BOOSTING FINANCIAL LITERACY: ITS ROLE IN ENHANCING QUALITY OF LIFE[1]

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Abstract

The focus of this study was on the effect of financial literacy on enhancing people's quality of life, based on three aspects; financial knowledge, financial attitude, and financial behavior. The questionnaire used in data collection was divided into two main parts, one evaluating the respondents' financial literacy and the other evaluating their quality of life. The first part was adapted from surveys of financial literacy conducted by the OECD and the BOT. The 26 questions used to evaluate quality of life were adopted from the World Health Organization's Quality of Life assessment for Thailand (WHOQOL-BREF-THAI). The sample group was selected using non-probability convenience sampling which applies no selection criteria in the sampling and mainly relies on the cooperation of the respondents, all of whom live in Trang Province. The survey was administered to 1,310 people aging from 15 to 65, who answered the questionnaire. Analysis of the data consisted of structural equation modeling. The study found that levels of financial literacy affect people's quality of life. The most influential component was behavior supported by the right attitude. Another interesting finding was that a higher level of financial knowledge does not automatically help to improve people's quality of life. The government can take action to raise the level of financial literacy, but people are also required to change their attitudes to the point that they also transform their behavior. Moreover, people need to thoroughly understand and effectively apply the knowledge gained.

Keywords: financial literacy, financial knowledge, financial attitude, financial behavior, Structural Equation Model (SEM)

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1. INTRODUCTION

Enhancing Quality of Life (QOL) has long been an explicit or implicit goal for individuals, communities, nations, and indeed the world. Studies on the level of quality of life have therefore been growing in many countries (Costanza, R., et al., 2007). The focus is predominantly on factors leading to an increase in the well-being of people in the population, and the formulation or description of policies for achieving that goal. A good quality of life is the ultimate goal that all wish to achieve (Office of The National Economic and Social Development Board, 2002; 2011). Governments and policy makers throughout the world have thus emphasized increasing the per capita income of their population. In the case of Thailand, per capita income has increased from only US$ 110 in 1962 to US$ 5,210 in 2011 and has thus been greatly upgraded, changing its economic status from a low-income country to an upper-middle-income country according to the World Bank. Moreover, financial literacy, nowadays, parallels the financialization of society (consumers must operate in an increasingly complex financial marketplace). The phrase "financial literacy" differs from "literacy" which is the ability to read and write. In order to be considered as possessing financial literacy a person must be able to understand basic financial knowledge, financial products, and also financial risk. Such knowledge can help them to realize the risks and opportunities inherent in investment, to know who to consult in case of financial problems, and also to efficiently plan their financial affairs and investments. The first point of interest for this study was a survey of financial literacy, assessing the current knowledge levels of particular populations and the interventions seeking to raise this knowledge level. Evidence from surveys has shown that the financial literacy of people in many countries around the world is at a low level. Studies in Thailand by the OECD, and also by the Bank of Thailand in collaboration with the National Statistical Office of Thailand have shown a similar outcome. Realizing that the benefits of financial literacy are a crucial foundation for enhancing quality of life, many public and private organizations have focused on improving levels of financial literacy among the population.

The majority of prior studies have found that the promotion of financial knowledge helps to improve financial behaviors. Based on the results of such studies, policies for improving the level of financial literacy adopted by government and private agencies have mainly focused on providing financial knowledge. However, despite promoting such policies aimed at providing financial knowledge, many countries, including Thailand, have failed to improve their peoples' level of financial literacy as the policies have been solely focused on the provision of financial knowledge. With regard to behavior this is insufficient; if someone does not have the correct financial attitude they will not improve their financial behaviors, therefore financial attitude must be seen as an essential factor with the power to help people to improve their lives. In summary, previous research has found that policy makers should focus more on behavior, and not solely on knowledge.

Thus, the study reported in this article addressed the key question of which components of financial literacy lead to an enhanced quality of life. The study was carried out by considering three key factors, namely knowledge, attitude, and behavior, and is followed by an explanation of how financial literacy improves quality of life. Since financial literacy consists of these three key factors, the provision of financial knowledge should improve financial behavior and result in a better level of financial literacy. This study took subjective well-being and financial literacy into consideration and applied structural equation modeling (SEM) to analyze the data. Regarding quality of life, factors were categorized into four aspects: (1) quality of mental well-being, (2) quality of health, (3) quality of the environment, and (4) quality of social factors. Results of the study provide a steppingstone for future study of this subject. The study's results can also assist government agencies and policy makers in constructing policies to improve levels of financial literacy, which not only covers the possession of financial knowledge, but also implies good financial attitudes and financial behaviors, and most importantly leads to an improvement in quality of life.

1.1 Financial Literacy in Thailand

In a survey of financial literacy conducted by the OECD in 15 countries including Thailand in 2013, Thai people were found to have a level of financial literacy of 58.67 % which was lower than the average of 62.27 %. When considering the *factors* of financial literacy, their level of *financial knowledge*, identified as 46.25 %, was the lowest among all the countries participating in the survey; the average level of the other 14 countries was 63.75 %. On the other hand, regarding *financial behavior* and *financial attitude*, Thai people were assigned scores of 66.00 % and 65.56 % respectively, while the averages between the countries were 60.00 % and 64.00 % respectively (Atkinson and Messy, 2012).

Recognizing the situation's significance and aiming to develop the financial literacy among Thai people, the Bank of Thailand (BOT) has conducted surveys of the level of financial literacy of Thai people since 2002, with the latest being conducted in 2016. According to the survey conducted in 2013 and 2016 in collaboration with the Office of National Statistics, the financial knowledge of Thai people was deficient in many areas including the calculation of compound interest, the policy on deposit protection and the value of money over time (BOT, 2013). In terms of financial behaviors, those that were not done correctly included the making of household or personal accounts, comparing data before purchasing goods or services, and taking out a loan when one's income was less than expenses.

