[1] Tiantian Wan

[2] Danfeng Ji

Research on Students' Learning Emotion Regulation and Learning Effectiveness in Intelligent Emotional Assisted Financial Learning Environment

JES

Journal of Electrical Systems

Abstract: - Research on financial behavior demonstrates that a large portion of the bias associated with financial behavior can be explained by personal traits (PT) and emotional intelligence (EI). To prevent financial behavior bias, the present investigation attempts to identify that factors of the PT and EI of students studying finance require additional training. To achieve this, the Big Four Index (BFI) and Trait EI Survey (TEIS) are employed to assess the PT and EI scores of a group of participants and workers in the finance sector. The professional expertise gaps in PT and EI among students were then observed, as then the effects of these gaps on people's financial behavior. Results indicate that students do not possess the EI skills needed for self-worth, self-control, stress reduction, self-motivation, optimism, and empathy. Furthermore, openness, mindfulness, friendliness, and extraversion are connected with PT. Students that have this kind of weakness have a greater probability to be talented, confidence, self-control, fear of losing, and tolerance of risk, among other financial behavior biases. The results indicate that educational institutions should be mindful that providing thorough PT and EI education to finance graduates may assist them prepare for employment.

Keywords: Emotional intelligence (AI), finance, personal traits, feelings, education

Introduction

Financial behavior and students mean a wide range of behaviors, strategies, and choices of people in their academic settings regarding the use of money. This domain deals with the financial matters of the students, including budgeting, spending, saving, debt, and investing. It explores variables affecting financial management among students, including economic status, parents' impact, friends' influence, education level, and knowledge of finance management among students [1]. It is important for educators, policymakers, as well as financial institutions to comprehend students' financial behavior, as this will indicate the patterns that are likely to result in blows, affecting people's financial status in the short run and the long run. Furthermore, it emphasizes developing financial literacy and integrating such knowledge into the academic processes to prepare students and empower them to successfully manage the existing and emerging challenges of the financial environment. By assessing the ways students approach personal finances, external factors can design relevant strategies and materials that will help students become more financially literate, thus creating a firm basis for their future successful financial management [2].

Emotions and financial behavior concern the process of how people's feelings influence their decisions in the financial sphere. This area of focus looks specifically at how consumers' feelings, like fear, greed, excitement, or anxiety, can impact spending, investment, and risk-taking decisions. Emotions are influential in financial decisions and cause an individual to perform what may be irrational action contrary to the financial plan that has been set out [3]. It is particularly important for financial advisors, psychologists, and other specialists who work on finding ways to encourage people to think and act more wisely when it comes to their household budget. In order to reduce the effects of emotions and choose decisions that meet the financial goals and values of the person, tactics such as emotional regulation, self-awareness and thought restructuring are used [4].

In educational organizations, the application of financial resources and strategic allocation were addressed. This means budgeting, expenditure, investments, fund raising, and all other procedures involving decisions about the use of money. Schools, colleges, or universities fall under education financial systems that consist of government funding, tuition fees, endowments, grants, and donations. Financial management in the school system entails the process of efficiently managing resources for sustainable operation and maintaining a sound financial system in support of the academic mission [5]. It is also important to ensure that the institutional financial management is both transparent and accountable to create trust in the institutional stakeholders such as students, faculty, staff, financiers, and other external and internal regulatory authorities. Analysis of these habits allows one to gain a comprehensive view of the overall financial state, may give an indication of the strategic effectiveness of the educational institution, and develop abilities to react to the change of the economic conditions, which is beneficial for the realization of an educational mission and perspective success in

---

[1] School of Modern Finance, Jiaxing Nanhu University, Jiaxing, 314000, Zhejiang, China
[2] College of Literature and Law,Jiaxing Uniwersity, Jiaxing, 314000,Zhejiang,China. Email:jdffe2023@126.com

overcoming the challenges in the given area in the long-term period [6]. This investigation examines how educational institutions' financial behavior and EI and PTs relate to each other. It describes the sample and analysis methods that were utilized, presents the findings, and provides key conclusions.

Related works

Learning about the personality traits that influence the financial decisions of individual investors was the aim of their study [7]. Multiple linear regressions were conducted alongside the administration of a questionnaire for rating investors. The study showed that financial behavior depended on conscientiousness, agreeableness, and openness while extraversion and neuroticism had no effect. It underlined the significance of personality qualities to the offerings in finance companies.

