

# Measuring of Financial Literacy of Undergraduate Students in Business Japanese Program (BJ) at Thai-Nichi Institute of Technology

Namporn Sathirakul<sup>#1</sup>

<sup>#</sup>Faculty of Business Administration, Thai-Nichi Institute of Technology  
1771/1, Pattanakarn Rd, Suan Luang, Bangkok, 10250,

<sup>1</sup> namporn@tni.ac.th

**Abstract-** This study measured financial literacy of undergraduate students in Business Japanese Program (BJ) at Thai-Nichi Institute of Technology (TNI) which comprised of financial knowledge, financial attitude and financial behaviour, aiming to point out weak areas that need to improve. Also examined financial literacy of each student characteristic group in order to concentrate on provide appropriate education to the weaker. The researcher found that financial literacy level of the students was moderate. Also the result of positive relationship between financial behavior, attitude and behavior from regression analysis provided the implication that by enhancing financial knowledge and financial attitude through appropriate education could result in better financial behavior. Finally, suggestions were made to teachers for working on leveling up students' financial literacy, especially students who have low academic performance, live separately with parents, and pertain to insufficient financial status.

**Keywords-** financial literacy, financial knowledge, financial attitude, financial behaviour, weak area, improvement, education

## I. INTRODUCTION

Financial literacy is an abstract concept whose meaning combines financial knowledge, financial attitude, and financial behaviour which are necessary for a person to make sound financial decision. A financially literate person possesses skills in planning, spending, and saving money which nowadays is an essential tool for everyday life. Developing a good level of financial literacy would prevent him/her from falling into financial distress.

A nation, whose population pertains to a high level of financial literacy have high level of discipline in managing financial activities which will lead to sustainability of the nation's economy [6]. Moreover, changing demography toward aged society and shrinking a welfare system in many countries encourage governments to particularly concern about the efficiency of young people who are "future of the nation" in managing their personal finance. As a result, many nation governments have started measuring and developing strategies and policies to improve its citizen's level of financial literacy, particularly focus on young generations. [2].

A lack of financial literacy among students causes them to make wrong financial decisions and finally leads to financial distress which is one of the major causes of stress

and university drop out. Therefore, the researcher, as a Finance subject teacher in Faculty of Business Administration of Thai-Nichi Institute of Technology (TNI), curious about the level of financial literacy of TNI students. As a result, conducted this research for the following objectives :

- 1.) Firstly, to measure level of financial literacy, including financial knowledge, financial attitude and financial behaviour, of TNI's BJ students.
- 2.) Secondly, to study differences of financial literacy in each characteristic group (such as gender, education level, parent's occupation, income) to be able to identify the weak group for appropriately focus on enhancing their financial literacy.
- 3.) Thirdly, to study whether financial knowledge and financial attitude have influence on financial behaviour.
- 4.) Finally, to propose appropriate suggestion to improve students' financial literacy level.

## II. LITERATURE REVIEW

Citizen's financial literacy became one of the important issues that developed and emerging countries increasingly concern over the past decade. This is because financial services become more diverse and sophisticate due to rapid change in economic circumstance. Therefore, to be immunized from making wrong financial decisions, a person needs to be financially educated. This could in turn result in positive effects on economic and financial stability of a nation.

### Financial literacy Surveys

Australia and New Zealand Banking group (ANZ) made an interview survey with Australian people in 2014 by using several behavioural indicators to measure financial literacy in five separate components including keeping track of finances, planning ahead, choosing financial products, staying informed and financial control. The framework of the survey points out influencing factors that effected financial literacy including financial knowledge and numeracy, their financial attitudes, their socio-demographic and household characteristics.[6]

Standard&Poor's Ratings Services conducted an interview with more than 15,000 adults in more than 140 countries testing on their knowledge of four basic financial

concepts, namely numeracy, interest compounding, inflation, and risk diversification. A person who could answer 3 out of four above mentioned concepts is defined as financially literate. The result showed that only 33 percent of adults worldwide are financially literate, of which Thailand was stated at 27 percent. Women, the poor, and lower educated are more likely to suffer from gaps in financial knowledge.[5]

A number of countries have been taking an approach to measuring financial literacy under the guideline of the Organization for Economic Co-operative and Development (OECD). The Bank of Thailand (BOT) had conducted a national financial literacy survey four times in the year 2002, 2006, 2010, and lately in year 2013, also plans to continually conduct the survey every three years. The objective of this survey is to measure level of financial literacy of Thai citizen and find out the influencing factors. Therefore, BOT will be able to firstly, set up a strategic plan, under dynamic financial environment, to promote appropriate and up to date financial knowledge for Thai people. Secondly, level up financial literacy of Thai people. Thirdly, utilize acquired data for policy making such as promoting appropriate accessible to financial services.