The most recent survey conducted by the BOT in 2016 found that the majority of Thai people had a sound financial attitude towards saving and that most Thai people understood the significance of saving more than spending. The survey also found that many less well-off people took out informal loans rather than approaching formal institutions, and some took out loans from sources where the minimum repayment was low rather than from those demanding a high minimum repayment, even though the interest rate imposed was higher. Some even took out loans without any specific purpose, and deposited the amount of loan in their savings account which paid lower interest rate than that imposed on the loan. The survey underlined the deficiency of financial literacy among people with low incomes or in so-called vulnerable groups (BOT, 2016). As a result, it can be said that many Thai people are not equipped with basic analytical skills, cannot make logical decisions, and do not have a positive attitude toward saving. Consequently, there has been an increase in household debt as well as problems related to informal loans. Lastly, in terms of financial behaviors, the survey by the BOT in 2016 showed that most Thai people were financially inefficient with the least efficient group being students, who, while being unable to generate income themselves, were encouraged to spend unwisely by the influence of consumerism.

In Thailand, studies of financial literacy can be classified into three groups according to the factors of knowledge, attitude, and behavior. In 2013, the Fiscal Policy Research Institute Foundation (FPRI) and the Fiscal Policy Office (FPO) surveyed the level of financial knowledge of people in various groups nationwide, finding that 14 million Thai people or equivalent to 25.8 % of the population over 18 years old lacked financial knowledge. As noted above, they lacked knowledge regarding the calculation of loan interest, deposit protection policies, and the value of money over time. The financial education provided by the Fiscal Policy Office (FPO) thus emphasizes those topics as well as knowledge relating to the informal loan system, various forms of fraudulent loans, illegal Ponzi schemes, and knowledge relating to financial products and services, and investment in general. In addition, the 2016 survey determined that the three groups that possessed the lowest level of financial knowledge, were students, workers with low incomes, and farmers, all of whom lacked not only financial literacy, but also the ability to apply knowledge acquired to real-life situations. There is no doubt that an increased level of financial knowledge among Thai people would be beneficial. Hence both the government and the private sector have focused on solving problems related to the lack of financial literacy. In 2012, the BOT established the Financial Consumer Protection Center (FCC) with the aim of helping people to improve their financial behaviors and to be able to efficiently manage their personal finances**.** To this end, an initiative known as the Provision of Financial Literacy Project has been initiated, and a committee devoted to promulgating financial knowledge by increasing the level of financial literacy has also been set up with the participation of the Stock Exchange of Thailand (SET). Furthermore, the Securities and Exchange Commission (SEC), in collaboration with the private sector has also helped to promote financial literacy by providing financial education for people to improve their financial behavior: conducting campaigns, promoting positive attitudes and awareness of the benefits of financial literacy, etc. The Securities and Exchange Commission (SEC) has initiated the on-line application "Start-to-Invest" developed to provide financial education, record expenses, and manage investment plans**.** Moreover, the Fiscal Policy Office (FPO) has been made responsible for adjusting the attitudes and behavior of people at risk of financial problems while the BOT has focused on the protection of those utilizing financial services.

1.2 Research on Financial Literacy

The first survey conducted on financial literacy in the United Kingdom was in 2004. This study investigated how knowledge, skills and expertise, and attitude and confidence, affected a person's level of financial literacy. In 2005, the OECD reported on the level of financial literacy of countries in Europe, Australia, and Japan. Later, Atkinson and Messy (2011, 2012) applied the OECD's analysis method to study a further 14 countries, and the results of their study supported those of the OECD. In 2012, the OECD's Programme for International Student Assessment evaluated the level of financial literacy of students in various countries.

In light of financial literacy, traditional research focused on factors affecting the level of financial literacy. Some studies in the past have also mentioned level of education as a factor affecting a person's financial literacy, for example the study by Hassan and Tamimi (2009) noted that gender, level of income, age, and education level were all factors contributing to a person's level of financial literacy. Research conducted in many countries has often classified people based on their educational achievements in order to clearly observe differences in results. Such studies have generally found that those with education at a level lower than bachelor's degree possessed a low level of financial literacy including calculation skills (Lusardi and Mitchell, 2007; 2011a; Christelis, Jappelli and Padula, 2010). Lusardi (2012) also found a relationship between the level of financial literacy and education level; those with a higher education level were more aware of the significance of financial literacy, and also earned higher incomes. The survey by the BOT in 2013 also found that education level was directly related to a person's financial literacy (Bank of Thailand, 2013). Moreover, those with higher levels of education were more willing to pay for financial knowledge than those with a lower level of education. Studies by Ben-Porath (1967) and Becker (1975) also supported the notion that those with a high level of financial literacy and with a willingness to invest for incremental financial knowledge would be more likely to opt for high yield assets than those with a low level of financial literacy. Surveys on financial literacy have also been conducted in Eastern European countries, such as that conducted in Romania by Beckmann (2013) comparing the results with those of the USA. Hastings and Mitchell (2011) conducted a study in India and Indonesia, while Cole, Sampson and Zia (2011) considered the case of Sri Lanka.

Studies in the past have also highlighted the significance of a family background. For example, the study by Lusardi, Mitchell, and Curto (2010) considered the relationship between financial literacy and family background, measured by the education level of the parents, in a sample group aged between 23 and 28 years, while the geographical residence factor was controlled. The result of the study was as expected; the parents' education level signifycantly influenced their children's level of financial literacy. The study also showed that where a family consisted of parents with high levels of education, especially those where the mother held high qualifications, this tended to increase the level of financial literacy of the children even further. Other studies have noted that financial literacy should be cultivated in a society's smallest unit, i.e., the family, and that people who receive proper education about saving and spending behavior as well as financial matters from their parents will be more likely to possess a high level of financial literacy (Chiteji and Stafford, 1999; Shim, Xiao, Barber & Lyons, 2009). Other factors found to affect financial literacy are income and working status. Studies in other countries have found that the self-employed, including business owners, possessed higher levels of financial literacy than those who were unemployed (Lusardi and Tufano, 2009; Lusardi and Mitchell, 20011b). In addition, some studies have indicated that race and domicile are other factors influencing the level of financial literacy. As Lusardi and Mitchell (2007); (2011b) found, in the context of the USA, African Americans and Latin Americans possessed the lowest level of financial literacy, while, Klapper and Panos (2011), who studied people living in rural areas, found that they had lower levels of financial literacy than those living in the city. This study also suggested that financial literacy is something one can learn from other people or acquire from interactions with them – whether in a working environment or within the community. Further, geographical difference is another significant factor affecting the level of financial literacy, as shown in the studies by

Fornero and Monticone (2011) in the case of Italy, Beckmann (2013) in the case of Romania, and Bumcrot Lin and Lusardi (2013) in the case of the USA.

