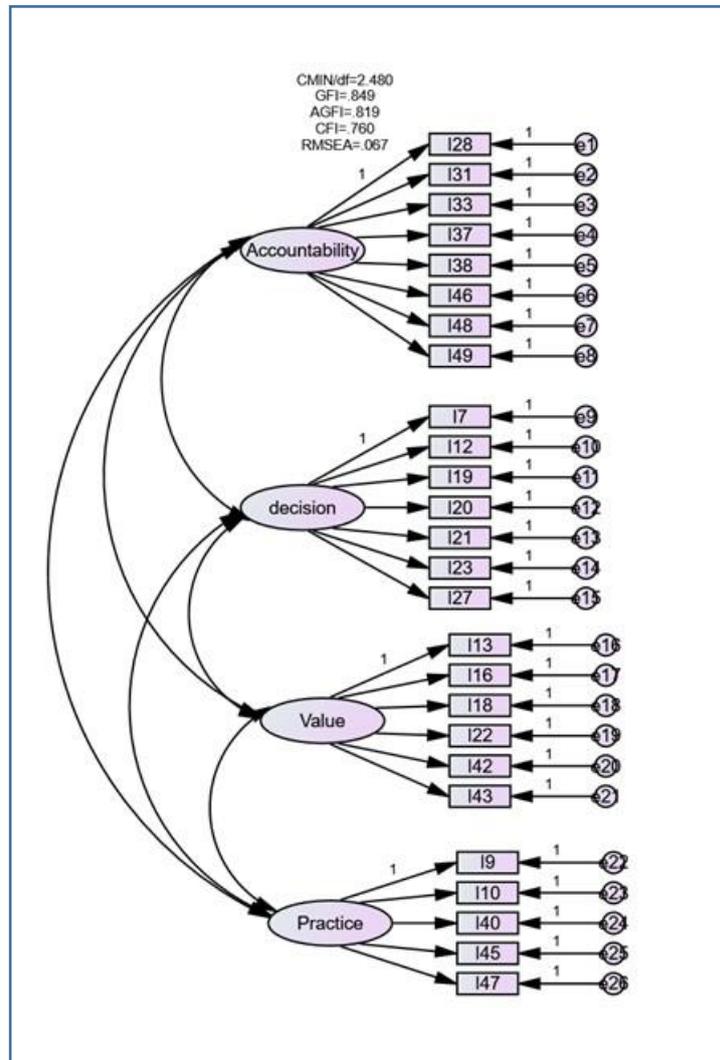


Figure 2: FLC Measurement Model 1

The adequacy of the measurement model was checked by CFA. Even though the Chi-square/df = 2.480 is below the cut of value of 5 but the value of GFI=.849, AGFI=.819, CFI=.760 was below threshold of .90 respectively. The RMSEA value with .067 was acceptable with the threshold of .08. Therefore, the model was revised by checking the modification index. The researchers deleted items with high modification index. In another words, those items were highly correlated or redundant. The revised measurement model was shown in Figure 3. After the elimination of a few items in each factors, the better model fit measurement model was established. The revised model presented Chi-square/df=2.186, GFI=.936, AGFI=.903, CFI=.900, RMSEA =.060, all the values were fitted within the acceptable values. It indicated an accepted model fit.

