

## **Financial literacy of students at Thainguuyen University of Technology – An experimental study**

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**Abstract:** *Financial education for pupils and students plays an important role in building a generation of citizen with good financial knowledge and skills, helping them be confident and ready to face financial challenges in life and career. In Vietnam, although the National Strategies for Inclusive Financial Education has been proposed since 2017 and officially included in the National Financial Inclusion Strategy in 2020, however, financial education is still quite new, and many people are not aware of the necessity of financial literacy in particular and financial education in general for their personal life, economy, and financial inclusion. This research evaluates the financial literacy status of students at the Thainguuyen University of Technology through a survey of 425 students from various majors. Research results show that many students lack basic knowledge of personal finance, such as budgeting, debt management, and savings; many students are still not aware of the importance of personal financial planning and often have difficulty managing daily expenses.*

**Keywords** – *Financial education; financial knowledge; financial literacy; student; university.*

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### **I. INTRODUCTION**

The National Strategy on Financial Inclusion Education of Vietnam has been developed since 2017, when the Ministry of Finance together with the State Bank of Vietnam selected the topic of financial inclusion as one of priority the topics for discussion, towards common actions in the APEC Forum. By 2020, this proposal has been officially approved in the National Financial Inclusion Strategy to 2025, with a vision to 2030. However, up to now, after 4 years of applying the strategy, financial education is still quite new, and many people are not aware of the necessity of financial literacy in particular and financial education in general for their personal life, economy, and financial inclusion.

Financial education not only helps students manage personal finances effectively but also prepares them with the skills necessary to succeed in life and career. Promoting financial education in schools and universities will contribute to building a generation of citizens with strong financial knowledge, contributing to the sustainable development of the economy.

However, many experimental studies at Vietnamese universities recently show that Vietnamese students still have quite little understanding of finance, leading to a lack of financial management skills and coping with many difficulties in financial management when living independently.

Research to analyze the current state of financial knowledge of students at the University of Industrial Technology through research and assessment of understanding of: basic concepts of money and finance, savings and investment, credit and debt, personal financial management, financial protection and risk prevention.

### **II. LITERATURE REVIEW**

#### **1. Financial literacy**

##### ***Financial literacy definition***

Up to now, a common definition of "financial literacy" has not been agreed upon, which is often adjusted or changed depending on each research, implementation program of each international organization or country. However, the OECD concept can be used because it reflects the basic elements of financial literacy. Accordingly, financial literacy is defined as the totality of financial knowledge, skills, attitudes and behaviors necessary to be able to make sound financial decisions and ultimately benefit from financial literacy (OECD, 2012).

Robb, Babiarz, and Woodyard (2012) argue that financial literacy is related to the ability to understand financial information and make effective decisions using that information, while financial education is an important tool to provide financial literacy again.

### ***Measure the financial literacy***

In the literature, financial literacy has been mostly measured by the survey-based method with the scales created by questions true/false, multiple-choice, or based on a 5-point Likert scale relating to personal finance (income, money management, saving, spending, etc); macro factors and financial market (inflation, interest, risk diversification, bond, stock, etc).

Financial literacy is conceived of as the areas of knowledge and understanding that must be drawn upon in order to perform a particular financial task. The four content areas for PISA (2012) financial literacy are: money and transactions, planning and managing finances, risk and reward, and financial landscape.

Financial knowledge helps individuals compare financial products and services and have greater confidence in financial matters and react to news and events that may have implications for their financial well-being so that they can make appropriate, well-informed financial decisions. OECD (2020) looks at the levels of basic financial knowledge, focusing on responses to seven questions designed to test different aspects of knowledge that are useful for individuals to make financial decisions: 1) Time value of money; 2) Understanding interest paid on a loan; 3) Simple interest calculation; 4) Understanding correctly both simple and compound interest; 5) Understanding risk and return; 6) Understanding the definition of inflation; 7) Understanding risk diversification.

The Financial behavior score is computed as a count of the number of “financially savvy” behaviors relating to: 1) budgeting; 2) active saving; 4) avoiding borrowing to make ends meet; 5) choosing products; 6) keeping watch on financial affairs; 7) striving to achieve goals; 8) making considered purchases; 9) paying bills on time.