1.3 Financial Literacy and Quality of life

Quality of life (QOL), among various other aspects being human, has been affected by globalization and rapid economic change. Consequently, it has become one of the most important areas within the realm of human well-being which is being examined around the world (Beslerová and Dzuričková, 2014). According to the World Health Organization (WHO), the term "quality of life" (QOL) was first defined as a reflection of how people perceive their life's place within the context of the culture and value systems in which they live, and in relation to their goals, expectations, standards and concerns (Malkoç, 2011; Skevington, Lotfy and O'Connell, 2004). At present, one finds that the concept of quality of life has been mentioned in, and applied to, several possible approaches, across various disciplines, such as economics, environmental science, medicine, sociology, psychology, political science, and demography (Andrejovský, Gajdoš, Hajduová, & Andrejkovič, 2012; Hajduová, Andrejovský & Beslerová, 2014).

In the past, practically every country in the world employed longevity and literacy as the commonly identified parameters for QOL (Sen, 20). Lankshear (1998) proposed that one should possess the literacy that would merely enable them to understand words or alphabetical characters, but that would enable them to understand the world, as well. Hence, financial literacy is considered an essential skill to enable one to elevate one's quality of life, as financial literacy is not solely related to education, but also to developing other knowledge and skills that are required for making sound decisions. Financial literacy is a way to obtain better and greater information, skills, power, awareness, knowledge, and understanding (Haque and Zulfiqar, 2016). Financially literate people can make sound financial decisions, so they are more likely to achieve their financial goals, have the potential to hedge themselves against economic shocks and associated risks and, eventually, contribute toward economic development (Haque and Zulfiqar, 2016). Forward planning with regard to financial security in their future life increases independence and financial control, reduces the burden on others, and improves their quality of life (Haque and Zulfiqar, 2016). Moreover, the studies by Worthy, Jonkman & Blinn-Pike (2010) and Schuchardt et al. (2009) also concluded that if positive financial behaviors are developed while still in school, it will allow people achieve a better quality of life later in life (Arifin, 2018).

Traditional research has investigated the effects of financial literacy on the quality of life or standard of living. Jappelli and Padula (2013) considered the relationship between financial literacy and personal wealth which is indicative of income, and found that personal wealth and the level of financial literacy were directly correlated for the whole of a person's lifetime. The results of the study implied that personal wealth and one's level of financial literacy are likely to increase as one gets older, until they reach retirement age, at which time the level of their financial literacy would start to decline. Moreover, this study also revealed that people living in countries with a strong welfare system paid less attention to saving and accumulating wealth and felt more reluctant to invest in knowledge relating to financial literacy. Other studies supporting the conclusion that wealth accumulation is significantly correlated with the level of financial literacy include Behrman, Mitchell, Soo, and Bravo (2010) and Lusardi and Mitchell (2007); (2011a); (2011b).

1.4 Relationship between Financial Knowledge, Financial Attitude and Financial Behavior

According to the OECD, financial literacy consists of three key factors, namely (1) financial knowledge, (2) financial attitude, and (3) financial behavior and each person's level of financial literacy can be evaluated from these three factors (OECD, 2005). All three factors are connected and cannot be separately explained; being equipped with good financial literacy must start with the acquisition of financial knowledge, followed by adjustment to the right financial attitude, and finally results in healthy financial behavior (Remund, 2010). Regarding the links between behavior and financial knowledge, there is a small body of research that has looked at the relationship between financial knowledge and behavior. For example, knowledge of financial concepts such as inflation or compound interest has been shown to be correlated with better financial decisions regarding financial planning and purchase of financial products (Lusadi and Mitchell, 2014). However, research shows that the effectiveness of knowledge-based interventions in changing behavior is mixed at best and, where there is one, the effect is generally small (Fernandes, Lynch, & Netemeyer, 2014; Wills, 2009). Regarding the links between behavior and attitude, consumers in fact considered it more important to know how to do things than to have knowledge of particular facts. Attitude has been found to undermine information and knowledge, resulting in people behaving in ways that are contrary to their knowledge and intentions (Wills, 2009; Yoong, 2011).

This study was based on the framework of the KAP model and sheds light on people's financial knowledge, financial attitudes, and financial behavior by considering which factors affect their level of financial literacy, and also how those factors affect their quality of life. According to the KAP model, there are three key variables, namely knowledge (K), attitude (A), and behavior (P). In general, a person will behave in accordance with his or her knowledge and attitude. However, under the KAP model, knowledge allows people to transform their attitude, and this finally leads to changes in their behavior (Schwartz, 1975). That is to say, once a person correctly understands something, his or her attitude may change to agree with, accept and even support it, and finally his or her behaviors may be transformed to conform to it.

Furthermore, this process of change occurs continuously. Previous studies considering the relationship between knowledge, attitude, and behavior in the KAP model have included that by Schwartz (1975) which investigated how behavior was affected as a result of learning about the relationship between the three factors. Singh, Goolsby & Rhoads (1994) used the KAP model together with other models to set operation plans to bring about a change in behavior. The KAP model has also been widely applied in behavioral science.

2. METHOD

In Thailand, the previous work done by BOT aimed to measure the financial literacy level of the Thai people. The focus of this research is on the next step, involving the link between the concept of financial literacy and quality of life. The questionnaire was divided into two main parts, one evaluating the financial literacy of respondents and the other evaluating their quality of life. The first was adapted from surveys of financial literacy conducted by the BOT and the OECD. Before bringing them to do the pilot testing with 30 samples, the questionnaires used in this study were checked for validity by respected scholars. Questionnaires were also statistically tested for reliability using Cronbach's Alpha with a result of 0.89 (which is higher than 0.7, therefore implying the reliability of the questionnaires is suitable for the questionnaires to be used in research). Data were collected via deployment of the questionnaires from July 2016 to January 2017. The sample group was selected using non-probability convenience sampling which applies no selection criteria and mainly relies on the cooperation of respondents. The research method included individual interviews with members of the target group as well as the collection of data using the questionnaires. The questionnaire used included items aimed at evaluating the level of financial literacy and covered financial attitude, financial behaviors and financial knowledge.

