

Providing a Framework for the Implementation, Development, and Assessment of Financial Literacy Among Students (Case Study: Technical and Vocational University)

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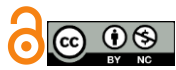
Article Info

Article type:

Original Research

How to cite this article:

Ghaderi Rahaghi, M., & Khandan Alamdari, S. (2023). Providing a Framework for the Implementation, Development, and Assessment of Financial Literacy Among Students (Case Study: Technical and Vocational University): The Mediating Role of Professional Ethics. *International Journal of Innovation Management and Organizational Behavior*, 3(2), 228-234.
<https://doi.org/10.61838/kman.ijimob.3.2.27>



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ABSTRACT

Objective: The aim of this study is to present a framework for the implementation, development, and assessment of financial literacy among students at the Technical and Vocational University.

Methodology: The research method employed in this study is a descriptive-survey approach. After extracting and validating the appropriate questionnaire, it was distributed among the students. The statistical population of this section of the research comprised associate and bachelor's degree students.

Findings: The findings indicate that the three dimensions of financial literacy (financial knowledge, financial behavior, financial attitude) among students are influenced by their field of study (0.236) and their parents' occupation (0.205). The results suggest that with higher levels of financial literacy in the three dimensions among students, their field of study is relatively less significant, and with higher levels of financial literacy, the significance of their parents' occupation also diminishes.

Conclusion: The proposed model assists managers and decision-makers in identifying the outcomes of implementing this approach and in adopting measures to improve the methods that enhance the quality of education.

Keywords: *Financial literacy development, financial knowledge, financial behavior, financial attitude*

1 Introduction

Today, due to the complexity of modern business environments and the diversity of services and products offered by credit institutions, achieving financial well-being requires an appropriate understanding of

financial issues and topics. This need has been recognized in most modern societies for some time and has been discussed since the early 1990s under terms such as financial literacy and personal finance, with its importance growing over time. Nowadays, concepts related to financial literacy are

considered part of the curriculum in various academic disciplines in countries like the United States and the United Kingdom (Panos & Wilson, 2020). In these countries, numerous non-profit organizations are responsible for the development of financial literacy and conduct various tests to measure the progress of financial literacy within their respective nations (Sari et al., 2020). Despite the importance of financial literacy, the related concepts and topics have received little attention in Iran, and there is even a lack of appropriate tools to measure it within the country.

Economic, social, and technological developments and their impact on environmental issues have been among the significant topics of the past two decades (Qalmaq et al., 2016). Establishing a connection between the historical approach to technological development and innovation processes will create a deeper understanding of technological changes and innovation. On the other hand, considering various social and environmental issues, technological innovation and the development of an energy innovation system are essential for the economic development of countries. Today, with the expansion of human knowledge and the development of global technologies, the definition of a "literate person" has fundamentally changed compared to the past (Dianati Deilami & Hanifehzadeh, 2015). In the current century, merely being able to read and write or even knowing a second language is not sufficient for literacy. According to the United Nations Educational, Scientific, and Cultural Organization (UNESCO), a literate person is someone who possesses six types of literacy: educational, emotional, communicative, media, computer, and financial literacy.

Financial knowledge, financial science, or finance is a branch of business activities that encompasses the establishment of firms, marketing, and the management of money and cash in various capital accounts, instruments, and markets, created with the aim of conducting asset transactions, financial management, and risk (Rahmani Norouzabad & Mohammadi, 2019). Financial knowledge is controlled and structured by a complex system of power relations within economic and political structures in global markets. These activities increasingly focus on the technical and institutional aspects of measuring and covering risk-return relationships that affect shareholder value (Amagir et al., 2020). Financial networks often enable negotiation, marketing, and trading in financial products and services for customers. Financial performance measures the efficiency and profitability of investments, guarantees borrowers'

claims, and assesses how financial derivatives can protect investors against market risks (Kamel & Sahid, 2021).