The OECD/INFE definition of financial literacy recognizes that even if an individual has sufficient knowledge and ability to act in a financially prudent way, their attitudes will influence their decision of whether or not to act. Therefore, The OECD/INFE Toolkit uses three attitude statements to gauge respondents’ attitudes toward money and planning for the future and the respondents who exhibit more positive attitudes toward the long-term and towards saving are given the higher score.

The 2022 version adds questions to measure digital financial literacy, developed by the OECD/INFE Working Group on Digital Financial Literacy, these questions also cover the three components of behavior, attitudes, and knowledge (OECD, 2022).

## **2. Financial literacy of student**

### ***International situation***

Until the assessment of financial literacy in PISA (2012) was conducted, there were few data collection efforts aimed to measure the levels of financial literacy among young people, and none that could be compared across countries. The availability of such data is essential for understanding how well today’s youth are prepared to face new and changing financial environments. Four process categories have been defined in PISA financial literacy: identify financial information; analyze information in a financial context; evaluate financial issues; and apply financial knowledge and understanding. Identify financial information: This category is used to assess student abilities in individual searches and access to sources of financial information and identifies or recognize their relevance. Analyse information in a financial context: This category is used to assess student abilities in doing a wide range of cognitive activities undertaken in financial contexts, including interpreting, comparing and contrasting, synthesizing, and extrapolating from information that is provided. Evaluate financial issues: This category is used to assess student abilities in recognizing or constructing financial justifications and explanations, drawing on financial knowledge and understanding applied in specified contexts. Apply financial knowledge and understanding: This category is used to assess student abilities in taking effective action in a financial setting by using knowledge of financial products and contexts and understanding financial concepts.

PISA (2012) also found that for each country and economy, the degree to which various demographic and socioeconomic factors presented above are associated with financial literacy. Besides social, economic, and cultural status, PISA also found gender, school location, as well as immigrant status, and home language, can make differences in financial literacy. Among the components of socioeconomic status, parents’ occupation explains a larger proportion of the variation in performance in financial literacy than parents’ education. On average across OECD countries and economies, immigrant background and language spoken at home jointly account for about 1% of the total variation in performance in financial literacy; school location explains about 1% of performance variation in financial literacy, and gender explains less than 1% of the performance variation in financial literacy.

The findings of many earlier studies show that university students are not knowledgeable about personal finance and their financial skills need improvement.

Diana & Sarath (2003) surveyed a wide cross-section of the student population of a regional Australian university with a substantial external-student enrolment. The research has found that the financial literacy of

students is not high and this, no doubt, stems from the lack of financial skills education in high schools. Of the five identified areas of financial skill or knowledge, decision-making skills and knowledge of insurance appeared to be the least well-developed. Financial literacy improved with work experience and income. This suggests that people learn financial skills through trial and error, to some degree. Additionally, financial experience tends to impact tolerance to risk. Thus, those people indicating higher tolerance to risk (less risk averse) are probably those with more exposure to the financial markets and more experience in financial management and investment. Finally, students undertaking business studies, even if they were in their first year at university, scored better.

Lantara and Kartin (2016) investigate the level of financial literacy among undergraduate and graduate students and the association between the students' demographic factors and their financial literacy level through a survey with 348 undergraduate and graduate students of Gadjah Mada University, Indonesia. The findings show that on average 45.39 percent of the respondents answered the questions correctly, which is relatively low compared to what other studies found in other countries, such as Chen and Volpe (1998) in the US (52.87 percent), or Diana & Sarath (2003) in Australia (53 percent). It also seems that male students, students with economics and business majors, and those with higher incomes, and more work experience have a higher financial literacy rate. Research also shows that education levels and academic disciplines are positively associated with the financial literacy rate.

Sirli Mändmaa (2020) analyzed the survey results of 536 university students at Tallinn University of Technology (Estonia) to assess financial literacy, the impact of educational and demographic characteristics on the participants' financial literacy, and the students' financial opinions and choices. The research shows that the financial literacy of students at Estonian universities was low and that the interest of students in long-term planning was not remarkably high. Results of regression analysis showed that statistically significant impact on financial literacy had factors: academic discipline, level of education, gender, nationality, age, and the choices to have a current account, a debit card, and investment services.