The recent BOT's survey in 2013 was a continuation of previous survey in 2010. The survey was conducted in line with the OECD's in order to be comparable with those of other nations. It measured a financial literature level in three components, namely (1) financial knowledge, (2) financial attitude, and (3) financial behaviour. The results found the level of financial literacy of Thai people was averaged at 58.8%, which was below the average score at 62.3% of 16 countries that participated in the OECD survey. Especially, students, low-income people, and farmers were the three groups that had low financial literacy score. Also more than half of Thai people were unable to answer on compound interest calculation, deposit protection policy, and time value of money. The survey indicated that an income and education level had the highest influence on the financial literacy level. And there were positive relationships between financial knowledge, attitude and behaviour. As a result, BOT considered enhancement of financial education as a national policy goal, aiming to improve financial behaviour of the citizen, which would help sustain wellbeing of Thai people [1].

## Hypothesis

The researcher made the following Hypothesis in this study.

H1: Male students has financial literacy level different from female (Gender)

H2: Students in different major have different financial literacy level. (Major of study)

H3: Students in different year of study have different financial literacy level. (Academic year)

H4: Students who obtained different academic performance have different financial literacy level. (GPA)

H5: Students who get different monthly allowance have different financial literacy level. (Monthly allowance)

H6: Students with different financial status have

different financial literacy level. (Financial status)

H7: Students of different parent occupation have different financial literacy level. (Parent occupation)

H8: Students who live with parent have financial literacy level different from students who live separately with parent. (Living with parent)

H9: Students who have education loan burden have financial literacy level different from others. (Education loan burden).

H10: Financial knowledge positively influence financial behaviour.

H11: Financial attitude positively influence financial behaviour.

## III. METHODOLOGY

### Population

The population was undergraduate students of business schools in Thailand. The researcher selected students who were studying in 1st-4th year in TNI's Business Japanese program (BJ) in the 2015 academic year as sample group for the study. Total sample size was 567 students. By applying convenient sampling method, the researcher got response from 457 students accounted for 80.5% of total sample group.

### Questionnaire

Questionnaire was utilized as a tool to collect data and was created based on the review of relevant literatures. The questionnaire comprised of four parts. The first part contained questions about personal information including gender, major of study, year of study, GPA, Business Finance (BUS-204) grade, monthly allowance, financial status, parent's occupation, education loan burden. The second part was 5 multiple choices and 5 true/false questions asking financial knowledge in 8 topics including division, time value of money, interest calculation, compound interest, risk and risk diversification, inflation, credit bureau, deposit protection policy. The third and fourth parts were close-ended questions measured in a four-point Likert scale. The third parts contains 19 questions asking whether the student have good discipline in four groups of financial behaviours namely planning, spending, saving, investing, checking &controlling, and solving financial needs. The forth part contained a question asking financial attitude toward saving.

The content validity was done on the questionnaire by 3 TNI's senior researchers. The Cronbach's alpha coefficient of the key constructs exceeds the threshold value of 0.7 (Nunnally, 1978) and the results of the exploratory factor analysis show that cross loading items were eliminated and other measurement items were consistent with the construct validity. Then the questionnaires were distributed to the students and collected in class room by lecturers during December, 2015.

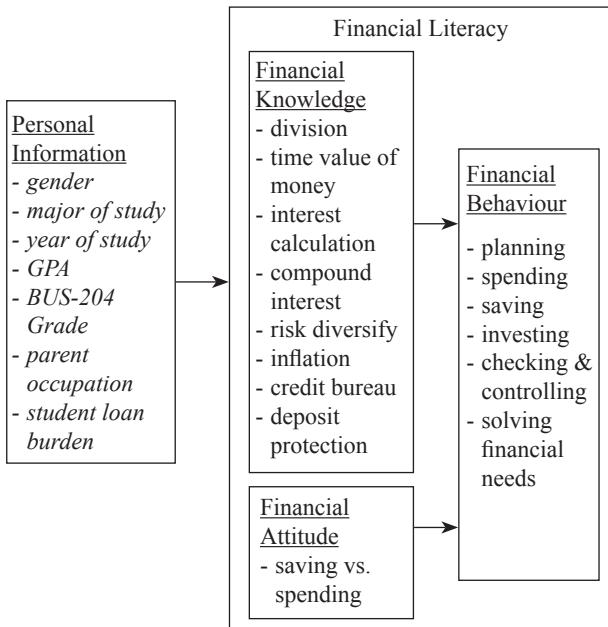
### Analysis

The researcher utilized the Statistical Package of Social Science (SPSS) for Windows for statistic analysing. The