Financial literacy can encompass concepts such as financial awareness, knowledge and science regarding financial products and institutions, or financial skills such as the ability to calculate compound interest and, more generally, financial capabilities related to money management and financial planning. Although these concepts overlap and share common ground in practice, they may have different implementations depending on the income levels of countries. For example, in high-income countries, financial literacy is often considered a supportive supplement for consumers (Rahmani Norouzabad & Mohammadi, 2019). One of the primary goals of financial education is to equip individuals who have the capability to manage a portfolio of financial products, such as mortgage loans and retirement plans, to make sound financial decisions. Therefore, the importance of this task has been repeatedly emphasized as financial planning responsibilities shift from the public sector to individuals.

In low-income countries, financial development is much more limited, and specialized and advanced products are accessible to only a small percentage of the population, highlighting the increasing importance of financial literacy in improving access to and the provision of financial services (Roshandel et al., 2018). Research conducted on financial literacy levels in our country indicates that the level of financial literacy is not satisfactory, and there is a serious need to improve it. One such study was conducted by the Securities and Exchange Organization in 2013 (2012-2013). This survey shows that 9% of the sample population, which is representative of the entire country, has inadequate financial literacy, 39% have somewhat adequate literacy, 32% have a satisfactory level, and only 15% have an ideal level of financial literacy. The most tangible effect of having appropriate financial literacy is that individuals can earn income more effectively and spend it more appropriately, which also reduces the root causes of many social problems (Shirazian, 2018).

Another impact is seen in an individual's economic behavior during times of crisis. If financial literacy levels rise, financial transactions and individual well-being also increase, leading to appropriate behavior during economic crises, which in turn prevents the disruption of economic and social order in the country (Bahmani & Nezam Taheri, 2019). It should be noted that improving financial literacy is a national issue, and no single sector can fully undertake this responsibility alone. Moreover, without the broad and

informed participation of the public in various economic sectors, the economy will not function properly, and if this participation is informed and based on knowledge, people will spontaneously find and overcome solutions to economic problems. Therefore, if there is a unified approach and coordination among various executive bodies and relevant organizations, a "massive movement to improve financial literacy" will emerge in the public sphere. This movement will consequently strengthen the country's economic system and facilitate the achievement of resistance economy policies and slogans (Dianati Deilami & Hanifehzadeh, 2015).

Decision-makers in financial markets need various types of information to make the most optimal decisions. Optimal and correct decision-making leads to the efficiency of financial markets (proper allocation of resources), which in turn leads to the realization of economic and social goals. Among the most important decision-makers are investors and creditors. They require information based on which they can decide to buy, hold, or sell shares. Creditors are interested in information that allows them to evaluate the ability of a business entity to repay the principal and interest on borrowed funds in a timely manner (Bahmani & Nezam Taheri, 2019). It seems that this issue has its roots in the incorrect education of such matters during childhood and adolescence. Have the curricula of primary schools 15 years ago, middle schools 10 years ago, and high schools 5 years ago adequately prepared children and adolescents to face the financial complexities of today's world? To what extent are teenagers ready to enter the realm of economic and financial activities after finishing high school? How familiar are they with entrepreneurship and its complexities? How well do they understand marketing and the intricacies of the advertising world? Can they plan their finances effectively? These questions indicate the need to assess financial literacy, particularly among adolescents and students, and to examine the factors influencing it, as well as the need to educate these individuals. This is a crucial requirement for the country, especially considering that there is currently no suitable tool for assessing financial literacy within the country (Roshandel et al., 2018).

There has been limited research on this subject. In a study by Rahmani Noroozabad (2018), contrary to previous studies, no evidence was found regarding the impact of financial literacy on investors' risk perception in Iran. On the other hand, financial literacy, risk perception, and emotions collectively and significantly influence investors' decisions in the Tehran Stock Exchange (Rahmani Noroozabad &

Mohammadi, 2019). In a study by Roshandel (2018), it was concluded that there is no significant statistical difference in financial literacy between male and female students. The results of the research also indicate that if the decision is made to include financial concepts in student textbooks, the relationship between mathematical concepts and financial concepts is positive; therefore, financial concepts can be added to the mathematics curriculum (Rahmani Noroozabad & Mohammadi, 2019). In a study by Novitasari et al. (2021), it was concluded that financial literacy significantly affects students' personal financial management, lifestyle significantly affects students' personal financial management, and parents' socioeconomic status significantly affects students' personal financial management (Novitasari et al., 2021). Liu and Zhang (2021) concluded in their study that students' financial literacy has a significant negative impact on their risky credit behavior, and subjective financial literacy has a greater effect than objective financial literacy (Liu & Zhang, 2021).