Melinda Verano Abichuela (2020) conducted a survey with 199 third-year students about their financial literacy. From the interview of the respondents, on the financial literacy programs. It was found that the majority of those knowledgeable in personal finance are students related to finance majors. The financial literacy programs needed by CSU students in the Philippines are (a) personal finance, (b) budgeting, (c) bookkeeping, (d) savings, (e) investment, (f) credit management, and (g) pension planning.

#### ***Situation in Vietnam***

Some studies on financial literacy show that adults in general and Vietnamese students, in particular, have a much lower level of financial literacy than people in the world and in other countries in the region.

The 2014 Standard & Poor's survey on financial literacy (Klapper L. et al, 2015) shows that Vietnam is in a much lower position than other countries in the region because only 25% of the adult population has financial literacy capacity. Nguyen Truc Le (2018) noted that "Vietnam's financial inclusion index only reaches 21.28 points, ranking 112/176 worldwide and 22/37 in the group of developing countries in Asia. The financial literacy limitations of the majority of the population have directly affected access to products and their financial services" (Quoted from Le Hoang Anh et al, 2018).

Nguyen Thi Hai Yen (2015), applies the objective test to measure the financial literacy level of higher education students in Vietnam with the data collected by randomly selecting 435 students from various majors in the college and universities within Vietnam. The results show that Vietnamese students in higher education do not financially literate, even at a very basic level. The results indicate that gender, place of residence, field of study, work experience, the financial dependence rate of students on their families, and the demand of students on financial education, student income, and the professional of their parents are found to significantly affect their financial literacy at all levels. Otherwise, the financial literacy of students is not impacted by their year of study at a basic level.

Results from the preliminary survey of Le Hoang Anh et al. (2018), show that students' financial literacy is quite good (average of 14/25 correct answers), which is somewhat inconsistent with previous statements on financial literacy in Vietnam. The results of data analysis show that most students are financially literate, women have better financial literacy scores than men, and students who work part-time have lower financial literacy scores than those who do not yet employed, finance-trained students have better financial knowledge than students of other disciplines. However, this research uses only 47 answers from university students in Hanoi city, the results are not generalizable to the characteristics of students across the country.

Recently, Nguyen Thi Hoai Le (2023) measured the financial knowledge of Vietnamese students. This study conducted a random online survey to collect 4,140 samples at universities nationwide in 2021, with 11 questions which divided into 3 levels of knowledge: basic, average and advanced. Descriptive statistical results show that Vietnamese students have weak financial knowledge, including students studying finance, banking or economics. The results also show that financial knowledge is uneven among students in different years of study, different regions, and different majors.

### III. METHODOLOGY

#### 1. Sample

The samples of this research are students at Thainguayen University of Technology (TNUT).

The samples size was calculated by Slovin's formula - a sample calculation formula for social research with population of definite size.

With an overall student size as of the end of December 2022 of the school is 8,365 students, a confidence level of 0.05, according to the Slovin formula, the calculated sample size is 381. To ensure representativeness and statistical significance of the research, 425 sample respondents were randomly collected from the students of the university.

#### 2. Collect, process and analyze data

Conduct the online interview survey with students at TNUT randomly. The questionnaire consists of 2 parts: Personal information section includes 3 demographic questions about gender, student year and department of study; the second part is financial literacy test including 25 questions about the following contents: basic concepts of money and finance, savings and investment, credit and debt, personal financial management, financial protection and risk prevention

After collecting the answer sheets, they are checked, basic information is processed on the form system, and then encoded information, entered information into the computer and used SPSS 22.0 software for processing the data.

Descriptive statistics method is used to analyze the situation of financial literacy of students at TNUT.

The linear regression method is used to identify what factors make students have different level of financial literacy.

### IV. RESULTS AND DISCUSSION

#### 1. Respondents' characteristics

Number of students responding to the survey by university year: 17.9% are first-year students; 33.2% are 2nd year students; 24.0% are 3rd year students; 16.7% of students responding to the survey are 4th year students; and 8.2% are in the 5th year or above.

Up to 74.6% of respondents were male students and only 23.4% respondents were female; this is consistent with the university's characteristics as a university that trains many technical majors.