descriptive statistics were applied to measure financial knowledge, financial attitude and financial behaviour's mean scores of students, and then compare mean scores of different characteristic group according to hypothesis (H1-H9). To test the hypothesis, t-test and an one way ANOVA was employed to determine whether there is statistically significant differences in mean score at 95% confidence level (p value  $\leq 0.05$ ).

To test H10 and H11 hypothesis, the multiple regression analysis was employed to determine degree of relationship of financial knowledge and financial attitude as independent variables with financial behaviour as dependent variable.

## Research Framework



## General Findings

There were 457 students answered the questionnaires accounted for 80.59% of total population. The demographic characteristics of the respondents and results are showed in Table 1

Table 1 : The results of the descriptive statistics

Frequency Table		Frequency	Percent	Knowledge	Behaviour	Attitude			
				mean	stdev	mean	stdev	mean	stdev
	<b>Total</b>	<b>457</b>	<b>100</b>	<b>6.19</b>	<b>1.45</b>	<b>2.77</b>	<b>0.38</b>	<b>2.8</b>	<b>0.82</b>
Gender	Male	142	31	6.45	1.42	2.83	0.34	2.80	0.84
	Female	315	69	6.08	1.46	2.74	0.40	2.80	0.81
Major of study	Finance	68	15	7.04	1.64	2.82	0.45	2.74	0.72
	Japanese	183	40	5.95	1.38	2.75	0.35	2.81	0.82
	Marketing	109	24	5.86	1.37	2.81	0.38	2.78	0.89
	General	61	13	6.59	1.24	2.77	0.37	2.82	0.83
	Human Resource	36	8	6.14	1.29	2.66	0.39	2.89	0.78
Note: The student select major (Finance, Japanese, Marketing or Human Resource Management when they enter 3 <sup>rd</sup> year of study)									
Year of Study	1	114	25	6.10	1.35	2.75	0.31	2.82	0.81
	2	113	25	6.21	1.39	2.78	0.37	2.88	0.79
	3	99	22	6.11	1.61	2.80	0.44	2.65	0.84
	4 up	131	29	6.32	1.48	2.76	0.41	2.83	0.83
GPAX	less than 2.00	18	4	6.76	1.36	2.58	0.41	2.44	0.78
	2.00 - 2.50	131	29	6.09	1.37	2.76	0.39	2.75	0.84
	2.51 - 3.00	155	34	6.03	1.56	2.76	0.39	2.74	0.82
	3.01 - 3.50	109	24	6.30	1.48	2.80	0.38	2.91	0.79
	3.51 - 4.00	44	10	6.57	1.21	2.85	0.34	3.07	0.76
Business Finance (BUS-204) Grade	A	23	5	7.43	1.47	2.91	0.34	2.78	0.90
	B+/B	59	13	6.08	1.60	2.77	0.43	3.03	0.76
	C+/C	121	26	6.10	1.45	2.79	0.40	2.72	0.82
	D+/D	43	9	5.93	1.47	2.77	0.39	2.72	0.85
	F	5	1	5.20	1.79	2.61	0.29	2.20	0.45
	not study yet	206	45	6.20	1.34	2.75	0.36	2.82	0.82
Note: The student learns BUS-204 in second semester of his/her second year									
Monthly Allowance	<= 5,000 Baht	140	36	6.13	1.43	2.78	0.39	2.83	0.81
	5,001 - 10,000 Baht	183	47	6.21	1.50	2.74	0.41	2.75	0.87
	more the 10,000 Baht	66	17	6.53	1.41	2.85	0.34	2.86	0.82
Financial status	insufficient	49	11	6.00	1.95	2.51	2.51	2.43	0.91
	sufficient	283	62	6.12	1.36	2.73	0.44	2.78	0.81
	have saving	125	27	6.43	1.43	2.97	2.73	3.00	0.76
Parent occupation	Private sector employee	113	25	6.14	1.43	2.74	0.39	2.77	0.80
	Business owner	125	27	6.34	1.47	2.82	0.36	2.90	0.84
	Civil servant	65	14	6.09	1.43	2.78	0.39	2.86	0.92
	State owned enterprise	18	4	5.56	1.54	2.81	0.26	2.61	0.61
	Freelance	98	21	6.34	1.26	2.80	0.37	2.83	0.76
	Other	36	8	5.94	1.74	2.61	0.48	2.44	0.84
Living	with parent	247	54	6.15	1.47	2.82	0.39	2.87	0.81
	rent a dormitory	210	46	6.25	1.44	2.72	0.37	2.72	0.83
Education loan burden	Have loan burden	74	16	6.08	1.37	2.82	0.38	2.82	0.76
	Do not have loan burden	383	84	6.21	1.47	2.76	0.38	2.80	0.83