It seems that an appropriate starting point for research in this area is to provide a suitable model for measuring financial literacy in the country, as no suitable model exists for this purpose, and without measuring the current state of financial literacy in the country, any claims would be subjective and unsupported. Moreover, given the above discussions and the importance of studying financial literacy levels among students and its role in the development and progress of a society, the primary research question is: What is the appropriate model for establishing and developing a financial literacy system for students at the Technical and Vocational University? What are the appropriate indicators for assessing financial literacy at the Technical and Vocational University? How do the three dimensions of financial literacy (financial attitude, financial behavior, and financial knowledge) rank in terms of assessment? And is there a relationship between the three dimensions of financial literacy among students and their field of study, parents' occupation, parents' education, and type of school?

2 Methods and Materials

The present study is applied in terms of its objective and descriptive in terms of its method, utilizing a mixed (qualitative-quantitative) exploratory approach for data collection and analysis. Mixed-method research combines quantitative and qualitative research to provide more evidence for a better understanding of phenomena and to overcome the limitations of purely quantitative or qualitative

designs. The interview method was employed. The statistical population of this part of the study included students of the Technical and Vocational University. Given that final-year students are on the verge of entering the job market, gaining financial and social independence, continuing their education, or starting a family, a sample size of 15 members was determined judgmentally. In this phase, a questionnaire was prepared based on the experts' opinions and the components extracted in the previous phase, which was then distributed to the second statistical population, including students from the Technical and Vocational University. The process of preparing and extracting a suitable and localized

questionnaire is schematically shown in the chart below. In this study, SPSS25 software was used for statistical analysis.

3 Findings and Results

53.61% of the respondents were male, and 46.38% were female. Additionally, 7% (2 individuals) held a PhD in Finance, 26% (3 individuals) held a PhD in Economics, and 67% (10 individuals) held a PhD in Accounting.

In the data collection section through interviews, based on the analysis and coding of the conducted interviews, 3 main categories and 41 subcategories were identified (Table 1).

Table 1

Extracted Components from Interviews

Financial Attitude	Financial Behavior	Financial Knowledge
Deductions from wages and net income, coverage level of auto insurance (comprehensive and third-party, lack of full insurance), Social Security, understanding the objectives of paying Social Security premiums, impact of subsidy targeting on savings, using debt to maintain purchasing power in inflationary conditions, recognizing major income sources at different ages, impact of investment at different ages, strategies for reducing risk when investing, and calculating the profit and loss of investments in company stocks, low-risk short-term investments, impact of inflation on selecting the required rate of return, effect of compound interest on savings balance, investing in the stock market for individuals lacking the necessary knowledge	Long-term deposit of surplus funds, understanding tax-exempt wages, recognizing credit cards, content issues, lack of teachers with sufficient economic knowledge, insufficient budget allocated to financial literacy education in schools, method of value-added tax collection, short-term savings of funds, impact of inflation on different segments of society, impact of investment at different ages, strategies for reducing risk when investing in the stock market, recognizing major income sources at different ages, wage tax	Impact of inflation on purchasing power, impact of poor credit history on individuals' credit records as intermediaries and providers of funds, understanding the appropriate success of borrowing money, recognizing the capabilities of ATMs, children using parents' insurance coverage, understanding various health and service insurance coverage appropriate for different occupations, choosing the best strategy between renting or mortgaging a house, the role of the date on postdated checks, recognizing new electronic banking services, the role of remaining balances in increasing loan interest costs, characteristics of a loan guarantor, the percentage of capital to be spent on a vehicle, checks from a commercial law perspective, the following insurances as part of retirement records, the basis of retirement pay for individuals covered by Social Security, responsibility in guaranteeing others' loans, understanding options with unrestricted spending capabilities

Next, the Pearson correlation test was used, and the results showed that the three dimensions of students' financial literacy impact their field of study.