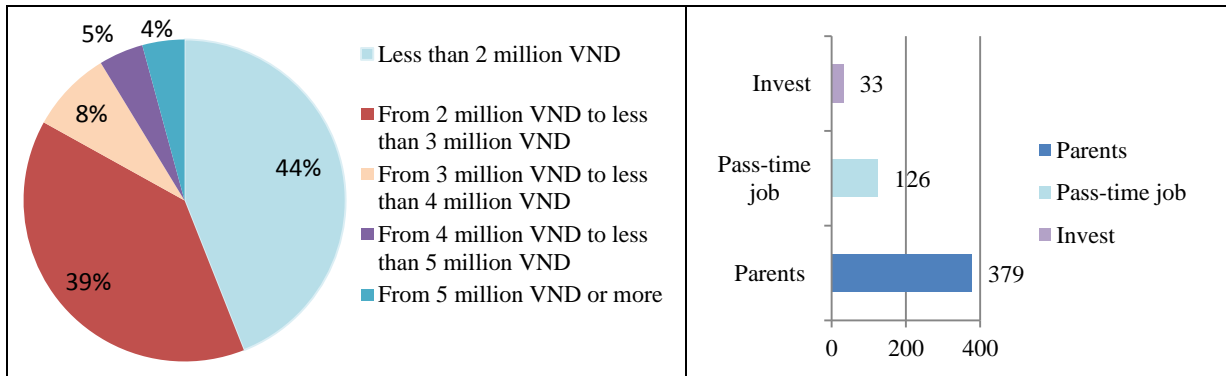
Most of the TNUT students who responded to the survey came from the school's 4 major faculties with a large number of students: Faculty of Electrical Engineering (16.0%); Faculty of Mechanical Engineering (22.4%); Faculty of Electronics Engineering (14.1%); Faculty of Automotive and Power Machinery Engineering (16.7%).

**TABLE 1**  
**Respondents' characteristics**

Item	Frequency	Percentage	Item	Frequency	Percentage
<b>University year</b>	<b>425</b>	<b>100%</b>	<b>Faculty</b>	<b>425</b>	<b>83%</b>
First year	69	16,2%	Faculty of Electrical Engineering	68	16,0%
Second year	142	33,4%	Faculty of Mechanical Engineering	86	20,2%
Third year	108	25,4%	Faculty of Electronics Engineering	60	14,1%
Forth year	70	16,5%	Faculty of Automotive and Power Machinery Engineering	71	16,7%
Fifth year	31	7,3%	Faculty of Mechanical, Electrical and Electronic Technology	55	12,9%
Six year and above	5	1,2%	Faculty of Civil and Environment	12	2,8%
<b>Gender</b>	<b>425</b>	<b>100%</b>	Faculty of Industrial Economic	65	15,3%
Male	293	68,9%	Faculty of International Training	8	1,9%
Female	132	31,1%			

*Source: Research result*

Total spending for a month of student at TNUT is often less than 2 million VND (44%); from 2 million VND to often less than 3 million VND. This situation is suitable with the fact that most of TNUT students are from mountainous and poor areas (Figure 1).



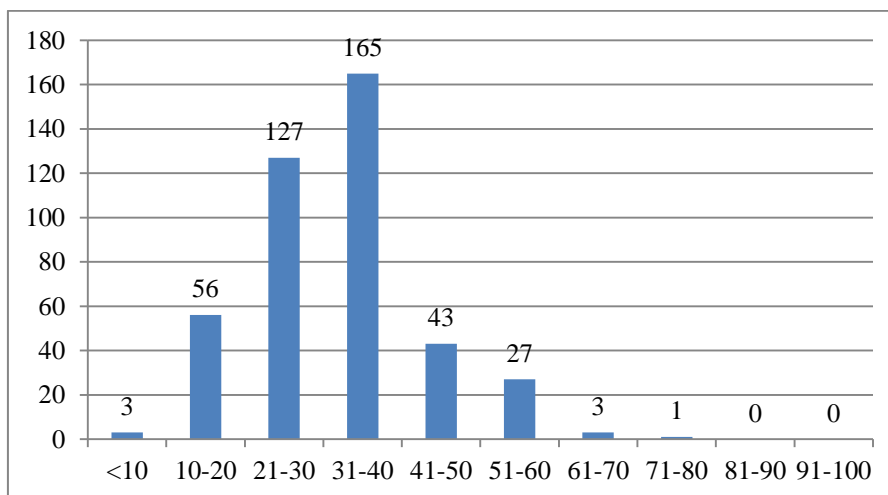
**FIGURE 1**  
**Total spending for a month**  
*Source: Research result*