## Measuring of financial literacy

### Financial knowledge

The survey result indicated that financial knowledge level of BJ students was moderate at average score of 6.19 out of 10 (61.90%). Students who study finance as major showed the highest financial knowledge mean score at 7.43 and students who failed in business finance subject (BUS-204) showed the lowest mean score at 5.20. In particular, students made mistake answers in the time value of money, interest rate calculation, compounded interest and deposit protection policy.

### Financial attitude

The students were asked whether they have positive attitude toward saving for the future needs rather than spending now. The result showed fair scores at 2.80 out of 4.00. Students who have low academic performance tend to have low mean score in financial attitude.

### Financial behaviour

The survey result indicated that BJ students had moderate discipline in financial behaviour with mean score 2.77 out of 4.00. Moreover, students who obtained low academic performance (GPA) tend to have low financial behaviour score.

The result showed that students had 2.31 mean score in financial planning, 2.95 mean score in spending, 2.96 mean score in saving, 2.93 mean score in investing, 2.74 mean score in checking & controlling, and 3.08 score in solving financial needs.

The areas that students showed weak financial behaviours score were in (1) Financial planning whose mean score was at 2.31, particularly on conducting daily accounting record on his/her income and expense whose mean score was at 1.72, and setting long term goal whose mean score was at 2.19. (2) Active saving whose mean score was at 2.56.

Behaviours of less concern were in (1) Spending whose mean score was 2.95, of which result showing high scores in making informed decision and compare information before purchase, but moderate score in making list of items to purchase before shopping and follow the list (2) Investing whose mean score was at 2.93 by which student compared risk vs. return in making investment decision, however had moderate score in diversify investment, probably because the students have small amount of money available for invest. (3) Solving financial needs whose mean scores was at 3.08 by which the students tend to either cut spending or find part time job rather than borrowing to meet his/her financial needs.

Table 2 : The results of Financial Behaviour

Question on Financial Behaviour	Mean	Std. Deviation	
b1 I plan how to spend money ahead	3.01	.84	Planning
b2 I know how much saving I will have in the next 10 year	2.19	.97	
b3 I make daily accounting record on my income and spending	1.72	.91	
			2.31
b4 I purchase goods on promotion sales even though I do not really need it (reverse question)	2.83	.94	Spending
b5 I compare price and quality before purchase	3.23	.83	
b6 I make list of goods to purchase before shopping and follow the list	2.57	.89	
b7 I pay monthly expense in time	3.19	.84	2.95
b8 I save money at least 10% of my income	2.73	.93	Saving
b9 When I get extra income, I will bring to for saving	2.87	.93	
b10 In the month that I need to spend more, I will not save	2.09	.93	
			2.56
b11 I compare return before making investment	3.11	.83	Investing
b12 I prepare risk before making investment	3.12	.86	
b13 I diversify risk by investing in different products	2.55	.94	
			2.93
b14 I check my deposit account balance	3.21	.87	Checking
b15 I have saving more than 6 times of my expenses	2.33	.93	
b16 I can control my cash flow and save money according to the plan	2.67	.82	
			2.74
b17 If I have not enough money, I will borrow (reverse question)	3.34	.87	Solving
b18 If I have not enough money, I will cut my spending	3.30	.76	
b19 If I have not enough money, I will find part time job for extra income	2.58	1.03	
			3.08

### Testing the Hypothesis

The statistic result of the t-test and ANOVA analysis for the hypothesis testing on financial literacy level in 3 areas; financial knowledge, financial behaviour and financial attitude are showed in table 3.6-1 to 3.6-3.