To investigate the risk profile that investors take on, while making investment decisions, their study [8] employed four paradigms: the Big Four Character Test, the concept of clients, investor profile analysis (IPA), and the Cognitive Reflection Test (CRT). According to the research, those with higher risk tolerances, more open minds to new experiences, and more accurate replies were also more likely to take risks.

Research by means of a meta-analysis of randomized trials on persons pointed out that financial education programs have a rational and positive causal effect on participants' comprehension of financial affairs and their behavior [9]. These impacts were at least three times higher than those shown in earlier studies and have economic significance. The findings hold up well when the publication selection bias was used and papers published in prestigious economics journals were included in the methodology. The economic value of financial education programs was included in the study's conclusion.

The financial well-being of public employees was impacted by an increase in personal debt, according to the Bank Financial Wellness and Payment Networks Assessment article [10]. According to employee research, FWB was influenced by financial practices, self-efficacy, money attitude, and emotion management. Gaining insight into these factors helps to raise living standards and lessen financial hardships.

The impact of emotions, the major four personality characteristics, and subjective and financial awareness on avoidance of risky intent to invest, and investment choices were examined in their research [11]. The results showed that despite emotions like anxiety and rage influencing hazardous investing intentions, personality factors like neuroticism and openness forecast aversion to risk.

Using bibliometric evaluation and information extraction from Scopus as well as the Web of Science platforms, paper [12] investigated the current status of research on financial behavior. The virtualization of financial services has a substantial impact on the process of financial behavior formation, even though there weren't many publications that specifically investigate it.

Financial education was becoming a mandatory course for high school graduates, and completion of this course has been associated with lower default rates and improved credit scores among young people, according to their study [13]. The results, however, point to the necessity of state-level heterogeneity for the effective execution of these initiatives.

Neuroticism, extroversion, and conscientiousness were shown to be significantly correlated with investment biases among Indian investors, according to a study [14] that examined the connection between personality traits and these characteristics. Wealth managers and financial advisors can better customize goods and services by having an understanding of the various personality types of investors.

An eighteen-week online course on integrated financial education can assist students in managing their finances, reducing expenses, and increasing earnings, according to research [15] of 217 finance department students. The course addressed investment causes, market fluctuations, hazards, and making poor decisions to steer clear of errors that arise in actual investment markets. The objective was to develop students' attitudes, knowledge, and abilities in the area of finance by having them internalize financial literacy in managing their money.

According to their family income, university students' financial behavior was examined in the study [16]. It evaluated the degree of financial behavior and had consequences for policy. The findings indicated that students from middle-class or lower-class families behave better financially than students from wealthy families. Future research on rewards for responsible expenditure was recommended by the investigation.

Methodology

Two distinct samples are used in this study to address the stated research questions. One sample consisted of 260 students pursuing courses in economics. Another sample comprised 170 professionals who were chosen at random from among those who work in the financial business. The EI and PT measurement survey were filled out by both samples; the details are provided in the next section. Prior to being used, these surveys underwent a methodological test to identify any application issues. Financial specialists stepped in throughout this process and offered suggestions that led to the finalized survey, including additional items and a modification of some of the questions. In the entire student sample, there were 53.86% female students and 46.14% male students. With

an average age is in years of 25.04, 57.84% of the students planned to begin postgraduate work after completing their undergraduate degrees. Table 1 displays the sociodemographic attributes of the sample's students.

Table 1. The student sample's sociodemographic features.

Features	%
Female	53.86
Male	46.14
Age (Average)	25.04 (years)
Plan for achieving postgraduate studies	57.84
Making use of scholarship	68.72

Of the professionals in the sample, 62.54% were men and 37.46% were women. The participants' average age was 45 years. In addition, 32% of the sample held a Master's degree in university, 12% held a Ph.D, and 100% of the sample held a degree in university. Similarly, 10% of the sample had less than ten years' experience in the finance industry, 34% had around eleven and fifteen years' experience and 42% had more than sixteen years' experience. Table 2 displays the professionals in the sample's socio demographic details.

Table 2. The professional sample's sociodemographic features.