The questions on financial knowledge consisted of 2 categories: fundamental questions and advanced questions. As for fundamental questions, the answers were limited to only 2 options: *"know"* or *"do not know"*. These questions would ask whether or not one knew the Credit Bureau, and the Deposit Protection Agency. The reply *"know"* received a score of 1, while the opposite response received a score of 0. The advanced questions contained knowledge regarding diversification, investment, risk and return, and inflation. The correct answer received a score of 1, while wrong or unknown answers earned 0 points. The level of financial knowledge was the sum of the scores for these questions. Next, the questions regarding financial behavior were classified into 2 categories: management behavior and saving behavior, with answers scored in 3 levels: 3 for *"often"*, 2 for *"sometimes"*, and 1 for *"never"*. Management behavior was quantified from summing scores from the set of questions, each assessing whether the respondent has done the specified behavior or not: making income and expenditure account, making a decision after comparing information, making a decision after considering information from trusted sources, managing finances before spending, paying off debt or loans on time, closely managing one's personal finance, and asking for a loan when facing poor cash flow. The score for this last question would be in the opposite direction of the answer. Regarding saving behavior, the scores were derived from questions assessing whether the respondent had saved money, or made an investment. Furthermore, regarding financial attitude, there were 2 questions asking if the respondent was happy with spending more than saving, and if they rushed to spend after receiving income. The possible answers could be *"totally agree"*, *"agree"*, *"neutral"*, *"disagree"*, and *"totally disagree"* with each scored 1, 2, 3, 4, and 5 respectively. The level of financial attitude was the sum of the scores from these questions.

The second part, consisting of 26 questions used to evaluate quality of life were adopted from the World Health Organisation Quality of Life assessment for Thailand (WHOQOL-BREF-THAI) and covered physical, emotional, social, and environmental aspects. Structural equation modelling (SEM) was employed to test the measurement and structural models, and their corresponding hypotheses. The main objective was to investigate which of the three aspects of financial literacy (knowledge, attitude and behaviors), most effectively enhanced the overall level of financial literacy. In this study, the SMART PLS software application was used to analyze the data. Since this was not a theoretical study, programs such as LISREL were not appropriate and the use of SMART PLS provides several benefits: (1) the number of latent variables (LV) and the estimation of the LV values is unlimited, (2) *more than one* dependent variables can be set, (3) links between the variable criteria can be done under both reflective and formative methods, and variables can even be linked to hidden criterion variables, and (4) all the relationships can be analyzed at once.

3. RESULTS

The survey was administered to 1,310 people who all answered the questionnaire. The majority were female (70.5 %), 57% were single, and 50.8% held at least a bachelor's degree. The distribution of the respondents fell unevenly into six age groups as shown in Table 1 below.

Table 1. Profile of Respondents to the Questionnaire on Financial Literacy

		No. of Respondents	%
Gender	Male	387	29.5
	Female	923	70.5
Status	Single	746	57.0
	Married	495	37.8
	Divorced	62	4.7
	Not specified	7	0.5
Age	15-19	371	28.3
	20-29	292	22.3
	30-39	176	13.4
	40-49	233	17.8
	50-59	140	10.7
	60-69	98	7.5
Education	Primary School	263	20.1
	Secondary School	264	20.2
	Diploma	83	6.3
	Bachelor's Degree	665	50.8
	Master's Degree	23	1.8
	Not specified	12	0.9

In addition, it was found that most of the respondents had savings (61.5 %), and no debt (55.8 %) and most (74.8 %) did not have any credit cards (see Figure 1).

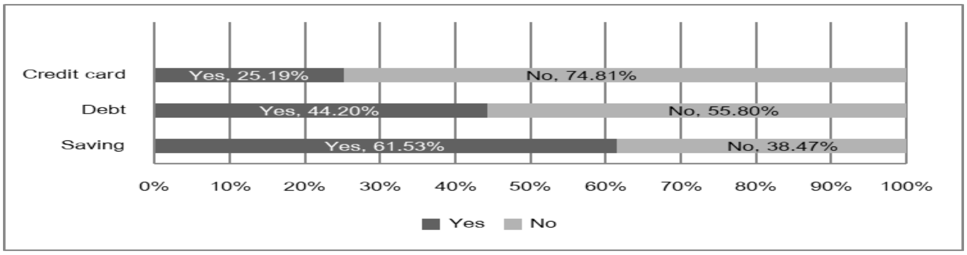

Figure 1: The Respondents' Financial Status as reflected by Having Credit Cards, Debt or Savings

Table 2. Level of Financial Knowledge

			No. of Respondents	%
Fundamental Financial Knowledge	Credit Bureau	Know	911	69.5
		Do not Know	399	30.5
	Deposit Protection Agency	Know	523	39.9
		Do not Know	787	60.1
Advanced Financial Knowledge	Diversification	Correct	902	68.9
		Not correct	111	8.5
		Do not Know	297	22.7
	Investment	Correct	413	31.5
		Not correct	586	44.7
		Do not Know	311	23.7
	Risk & Returns	Correct	975	74.4
		Not correct	164	12.5
		Do not Know	171	13.1
	Inflation (Meaning)	Correct	871	66.5
		Not correct	210	16.0
		Do not Know	229	17.5
	Inflation (Purchasing Power)	Correct	710	54.2
		Not correct	328	25.0
		Do not Know	272	20.8
	Inflation (Applied-Calculation)	Correct	622	48.6
		Not correct	412	32.2
		Do not Know	246	19.2

Most of the respondents had little or no investment knowledge; while 31.5 % provided correct answers, the rest either gave incorrect answers (44.7 %) or barely knew anything about investment (23.7 %). In spite of this, most of the respondents were able to answer the questions about risk and returns (74.4 %) giving correct answers. And the majority of the respondents were able to recognize that a good investment portfolio must be diversified between various forms of asset (68.9 %). Regarding knowledge about inflation, more than half of the respondents (66.5 %) understood the meaning of inflation but they could not apply this knowledge for practical purposes. This was very clear from the percentage of correct answers relating to inflation; 54.2 % *correct answers* on the link between inflation and purchasing power and only 48.6 % correct answers regarding the calculation of inflation. This implies that most people possessed only a basic knowledge of finance (such as the meaning of the terminology) but they could not apply what they had learned in their real life, or the knowledge that they possessed could not be adapted into efficient behaviors. (see Table 2).