#### Financial knowledge

For financial knowledge H1 and H2 were supported, which could imply that students in characteristic group classified by gender and major of study statistically differ in financial knowledge at significant level. On average male students got higher financial knowledge level than female. Students in finance major got the highest level of financial knowledge whereas students in marketing major got the lowest level of financial knowledge.

The result also showed that students in characteristic groups classified by academic year, GPA, monthly allowance, financial status, parent occupation, live with parent, education loan burden did not show significant differences in financial knowledge level.

#### Financial attitude

By running T-test and ANOVA to find which characteristic groups showed significant difference in financial attitude at 95% confidence level, researcher found that H4, H6 and H8 were supported and could imply that (1) Students who obtained good academic performance tend to have higher attitude score than others. (2) Students who pertain to sufficient financial status showed higher attitude score than the others, (3) Students who live with parent showed higher attitude score than who live separately from parent at significant level.

#### Financial behaviour

For financial behaviour H1, H6 and H7 were supported. Students in characteristic groups classified by gender, financial status and living with parents statistically differ in financial behavior at significant level. On average, male students had higher level of financial behavior than female. Students who pertain to sufficient financial status had higher financial behavior level than other groups.

Students who live with parent tend to have higher financial behaviour score than the one who live separately with parent at significant level. This could be implied that household plays important roles in supporting student's good financial behaviour.

The result did not show significant differences in financial behaviour among students in characteristic groups classified by major of study, academic year, GPA, monthly allowance, financial status, and parent occupation and education loan burden.

The researcher found that even though on average, students in finance major had higher financial knowledge, their financial behaviour did not significantly differ from non finance major students. Therefore besides teaching academic knowledge, teachers should pay more attentions applying practical teaching technique and inside/outside class room activities to embed discipline to students in managing his/her personal finance.

Table 3.6-1 : Financial knowledge

		t/F value	P-value
<b>H1 (Gender)</b>	<b>t-test</b>	<b>2.56</b>	<b>0.011*</b>
<b>H2 (Major of study)</b>	<b>ANOVA</b>	<b>10.442</b>	<b>0.000*</b>
H3 (Academic year)	ANOVA	0.613	0.607
H4 (GPA)	ANOVA	1.708	0.131
H5 (Monthly allowance)	ANOVA	1.742	0.177
H6 (Financial status)	ANOVA	2.489	0.084
H7 (Parent occupation)	ANOVA	1.283	0.263
H8 (Living with parents)	t-test	-0.746	0.456
H9 (Education loan burden)	t-test	0.3	0.584

Table 3.6-3 : Financial attitude

		t/F value	P-value
H1 (Gender)	t-test	0.034	0.473
H2 (Major of study)	ANOVA	0.249	0.910
H3 (Academic year)	ANOVA	1.587	0.192
<b>H4 (GPA)</b>	<b>ANOVA</b>	<b>2.331</b>	<b>0.042*</b>
H5 (Monthly allowance)	ANOVA	0.573	0.365
<b>H6 (Financial status)</b>	<b>ANOVA</b>	<b>9.161</b>	<b>0.000*</b>
H7 (Parent occupation)	ANOVA	2.048	0.058
<b>H8 (Living with parents)</b>	<b>t-test</b>	<b>3.809</b>	<b>0.049*</b>
H9 (Education loan burden)	t-test	0.072	0.789

Table 3.6-2 : Financial behaviour

		t/F value	P-value
<b>H1 (Gender)</b>	<b>t-test</b>	<b>2.423</b>	<b>0.016*</b>
H2 (Major of study)	ANOVA	1.605	0.172
H3 (Academic year)	ANOVA	1.308	0.768
H4 (GPA)	ANOVA	1.428	0.213
H5 (Monthly allowance)	ANOVA	2.131	0.120
<b>H6 (Financial status)</b>	<b>ANOVA</b>	<b>34.176</b>	<b>0.000*</b>
H7 (Parent occupation)	ANOVA	1.958	0.070
<b>H8 (Living with parents)</b>	<b>t-test</b>	<b>2.866</b>	<b>0.004*</b>
H9 (Education loan burden)	t-test	1.209	0.227

\*significant level p value  $\leq 0.05$

#### **Regression analysis**

Multiple regressions were employed to study whether financial knowledge and financial attitude (independent variables) had relationship with financial behaviour (dependent variable). The result supported H10 and H11 meaning that both financial knowledge and financial attitude have positive influence on financial behaviour. The researcher found that financial knowledge and financial attitude were statistically significant in predicting financial behaviour by having positive relationship with financial behaviour at coefficient of 0.27 and 0.173, respectively. Also financial knowledge and attitude could explain 18.7% of financial behaviour ( $r^2 = 0.187$ ). The positive relationship between financial knowledge, attitude and behaviour is in line with BOT's 2013 survey result of Thailand's financial literacy. (BOT, 2013).