The value of this relationship is 0.236 and is inversely (negatively) related. This means that the stronger the three dimensions of students' financial literacy, the weaker their

field of study will be. The value of this relationship is 0.205, and it is also inversely (negatively) related. This means that with higher levels of students' financial literacy, the significance of their parents' occupation will be weaker. The proposed model for improving students' future careers is presented in Figure 1.

Figure 1

Proposed Model for Components Impacting Students' Future Careers.

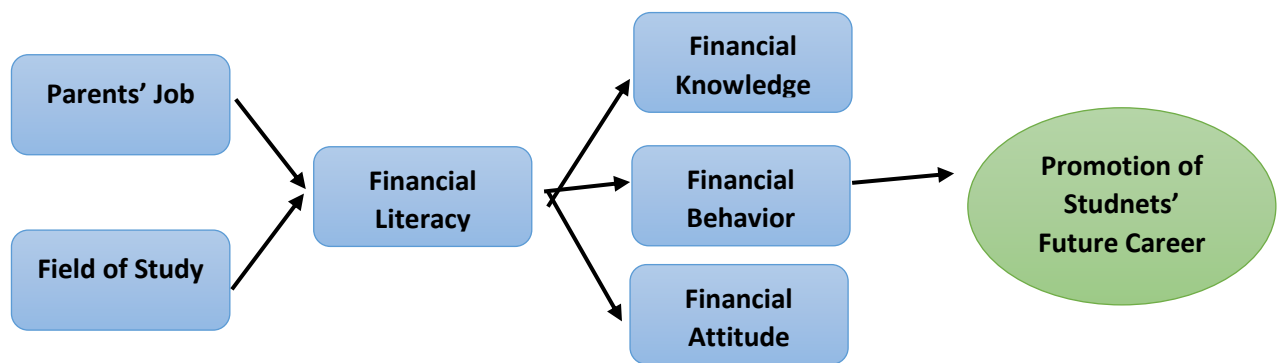


Figure 1 shows that the total squared multiple correlations (R^2) for the organizational performance variable is 0.62, indicating that career path resilience, psychological capital, and professional ethics together explain 62% of the variance in organizational performance among bank employees.

4 Discussion and Conclusion

The purpose of this research was to provide a framework for the implementation, development, and assessment of financial literacy for students at the Technical and Vocational University. The results showed that the three dimensions of financial literacy (financial knowledge, financial behavior, financial attitude) of students impact their field of study (0.236) and their parents' occupation (0.205). The results indicate that the stronger the three dimensions of students' financial literacy, the weaker their field of study will be, and the stronger their financial literacy, the weaker the significance of their parents' occupation will be. The results of this study align with the prior studies (Brau et al., 2019; Dianati Deilami & Hanifehzadeh, 2015; Rahmani Norouzabad & Mohammadi, 2019; Roshandel et al., 2018).

In explaining the findings, it should be noted that the goal of the Technical and Vocational University is the comprehensive development of individuals, and comprehensive and preventative education has always been the aim of educational systems. Therefore, curriculum planners should always strive toward this ultimate goal. In this context, some practical educational and life-related topics have been inevitably overlooked, and financial literacy and its education are among them. Learning financial literacy skills during student years will have long-term benefits. We live in an era of unforeseen debts, and students will face financial challenges in their future lives. Thus, it is necessary for instructors to familiarize students

with the knowledge and skills necessary to succeed in today's economy (Brau et al., 2019). The key to increasing financial literacy in the country lies in educating students, yet in our country, unfortunately, financial literacy and its education have not received serious attention. The numerous financial and economic legal cases in Iran, failed investment experiences in unofficial financial and credit institutions, the significant role of financial and economic problems in social issues such as divorce, and many similar examples point to the low level of financial literacy among Iranians. Investigating the reasons for these concerning statistics is a major concern for officials and requires a thorough and meticulous analysis. It seems that this issue is rooted in the incorrect education of such topics during childhood and adolescence. Were the curricula of primary schools 15 years ago, middle schools 10 years ago, and high schools and universities 5 years ago adequately preparing children and adolescents to face the financial complexities of today's world? How prepared are students for entering the realm of economic and financial activities after finishing university? How familiar are they with entrepreneurship and its complexities? How well do they understand marketing and the complexities of the advertising world? Can they plan their finances effectively? These questions highlight the need to assess financial literacy, especially among students, and to examine the factors influencing it, as well as the need to educate these individuals. However, there is currently no appropriate tool for assessing financial literacy in the country.