Part 1: Quality of the Measurement Model of the Latent Variables

To be an acceptable measurement model, the confidence level of the constructs must be considered and, in particular, whether their loading value is greater than 0.70, and the level of statistical significance is at least 0.05. Moreover, based on the composite reliability of the latent variables, a value of more than 0.70 indicates that the measurement model could be accepted. The analysis of the concurrent validity of the measurement model was considered based on the average deviation of the constructs, derived from the average variance extracted. In order to have similar validity, the average value of the deviation must be at least 0.05. Regarding the analysis of the classification validity, the measurement model could be accepted, if the square root of the average value, of the deviation of the constructs, derived from the average variance extracted (shown diagonally), was higher than the value of the correlation between the LVs.

Model for Evaluating the First-Order Constructs

For the first-order Constructs, the loading values of the constructs representing the LVs K (knowledge), P (behavior), and QoL (quality of life) were respectively between 0.76 and 0.84, between 0.85 and 0.88, and between 0.85 and 0.88, while the level of statistical significance for all three constructs was 0.01. Thus, the constructs utilized in this study were accepted as statistically significant. Moreover, based on the composite reliability of the latent variables, the calculated values for the LVs, K, P, and QoL were 0.78, 0.86, and 0.92 respectively, each therefore having a value of more than 0.70 indicating that the measurement model could be accepted. Thus, each indicator was acceptable as representative of its latent variable. In this study, it was found that the average values of the deviation of the constructs derived from the average variance extracted were: K, 0.64, P, 0.75, and QoL, 0.75. These three values were each higher than the criteria implying that the measurement model had similar validity. Moreover, it was found that all the square roots of the average values of the deviation of the constructs derived from the average variance extracted were higher than the value of the correlations between the LVs in both columns and rows (see Table 3). This implied that the measurement model had classification validity.

Table 3. The Analysis of Classification Validity and the Reliability of the Constructs

Construct	CR	AVE	Cross Construct Correlation		
			K	P	QoL
K	0.78	0.64	.80		
P	0.86	0.75	.27	.87	
QoL	0.92	0.75	.17	.41	.87

Model for Evaluating the Second-Order Constructs

For the second-order constructs, the analysis of the confidence value of the constructs revealed that the loading value of the indicator for the LV Fin-Lit (Financial Literacy) *was* between 0.54 and 0.83 with a statistical significance of $p < 0.01$ for all constructs. Thus, it could be confidently accepted that the constructs used in this study were relevant for analyzing the level of internal confidence. It was also found that the total value of the confidence of the LV Fin-Lit was equal to 0.75 and it could thus be accepted that each construct was suitably representative of its corresponding hidden variable. The analysis of similar validity found that the average variance of the constructs extracted from the composition of the LV Fin-Lit equaled 0.38. This was lower than the criteria and implied that the measurement model lacked similar validity. However, the model of measurement used in this study had classification validity since the square roots of the average variance extracted from the composition of all the LVs were higher than the correlation between the LVs in both columns and rows (see Table 4).

This study sheds light on the financial knowledge, financial attitudes, and financial behaviors of people by considering which factors affect their level of financial literacy, and also how these factors affect their quality of life. Figure 2 shows that financial literacy positively influences quality of life with a coefficient of 0.408, where the t-statistic of 7.29 is significant at the 0.01 level. Thus, the LV, financial literacy was able to forecast 16.60 % of the LV, quality of

Table 4. The Analysis of Classification Validity and the Reliability of the Constructs

Construct	CR	AVE	Cross construct correlation	
			FIN-LIT	QoL
FIN-LIT	0.75	0.38	0.62	
QoL			0.41	0.87

life. Considering all three factors of financial literacy, it was found that financial behavior influences financial literacy most strongly (0.83), followed by financial knowledge (0.68) and financial attitude (0.54). In general, a person will behave in accordance with his or her knowledge and attitude. However, knowledge allows people to transform their attitude, and this can eventually lead to changes in their behavior (Schwartz, 1975). That is to say, once a person correctly understands something, his or her attitude will change to agree with, accept and even support the understanding, such that their behavior will be transformed to conform to it. Furthermore, this process of change occurs continuously. This implies that the measurement model had classification validity.

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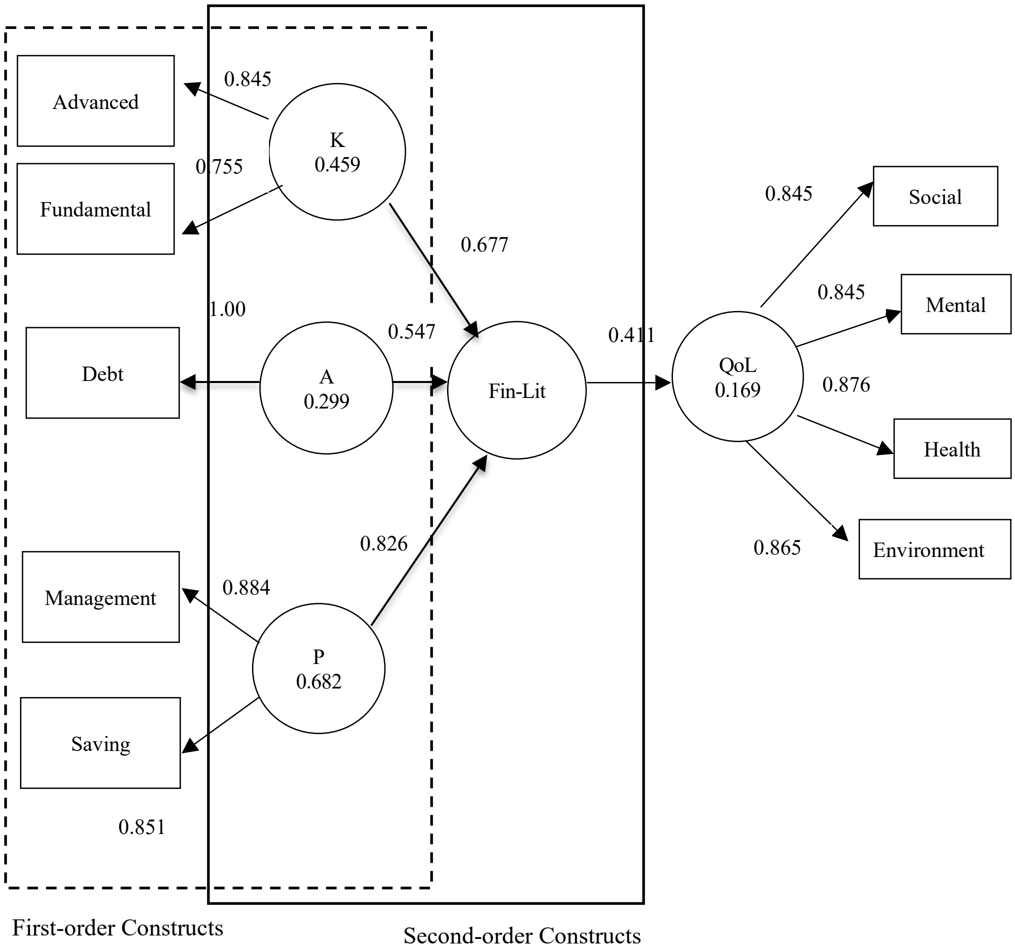