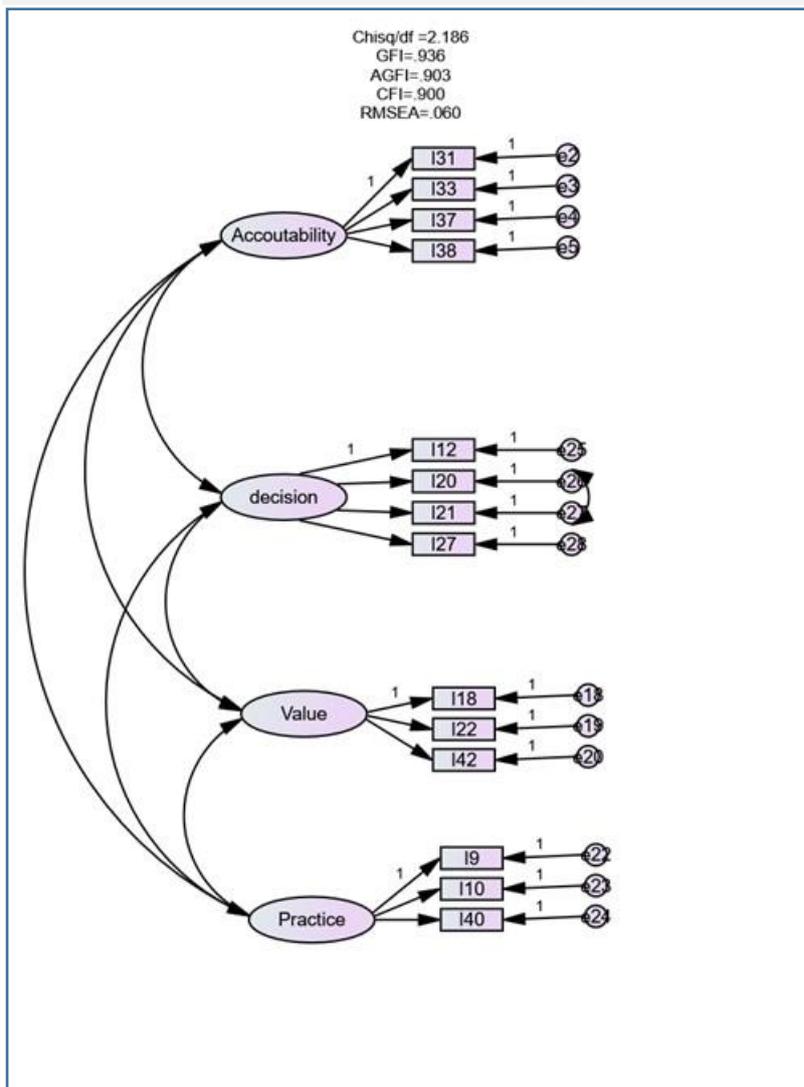


Figure 3: FLC Measurement Model 2

After producing a good fit FLC measurement model, a second order CFA was conducted. In Figure 4, it showed a very good fit of the FLM measurement model. All the values met the required threshold, Chi-square/df = 2.155, GFI = .935, AGFI = .905, CFI = .900 and RMSEA = .600.