There have been few studies on the variables influencing financial literacy and economic performance. Although there is no unified theory identifying specific influential factors, researchers have examined various factors in their studies. In previous studies among students, gender has sometimes been considered an influential factor on financial literacy, while other times, researchers have found no

significant differences in economic performance between males and females. Additionally, the relationship between variables such as parents' unemployment experience, family education level, class size, and school location with financial literacy has been evaluated. The importance of financial literacy lies in its impact on issues such as inadequate financial literacy, which can severely affect individuals, families, and their business partners due to poor financial decisions, negatively impacting society and even leading to a decrease in national wealth and ultimately a decline in financial well-being in society (Gunardi et al., 2017).

On the other hand, teaching financial literacy to students is the key to increasing the financial literacy of the population in the long term; however, the teaching of financial and economic concepts has been largely overlooked in our country. The results of this study also confirm the low level of financial literacy among students. Therefore, there is a need to evaluate the educational content of various educational programs from the perspective of financial literacy concepts. The research findings indicate that teaching financial concepts within social science courses has not had the desired effect; therefore, a revision of the educational content of social science courses is recommended. It is worth mentioning that financial literacy education globally is conducted in both direct and indirect forms. In the direct method, predefined content is conveyed to the audience at a specific time, while in the indirect method, topics are taught during other lessons in the form of examples or related evidence. Each of these methods can contribute to enhancing financial literacy in its own right; however, neither is a complete substitute for the other.

The results of this study suggest that if the decision is made to include financial concepts in student textbooks, the relationship between mathematical concepts and financial concepts is positive; therefore, financial concepts can be added to the mathematics curriculum. Although investing in the stock market begins with the purchase of a security, this financial asset's purchase requires a thorough analysis of its current and future state. Experience shows that those who invest based on speculation gain very little benefit. In such circumstances, with the diversity, complexity, and rapid changes in financial markets, possessing the skills and methods of financial management, including collecting, analyzing, and utilizing financial information, and in one word, having financial literacy, is essential. Financial literacy encompasses the knowledge of financial matters, including the examination of financial phenomena, their nature, the governing laws, and relationships. Financial

literacy has four dimensions: knowledge, attitude, inclination, and behavior, all of which directly impact individuals' investments in the stock market. However, the question remains as to which dimension has the most significant impact on individuals' investments? These dimensions can directly and indirectly influence each other, leading to the strengthening or weakening of investment decisions, portfolio formation, and stock purchases.

One of the limitations of this study was that the results were limited to students from a specific region and did not include the perspectives of all students across the country. Different universities in various parts of the country may have differing views, and due to financial and time constraints, the researcher was unable to examine a larger population. It is recommended that future researchers use a larger sample size. It is also recommended that, given the present study's confirmation of the low level of financial literacy among students, the educational content of various programs be evaluated from the perspective of financial literacy concepts. Some banks and financial institutions, which facilitate the ease of purchasing and sometimes the excessive spending of money by individuals lacking financial knowledge, and many similar situations, have led to the increasing importance of understanding financial concepts by all segments of society because, in the current situation, achieving financial well-being and lifelong comfort without mastering financial literacy concepts will not be possible. Therefore, considering the importance of the topic, it seems that financial literacy needs special attention and numerous studies, and this research could be the starting point. Future researchers should use the model presented in this study to measure the financial literacy of Iranian students and compare these studies with those conducted in other countries.

Authors' Contributions

All authors have contributed significantly to the research process and the development of the manuscript.

Declaration

In order to correct and improve the academic writing of our paper, we have used the language model ChatGPT.

Transparency Statement

Data are available for research purposes upon reasonable request to the corresponding author.

Acknowledgments

We would like to express our gratitude to all individuals helped us to do the project.

Declaration of Interest

The authors report no conflict of interest.

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Funding

According to the authors, this article has no financial support.

Ethical Considerations

In this research, ethical standards including obtaining informed consent, ensuring privacy and confidentiality were observed.