Features	%
Female	37.46
Male	62.54
Age (Average)	44.63 (years)
University degree	100
Ph.D degree	11.82
University Master's degree	31.74
Experience in the financial industry	
< 10 years	23.63
11-15 years	34.23
> 16 years	42.14

Tools

The PT evaluation BFI and the EI measurement TEIS were completed in the sample by professionals and students, respectively. EI is the ability to keep an eye on and recognize how one feels and also the opinions of others, and to apply this subjective data as a guidance for decisions and actions. The emotional abilities that were chosen for this study were those who, according to earlier research, had a particularly significant impact on the behavior of professionals and students. In addition, nine emotional competencies were categorized according to four characteristics of emotional intelligence: sociability, emotionality, self-control, and well-being. The 172-item long version of the TEIS, which uses a type of Likert rating scale with 1 denoting not at all agreement and 7 denoting total agreement, was utilized in this investigation. Table 3 presents a summary of the chosen dimensions of emotions and abilities.

Table 3. The emotional intelligence (EI) questionnaire's dimensions and emotional abilities

Dimensions	Emotional Abilities	High Achievers Think About Their self as
Sociability	Relationships	capacity to sustain fulfilling interpersonal interactions
	Empathy	capacity to see things from the viewpoint of others
Emotionality	Emotion management	ability to affect other people's emotions
	Social awareness	Associated with exceptional social abilities
Self-control	Mood control	ability to regulate their feelings
	Self-motivation	Not easily discouraged in the face of difficulty
	Stress reduction	Capable of managing stress and withstanding pressure
Well-being	Optimism	Most likely to see the positive side of things
	Self-worth	prosperous and assured

As for PTs, they are a collection of attributes that characterize the person and they are thought to be important forces behind human behavior. The BFI questionnaire that was utilized in this context has 52 items that are categorized into four qualities: extraversion, friendliness, openness, and mindfulness. These traits were chosen among those who were particularly significant because of their impact on financial behavior. The measuring scale used in this survey is a type of Likert scale, with 1 denoting no agreement at all and 5 denoting total agreement. Figure 1 summarizes the BFI survey that was utilized for this investigation.
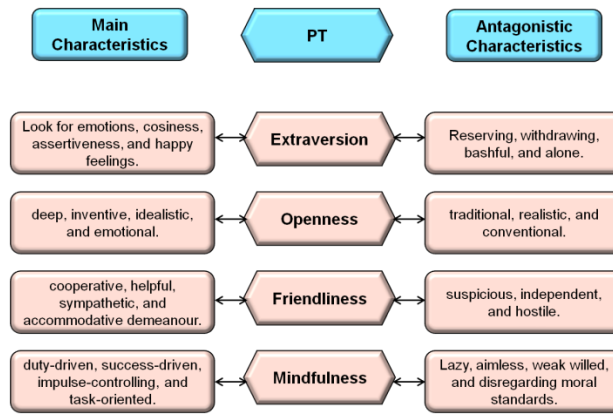
Fig.1: Personality characteristics (PTs) as measured by the Big Four index (BFI).

Results and analysis

Descriptive Analysis

The emotional competency levels of students as well as professionals in the sample are displayed in Figures 2, 3, 4, and 5. Since the variables about emotional intelligence lack of normal distribution, the Mann-Whitney test was used to analyze the differences between the samples. In many of the emotional abilities, such as mood control, self-worth, self-motivation, stress reduction, empathy, and optimism, students performed worse than professionals ($p - value < 0.06$). Similarly, Table 4 presents the findings from the elaborative examination of the dimensions of EI's and overall rating. In terms of global emotional intelligence (EI) and dimensions in three of the four: well-being, self-control, emotionality, and sociability, students performed worse than professionals. These findings support the notion that students' emotional intelligence (EI) is lower than that of professionals. The outcomes of the elaborate examination of the PT variables relating to the professional and student samples are shown in Table 5. Since personality-related variables have a normal distribution, the t-test was used to analyze the differences between the two samples. These findings further demonstrate that students differed significantly from professionals in every PT, which could account for variations in how they made financial decisions.
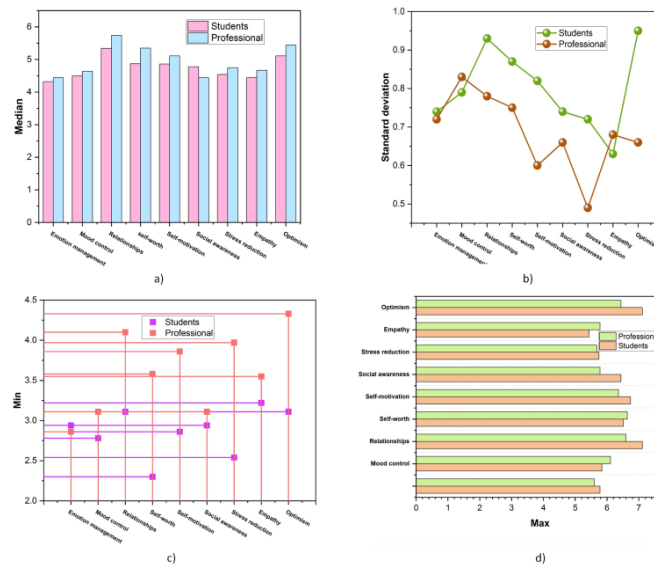