Figure 2. The Influence of Financial Literacy on Quality of Life

Part 2: Robustness Check the Relationship between Financial Literacy's components toward quality of life

This criterion suggested that to better enhance the level of quality of life, one's financial literacy should consist of all three components (knowledge, attitude, and behavior) instead of only one. To prove that this criterion was true, our study conducted a robustness check on the relationship between the components of financial literacy and quality of life. The analysis of the reliability of the constructs found that the indicator loading values of the LVs K, P, and QoL were each higher than 0.7 with the level of statistical significance at $p < 0.01$. The constructs used in this study thus could be confidently accepted. As for the analysis of the composite reliability, the study result was also consistent and it was found that the level of total confidence of the latent variables K, P, and QoL were each more than 0.7. It was thus acceptable for each construct to be a representative of its LV. Considering the study results in Table 5, the analysis of similar validity found that the average variance of the constructs extracted from the composition of the LVs K, P, and QoL were all higher than the criteria of 0.5. This implied that the measurement model had similar validity and the model constructed in this study also had classification validity.

As seen in Figure 3, financial attitude had a positive and direct influence on quality of life which was also statistically significant. Moreover, financial behavior had a positive direct influence on quality of life which was also statistically significant. The LV financial knowledge (K) was able to forecast 3.8 % of the LV financial attitude (A), while the LV financial knowledge (K) together with the LV financial attitude (A) was able to forecast 10.6 % of the LV financial behavior (P). Finally, the LVs, financial knowledge (K), financial attitude (A), and financial behavior (P) were able to forecast 18.9 % of the LV, quality of life (QoL). In summary, equipping a person with financial literacy helps to enhance their quality of life. Financial behavior is the most significant factor influencing financial literacy. Nonetheless, the improvement of one's financial literacy should be done by improving all three factors together, providing one with financial knowledge and financial attitude in order to change his or her financial behavior.

Table 5. The Analysis of Classification Validity and the Reliability of the Constructs

Construct	CR	AVE	cross construct correlation		
			K	P	QoL
K	0.78	0.64	.80		
P	0.89	0.75	.27	.87	
QoL	0.92	0.75	.17	.41	.87

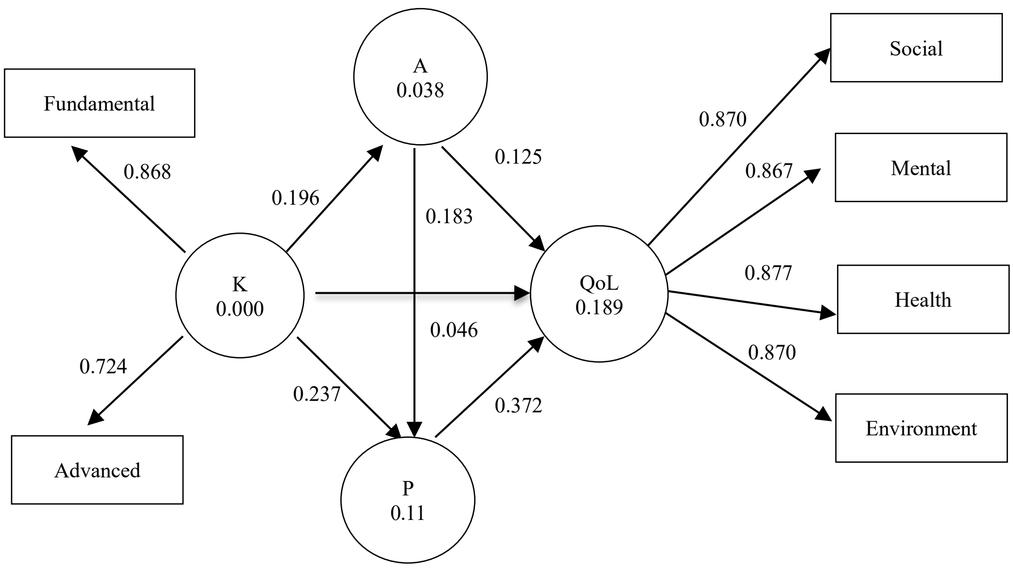

Figure 3. The Relationship between Financial Literacy's components toward quality of life

Table 6. Test of the Relationship toward
Financial Knowledge, Financial Attitude, Financial Behavior and Quality of Life

			Direct / Total Effect	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	Standard Error (STERR)	T-Statistics (|O/STERR|)
K	→	QoL	DE	0.05	0.05	0.06	0.06	0.83
			TE	0.17	0.18	0.06	0.06	3.00 ***
K	→	A	DE	0.20	0.21	0.06	0.06	3.30 ***
			TE	0.20	0.21	0.06	0.06	3.30 ***
K	→	P	DE	0.24	0.25	0.06	0.06	4.21 ***
			TE	0.27	0.29	0.05	0.05	5.03 ***
A	→	QoL	DE	0.13	0.13	0.05	0.05	2.40 ***
			TE	0.19	0.19	0.05	0.05	3.59 ***
A	→	P	DE	0.18	0.18	0.05	0.05	3.51 ***
			TE	0.18	0.18	0.05	0.05	3.51 ***
P	→	QoL	DE	0.37	0.37	0.06	0.06	6.34 ***
			TE	0.37	0.37	0.06	0.06	6.34 ***

Note: * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$

Table 6 shows the relationship toward financial knowledge, financial attitude, financial behavior and quality of life in the form of a partial least squares SEM. It was found that financial knowledge did not have a direct influence on quality of life but had a positive indirect influence via financial attitude as well as financial behavior. It was found that financial knowledge had a positive direct influence on financial attitude as well as financial behavior which was statistically significant. Moreover, financial attitude had a positive direct influence on financial behavior as well as on quality of life and this was statistically significant. This also implied that financial behavior had a positive direct influence on quality of life which was also statistically significant.