**FIGURE 2**  
**Source of money for spending**  
*Source: Research result*

Source of money for student spending is most from their parents (379 students, mean 89,2%) and pastime job (126 students, mean 29,6%) (Figure 2). This situation is suitable with the culture of Vietnam that parents often worry about and provide for their children's expenses at least until their children have a job (usually after graduation for young people with university education). Due to difficult conditions or wanting to increase spending, some of students work part-time at factories and service areas around the university. There are very few students who start investing while still at university.

**2. Financial literacy**

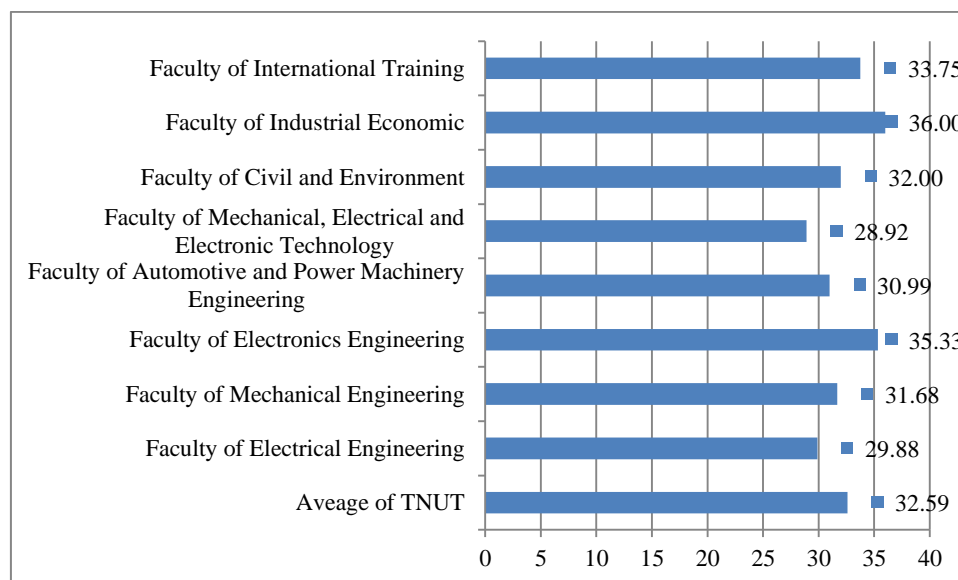
Survey results show that the majority of TNUT students have limited financial literacy: The average score of 425 students reached 32.59; Popular score ranges are: From 31-40 points (165 students, accounting for 38.83%; from 21-30 points (127 students, accounting for 29.88%); from 10-20 points (56 students, accounting for 13.18%); the number of students scoring over 50 points is only 31 students, accounting for 7.29% (Figure 3).



**FIGURE 3**  
**Score distribution of financial literacy**  
*Source: Research result*

Research results also show that economics students in the Faculty of Industrial Economics have a higher average score than other faculties (Figure 4), within students who test scores are above 60 are also over

70% economics students. However, despite being introduced to basic economic and financial knowledge in the curriculum, the average score of the faculty has not reached 50 points, proving that students still do not have much practical knowledge about personal finance. This can be explained by the heavy dependence of Vietnamese students on family finances, they rarely face personal financial problems, and most students receive high scores are those who are interested in finance, have worked part-time, made financial investments or participated in finance courses.



**FIGURE 4**  
**Average score of students by Faculty**  
*Source: Research result*

The percentage of students answering questions correctly is quite low (Table 2), especially questions about Personal financial management (10,2%); Basic concepts of money and finance (16,71%) and Credit and debt (19,48%). Many students are interested in understanding “Knowledge about Savings” and investment and “Financial protection and risk prevention”, so more questions about this issue are answered correctly.