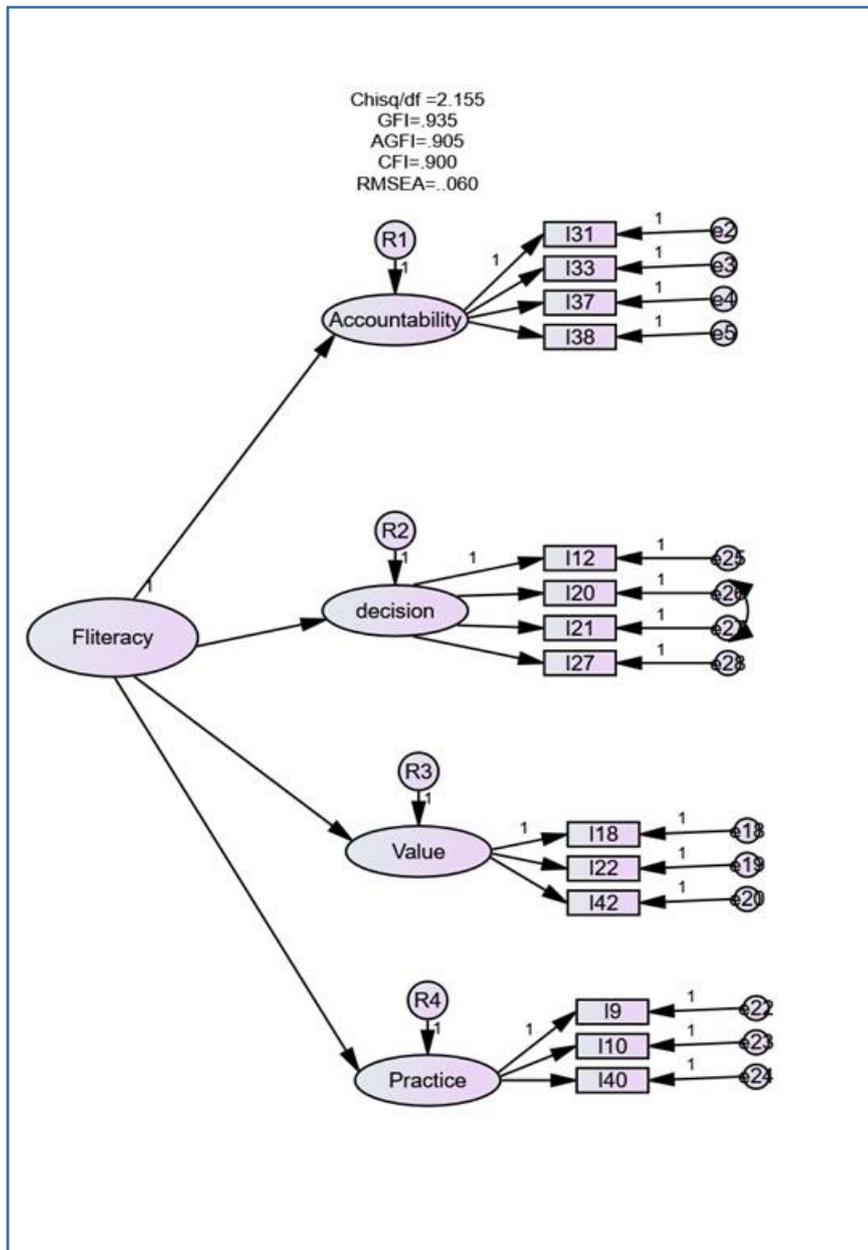


Figure 4: FLC Measurement Model 3

Since all the indexes for the second order have achieved the required level, no deletion source modification was required. The path analysis and its significant showed in Table 1. All the p values are $<.05$, therefore they are all significant. This showed the sub-constructs of FLC model are highly significant.

Table 1: The Path Analysis

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

Based on Table 1 results, the following hypotheses have been answered.

1. Students' accountability has significant effect on financial literacy.
2. Students' decision making has significant effect on financial literacy.
3. Students' human value has significant effect on financial literacy.
4. Students' practice in expenditure has significant effect on financial literacy.

Discussion and Conclusion

Confirmatory factor analysis was employed to develop the measurement model of FLC. After deletion of the redundant and highly correlated items, a very good fit of FLM measurement model was developed with Chi-square/df =2.155, GFI=.935. AGFI=.905, CFI=.900 and RMSEA =.600. This FLM model has four constructs, accountability, decision making, human value and practice. All these factors have significant effect on financial literacy. Students with accountability always know how to manage money wisely. Students will spend wisely and avoid unnecessary expenditure, they also realise the importance of money. Normally they have a saving account and use the money for emergency purposes.

On the other hand, those students with good decision making ability always select suitable items to buy during shopping. They always give priority to necessity and budget how much to spend daily. This finding is in line with the prior study financial literacy is related to financial behavior (Grohmann, 2018; Ahmad, Yusof, Ahmad, & Ismail 2019). The findings of Lam and Lam (2018) indicated that financial literacy was associated with problematic online shopping. In other words, young adults that have less financial education like to do more internet shopping. Human value is a variable that not many researcher's have discussed, but it showed a significant result in this study. Students with high values will return the money if they borrow from friends. High school students will become adults after a few years, if they have good values, they will become good citizens. The study showed that value is one of the factors that influences young people's financial literacy (Moreno-Herrero, Velasco & Sanchez-Campillo, 2018). Adults will pay all their taxes, pay bank loans on time and show integrity in all the aspects involved with money, if they have accountability. A group of researchers also got a similar finding; accountability is associated with financial literacy (Lucey, Laney & Agnello, 2018). Practice is a crucial point in financial literacy, just like the proverb said, "actions speak louder than words". If students never practice what the teachers taught through the financial literacy video, that means everything is meaningless. High school students should have a



savings account and save money often. They should plan how much to save in the account weekly, they can try to earn some pocket money too. Many high school students are doing part-time jobs after school or during the weekend in western countries (Evan & Richardson, 2018). This finding is in line with financial literacy which is always associated with financial behavior (Arpana, 2020). Perhaps doing a part time job during the weekend is a good way to encourage students to have financial independence from their family. Students can get involved in the working world and learn skills as well as earn money. In addition, getting to know financial products associated with the bank such as a trust share also will cultivate students to be good money makers. Students with good financial planning will experience well-being until their retirement. The impact is linked closely to society because students will increase their personal savings, investment and retirement plan.

In addition, this study is tailored to Malaysia secondary school students because the development video is based on the high school economics curriculum and instilled with financial literacy. Teaching with this video is the current trend in teaching, bringing joy and fun to students while watching the video, while also influencing students by instilling good values. However, most of the teachers only consider e-learning or teaching with the video as supplemental teaching aid (Dwidienawati, Abdinagoro, Tjahjana, Gandasari, Munawaroh, 2020)

The limitation of this study is the sample is only selected from one Malaysian secondary school. It would be interesting if a comparative study could be done with other countries. Therefore, a comparative study with other countries will become the focus of future research.

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