The results of this study are consistent with those from past studies; a higher level of financial literacy leads to a higher quality of life. Analyzing the relationship between its three factors found that financial knowledge alone could not help to increase the level of financial literacy and that improvement in both financial attitude and financial behavior were also necessary to improve the level of financial literacy. However, the factor that most helped to improve the level of financial literacy and thereby to enhance people's quality of life was financial behavior. Thus, the level of a person's financial skill may improve once their financial behavior has been changed by, for instance, encouraging people to think well before spending money, by saving and by making good investments, by properly allocating their finances and controlling their budget, and by keeping household accounts. In respect of the relationship between financial behavior, financial knowledge and financial attitude, it was found that people will only develop good financial behavior if they have good financial knowledge.

4. DISCUSSION

This study aimed to analyze which component of financial literacy is most influential in helping to enhance quality of life, by considering three key factors, namely knowledge, attitude, and behavior, with a view to guiding the government and other policy makers who may wish to improve the quality of life of the people, by focusing on the most important factors. It is suggested that financial literacy is an essential skill, the status of which needs to be elevated in order to develop quality of life, and also to help to protect them from falling victim to financial fraud and fraudsters. A key strategy adopted by many countries including Thailand is to equip people with financial literacy with the expectation that this will sustain their quality of life.

The questionnaire was divided into two main parts, one evaluating the financial literacy of the respondents, and the other evaluating their quality of life. The first part of the questionnaire was developed from questionnaires created by the BOT and OECD so the results of this study are comparable with those of previous studies. The relationship between its three factors found that financial knowledge alone could not help to increase the level of financial literacy and that improvement in both financial attitude and financial behaviors are also necessary to improve the level of financial literacy. However, the factor that was most helpful to improve the level of financial literacy and thereby to enhance quality of life was financial behavior. Thus, the level of a person's financial skill may improve once their financial behaviors have been changed by, for instance, encouraging people to think well before spending money, by saving and by making good investments, by properly allocating their finances and controlling their budget, and by keeping household accounts. In respect of the relationship between financial behavior, financial knowledge and financial attitude, it was found that people will only develop good financial behavior if they have good financial knowledge. However, despite promoting policies aimed at providing financial knowledge, many countries including Thailand have failed to improve their people's level of financial literacy as the policies have focused solely on the provision of financial knowledge. Based on the results of past studies, policies for improving the level of financial literacy adopted by both the government and private agencies have mainly focused on providing financial knowledge, which Thai people have been found to lack significantly.

However, unless a person's financial attitude has been correctly transformed, the provision of financial knowledge will not be effective in improving their financial behavior nor in increasing their level of financial literacy**.** Changes in one's financial attitude are the result of both experience and beliefs. Thus it can be seen that financial knowledge and understanding alone are not sufficient to improve a person's level of financial literacy and that correct financial behavior is also necessary.

Hence, both public and private agencies should set the target of developing financial literacy by supporting the creation of good financial attitudes and helping people to understand the benefit of financial literacy. This would represent a solid foundation from which to improve quality of life. Regarding behavior, if someone does not have the correct financial attitude they will not improve their financial behavior. Thus, the financial attitude must be seen as an essential factor which has the power to help people to improve their lives. In fact, significant changes in behavior and attitude cannot be achieved within a short period of time, and the inculcation of correct financial knowledge must be an on-going and continuous process aimed at helping people to apply the lessons learned appropriately in real-life situations and to enhance their level of financial literacy. In other words: "*once knowledge is thoroughly understood, it can be effectively applied*." Consequently, the government must be aware that the level of financial literacy can only be successfully enhanced through the provision of the correct financial education which will help people to thoroughly understand financial issues, and to incorporate that knowledge with their beliefs and past experiences, and eventually to change their financial behavior accordingly**.**

Limitations and Recommendations

This paper is an extended version of the paper entitled Financial Literacy: What is it and why does it matter (Dalina and Sangarun, 2019). This study was a case study focused solely on Trang Province, thus it may not be representative of the whole country. We suggest extending the survey to other parts of Thailand to expand its representativeness and generalizability. Significant changes in behavior and attitudes cannot be achieved within a short period of time and the inculcation of correct financial knowledge must be an on-going and continuous process aimed at helping people to apply the lessons learned in real-life situations appropriately to enhance their level of financial literacy. Therefore, we would also suggest that both public and private agencies should set long term targets for developing financial literacy by supporting the creation of good financial attitudes and helping people to understand the benefits of financial literacy.

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REFERENCES

Arifin, A. Z. (2018). Influence of financial attitude, financial behavior, financial capability on financial satisfaction. In *15th International Symposium on Management (INSYMA 2018)*. Atlantis Press.

Andrejovský, P., Gajdoš, J., Hajduová, Z., & Andrejkovič, M. (2012). Ecologisation of social development and quality. In *12th international*.

Atkinson, A., & Messy, F. A. (2011). Assessing financial literacy in 12 countries: an OECD/INFE international pilot exercise. *Journal of Pension Economics & Finance*, 10(4): 657-665.

Atkinson, A., & Messy, F. A. (2012). Measuring financial literacy: Results of the OECD. Bank of Thailand. (2013). The Report of Financial Literacy Survey in Thailand (in Thai). Retrieved from https://www.1213.or.th/th/aboutfcc/knownfcc/Documents/2013%20ThaiFLSurvey.pdf

Bank of Thailand. (2016). The Report of Financial Literacy Survey in Thailand (in Thai). Retrieved from https://www.1213.or.th/th/aboutfcc/knownfcc/Documents/ThaiFLsurvey59.pdf

Becker, W. E. (1975). Determinants of the United States currency demand deposit ratio. The *Journal of Finance*, 30(1): 57-74.

Beckmann, E. (2013). Financial literacy and household savings in Romania. *Numeracy*, 6(2): 9.

Behrman, J. R., Mitchell, O. S., Soo, C., & Bravo, D. (2010). Financial literacy, schooling, and wealth accumulation (No. w16452). *National Bureau of Economic Research*.

Ben-Porath, Y. (1967). The production of human capital and the life cycle of earnings. *Journal of political economy*, 75 (4, Part 1), 352-365.

Beslerová, S., & Dzuričková, J. (2014). Quality of life measurements in EU countries. *Procedia Economics and Finance*, *12*, 37-47.