Fig.2: EI of the samples of professionals and students in emotional abilities
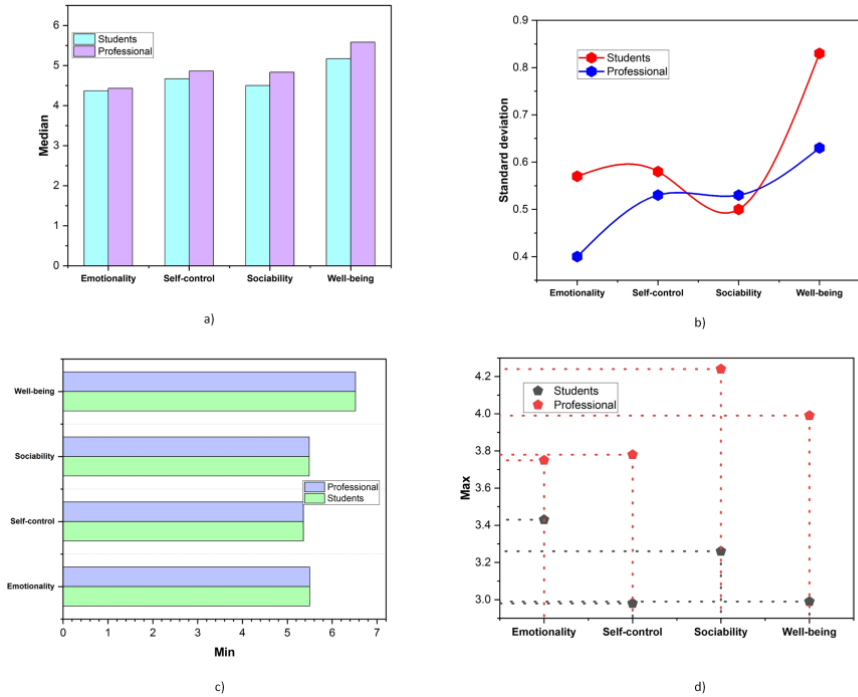
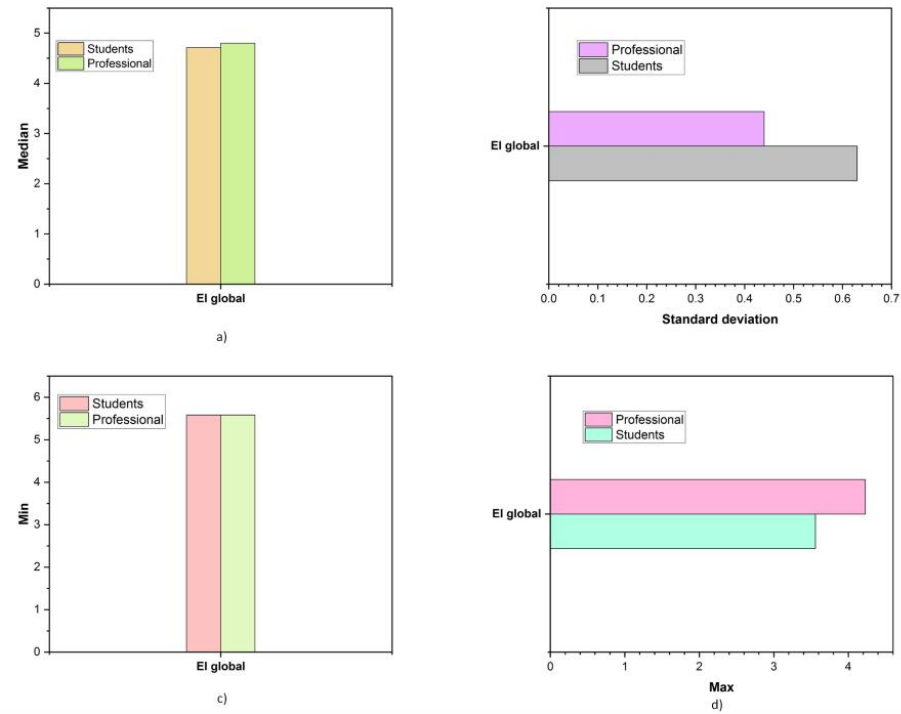Fig.3: EI of the samples of professionals and students in EI dimensions