The researcher could imply from the survey results that students who pertain to good finance knowledge and has positive attitude toward saving tend to have good discipline in handling his/her personal finance. Moreover, financial behaviour of the students could be enhanced by levelling up his/her financial knowledge.

### ANOVA<sup>b</sup>

Model	Sum of Squares	df	Mean Square	F	Sig.
Knowledge Attitude	10.233	2	5.117	52.149	.000a
	44.546	454	.098		
	54.779	456			

- a. Predictors: (Constant), financial knowledge, financial attitude
- b. Dependent Variable: financial behaviour

### Coefficients<sup>a</sup>

Model	Unstandardized Coefficients		Standardized Coefficients	1	Sig.
	B	Std. Error	Beta		
Knowledge Attitude	10.233	2	5.117	52.149	.000a
	44.546	454	.098		
	54.779	456			

- a. Dependent Variable: financial behaviour

## IV. CONCLUSIONS

The researcher found that financial literacy of TNI's BJ students was at moderate level. Moreover, positive relationship between financial knowledge, financial attitude and financial behaviour implied that by promoting financial knowledge and financial attitude through appropriate education curriculum covering key areas that financially literate person ought to know including income & money management, spending & credit, and saving & investment, could enhance financial behaviour of the students.

The researcher suggests teachers to concentrate on improving the identified weak areas of the students as follows:

1.) The weak points in financial knowledge were in time value of money and compound interest calculation. Therefore, teachers should emphasize more on these concepts and reiterate for confirming the students' understanding. Also add more related exercises applying case study in real life. Moreover, students should be encouraged to follow the news for updating his/her financial knowledge by reading financial news paper, magazine or listening to the radio news etc.

2.) The weak areas in financial behavior were planning and active saving. Therefore, teachers should help students realize the important of setting goal on saving and record his/her income and daily expenses. TNI financial club could play supportive role by arranging special seminars, workshops or creative activities to enhance students' discipline in managing his/her personal finance.

3.) Teachers should pay attention on risky groups namely, students who have low academic performance, live separately with parents, pertain to insufficient financial status, and students who have education loan burden by finding measures to encourage his/her involvements and actively participate in the activities aiming to improve his/her individual financial literacy mentioned in suggestion number 2 above.

## REFERENCES

- [1] Bank of Thailand, "Thailand's Financial Literacy Survey Results (2013)," *Financial consumer protection center*, 2014. [Online]. Available: <https://www.1213.or.th/en/Pages/statistics.aspx>.
- [2] Organization for Economic Co-operation and Development and Programme for International Student Assessment, *PISA 2012 results : Students and money : financial literacy skills for the 21<sup>st</sup> century*, vol. VI. Paris: OECD, 2014
- [3] A. Atkinson, F. Messy, "Measuring Financial Literacy: Results of the OECD / International Network on Financial Education (INFE) Pilot Study", *OECD Working Papers on Finance, Insurance and Private Pensions*, No. 15, OECD Publishing, 2012
- [4] OECD INFE, Measuring Financial Literacy: Core Questionnaire in *Measuring Financial Literacy: Questionnaire and Guidance Notes For conducting an Internationally Comparable Survey of Financial literacy*. Paris: OECD, 2011
- [5] K. Leora, L. Annamaria, and van O. Peter, "Financial Literacy Around the World: Insights from the Standard & Poor's Ratings Services Global Financial Literacy Survey," The World Bank, 2015.
- [6] Corporate Sustainability and Financial Inclusion and N. Jane, "ANZ survey of adult financial literacy in Australia," The Social Research Centre, Survey, 2015.
- [7] W. Siriwan and S. Boontarik, "Attitudes and Behaviors toward Personal Financial Management of Undergraduate Business Students, Bangkok University," *BU Academic Review*, vol. 9, no. 2, pp. 55 - 63, 2010.