**TABLE 2**  
**Ratio of right answers by contents**

	Right answers	Ratio	Content	Average ratio
Q1	21	4,94	Basic concepts of money and finance	16,71
Q2	78	18,35		
Q3	63	14,82		
Q4	113	26,59		
Q5	80	18,82		
Q6	123	28,94	Savings and investment	24,71
Q7	135	31,76		
Q8	66	15,53		
Q9	108	25,41		
Q10	93	21,88		
Q11	54	12,71	Credit and debt	19,48
Q12	61	14,35		
Q13	66	15,53		
Q14	147	34,59		
Q15	86	20,24		
Q16	30	7,06	Personal financial management	10,02

Q17	67	15,76		
Q18	49	11,53		
Q19	35	8,24		
Q20	32	7,53		
Q21	125	29,41	Financial protection and risk prevention	24,52
Q22	89	20,94		
Q23	130	30,59		
Q24	70	16,47		
Q25	107	25,18		

*Source: Research result*

### **3. Situation of financial education**

#### *Shortcomings in the Official Curriculum:*

Financial education has not been incorporated into the official curriculum in most primary and secondary schools, as well as universities. Knowledge about personal financial management, investment, saving, and prudent spending is not widely disseminated.

Subjects related to finance are usually only available in universities specializing in economics, business administration, or banking and finance. Students in other fields have limited opportunities to access this knowledge.

#### *Limited Awareness among Students:*

Most Vietnamese students lack basic knowledge of personal finance, such as budgeting, debt management, and saving.

Many students do not yet realize the importance of personal financial planning and often struggle with managing daily expenses.

#### *Lack of Diversity in Financial Education Activities:*

Financial education activities are often organized in the form of seminars, discussions, or short-term courses by some non-governmental organizations, banks, or financial companies. However, the number and scale of these activities are limited.

Extracurricular activities related to financial education are not popular and do not attract wide participation from students.

#### *Lack of Quality Materials and Learning Resources:*

Textbooks and materials on financial education for students have not been widely compiled and distributed. Quality learning resources on personal finance are limited.

Students often have to search for information from various sources, leading to a lack of consistency and difficulties in learning.

#### *Interest from Authorities and Schools and Universities:*

Some authorities and schools have begun to recognize the importance of financial education and have taken initial steps to implement financial education programs. However, these efforts are still quite sporadic and not yet carried out in a coordinated manner.

Strong support from the government, educational institutions, and financial organizations is needed to develop and implement financial education programs widely and effectively.

### **4. Discussion about solutions to enhance education to improve financial understanding for students**

#### *Incorporate financial education into the official curriculum:*

Adding subjects or topics on personal finance in high school and university education programs. Integrate financial knowledge into related subjects such as mathematics, economics and civics.

#### *Strengthen teacher training:*

Organize in-depth training courses on financial education for teachers so they can impart knowledge effectively.

Provide documents, textbooks and teaching tools to support teachers in teaching.

#### *Develop diverse documents and learning materials:*

Compile and publish documents, textbooks and learning resources on personal finance appropriate to the age and level of students.

Create online learning tools, mobile applications and financial education games to help students learn in a lively and engaging way.

#### *Enhance extracurricular and practical activities:*

Organize seminars, discussions, competitions and extracurricular activities related to financial education.

Encourage students to participate in hands-on projects, such as personal financial planning, joining an investment club, or managing a small financial fund.

*Cooperation with financial institutions and businesses:*

Cooperate with banks, financial institutions and businesses to organize financial education programs, provide scholarships and internship opportunities for students.

Build community financial education programs to improve financial awareness and skills not only for pupils and students but also for families and communities.

## **V. CONCLUSION**

Promoting financial education will help Vietnamese students equip themselves with the necessary knowledge and skills to effectively manage personal finances, contributing to the sustainable development of the economy and society.

However, the results of this study, like many previous studies, clearly show the lack of financial knowledge among Vietnamese pupils and students. Therefore, in the coming time, the government, the Ministry of Education and Training, as well as schools need to further promote solutions to enhance financial education for pupils and students.

Results of this research are the same as results from the research of Le Hoang Anh et al (2018) and Bui Thi Ngoc Anh et al (2020) that the learning environment, financial attitude and financial awareness are very important for students to have good personal financial management skills, specifically teachers and staff, and learning programs associated with financial topics have an important role in improving and developing students' personal financial management skills.

## **VI. Acknowledgement**

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