Bumcrot, C., Lin, J., & Lusardi, A. (2013). The geography of financial literacy. *Numeracy*, 6(2): 2.

Chiteji, N. S., & Stafford, F. P. (1999). Portfolio choices of parents and their children as young adults: Asset accumulation by African-American families. *The American Economic Review*, 89(2): 377-380.

Christelis, D., Jappelli, T., & Padula, M. (2010). Cognitive abilities and portfolio choice. *European Economic Review*, 54(1): 18-38.

Cole, S., Sampson, T., & Zia, B. (2011). Prices or knowledge? What drives demand for financial services in emerging markets? *The journal of finance*, *66*(6), 1933-1967.

Costanza, R., Fisher, B., Ali, S., Beer, C., Bond, L., Boumans, R., ... & Gayer, D. E. (2007). Quality of life: An approach integrating opportunities, human needs, and subjective well-being. *Ecological economics*, *61*(2-3), 267-276.

Dalina A. & Sangarun I. (2019). Financial Literacy: What is it and why does it matter. *NIDA Business Journal*, Vol.25, November, 2019.

Fernandes, D., Lynch Jr, J. G., & Netemeyer, R. G. (2014). Financial literacy, financial education, and downstream financial behaviors. *Management Science*, *60*(8), 1861-1883.

Fornero, E., & Monticone, C. (2011). Financial literacy and pension plan participation in Italy. *Journal of Pension Economics & Finance*, *10*(4), 547-564.

Hajduová, Z., Andrejovský, P., & Beslerová, S. (2014). Development of quality of life economic indicators with regard to the environment. *Procedia-Social and Behavioral Sciences*, *110*, 747-754.

Haque, A., & Zulfiqar, M. (2016). Women's Economic Empowerment through Financial Literacy, Financial Attitude and Financial Wellbeing. *International Journal of Business and Social Science*, *7*(3), 2219-1933.

Hassan Al-Tamimi, H. A., & Anood Bin Kalli, A. (2009). Financial literacy and investment decisions of UAE investors. *The Journal of Risk Finance*, 10(5), 500-516.

Hastings, J. S., & Mitchell, O. S. (2011). *How financial literacy and impatience shape retirement wealth and investment behaviors* (No. w16740). National Bureau of Economic Research.

Jappelli, T., & Padula, M. (2013). Investment in financial literacy and saving decisions. *Journal of Banking & Finance*, 37(8): 2779-2792.

Klapper, L., & Panos, G. A. (2011). Financial literacy and retirement planning: the Russian case. *Journal of Pension Economics & Finance*, 10(4): 599-618.

Lankshear, C. (1998). Meanings of literacy in contemporary educational reform proposals. *Educational Theory*, *48*(3), 351.

Lusardi, A. (2012). Numeracy, financial literacy, and financial decision-making (No. w17821). National Bureau of Economic Research.

Lusardi, A., & Mitchell, O. S. (2007). Financial literacy and retirement preparedness: Evidence and implications for financial education. *Business economics*, 42(1): 35-44.

Lusardi, A., Mitchell, O. S., & Curto, V. (2010). Financial literacy among the young. *Journal of consumer affairs*, *44*(2), 358-380.

Lusardi, A. & Mitchell, O. S. (2011a). Financial literacy around the world: An overview. *Journal of Pension Economics and Finance*, 10(04): 497-508

Lusardi, A., & Mitchell, O. S.

(2011b). Financial literacy and retirement planning in the United States. *Journal of Pension Economics & Finance*, 10(4): 509-525.

Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. *Journal of economic literature*, *52*(1), 5-44.

Lusardi, A., & Tufano, P. (2009). Debt literacy, financial experiences, and over Indebtedness (No.w14808). National Bureau of Economic Research.

Malkoç, A. (2011). Quality of life and subjective well-being in undergraduate students. *Procedia-Social and Behavioral Sciences*, *15*, 2843-2847.

Office of the National Economic and Social Development Board. (2002). Economic Development Plan National Society for the Ninth Issue 9 (2002 - 2006). Bangkok: Prime Minister's Office. (in Thai)

Office of the National Economic and Social Development Board. (2011). Economic Development Plan National Society for the Ninth Issue 10 (2007- 2011). Bangkok: Prime Minister's Office. (in Thai)

Organization for Economics Co-Operation and Development (2005), Improving Financial Literacy: Analysis of Issues and Policies, Paris, France

Remund, D. L. (2010). Financial literacy explicated: The case for a clearer definition in an increasingly complex economy. *Journal of consumer affairs*, *44*(2), 276-295.

Schuchardt, J., Hanna, S. D., Hira, T. K., Lyons, A. C., Palmer, L., & Xiao, J. J. (2009). Financial literacy and education research priorities. *Journal of Financial Counseling and Planning*, *20*(1).

Schwartz, N. E. (1975). Nutritional knowledge, attitudes, and practices of high school graduates. *Journal of the American Dietetic Association*, *66*(1), 28-31.

Sen, A. (1981). Public action and the quality of life in developing countries. Oxford Bulletin of Economics and Statistics, 43(4), 287-319.

Shim, S., Xiao, J. J., Barber, B. L., & Lyons, A. C. (2009). Pathways to life success: A conceptual model of financial well-being for young adults. *Journal of Applied Developmental Psychology*, *30*(6), 708-723.

Singh, J., Goolsby, J. R., & Rhoads, G. K. (1994). Behavioral and psychological consequences of boundary spanning burnout for customer service representatives. *Journal of Marketing Research*, *31*(4), 558-569.

Skevington, S. M., Lotfy, M., & O'Connell, K. 2. (2004). The World Health Organization's WHOQOL-BREF quality of life assessment: psychometric properties and results of the international field trial. A report from the WHOQOL group. *Quality of life Research*, *13*(2), 299-310.

Wills, E. (2009). Spirituality and subjective well-being: Evidences for a new domain in the personal well-being index. *Journal of Happiness Studies*, *10*(1), 49.

Worthy, S. L., Jonkman, J., & Blinn-Pike, L. (2010). Sensation-seeking, risk-taking, and problematic financial behaviors of college students. *Journal of Family and Economic Issues*, *31*(2), 161-170.

Yoong, J. (2011). Financial illiteracy and stock market participation: Evidence from the RAND American Life Panel. *Financial literacy: Implications for retirement security and the financial marketplace*, 76.