Fig.4: EI of the samples of professionals and students in EI global

Table 4. EI of the samples of professionals and students

	M-W
(I) Emotional abilities	
Emotion management	0.07
Mood control	0.04 **
Relationships	0.03 **
self-worth	0.00***
Self-motivation	0.03 **
Social awareness	0.04 **
Stress reduction	0.04 **

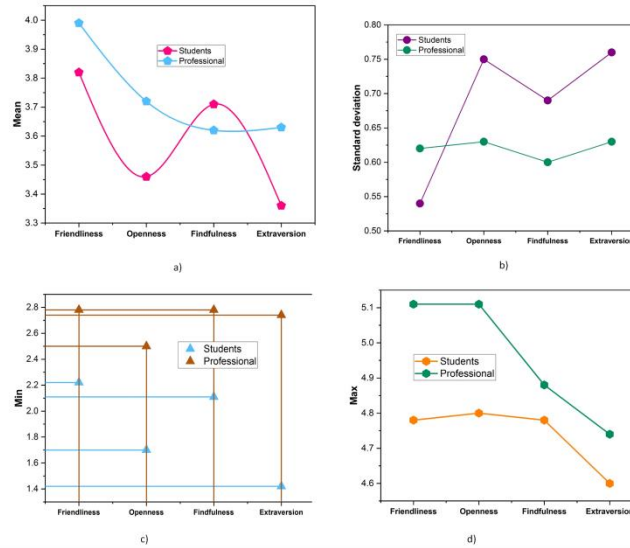|	
Empathy	0.05 **
Optimism	0.05**
(II) EI Dimensions	
Emotionality	0.14
Self-control	0.00 ***
Sociability	0.01 **
Well-being	0.01 ***
(III) El Global	
EI global	0.00***

Fig.5: PT of the samples of professionals and students

Table 5. PT of the samples of professionals and students in t-rest

PT	t-Test
Friendliness	0.031**
Openness	0.024**
Mindfulness	0.003**
Extraversion	0.024**

Impact Analysis

The descriptive examination's findings showed that there are notable distinctions among the PTs and EI of professional working in the sector of financial and those in educational institutions. Furthermore, in comparison to experts, these discrepancies indicate a deficiency in specific emotional abilities and PTs for kids. Consequently, this impact analysis has two goals. First, we looked for evidence linking financial behavioral biases to the student deficit. Second, we investigated if the impact of the various biases linked to the student deficit was favorable or unfavorable. Table 6 displays the outcomes of the impact assessment for EI. When it came to self-control, students fell short of professionals. Considering the findings of earlier research, this ought to cause individuals to overestimate their possessions and make poor asset sale decisions due to talent bias to a larger degree. Students also showed a deficiency in trait empathy, which led to them reacting exaggeratedly to achieve better performance and being more optimistic than professionals. Additionally, the findings demonstrate that students struggle with self-worth, self-motivation, stress management, and mood regulation. It suggests that professionals have a higher risk tolerance than students do, which may deter students from making bold investments that could yield larger returns over the mid and long terms. Lastly, about EI of global, we additionally can identify a student shortfall in comparison to professionals. This factor may cause people to exhibit higher levels of confidence bias, self-control, loss aversion, talent bias, and fear of failure. In contrast, professionals were less risk-averse than students because of this global EI deficit, which could explain why they often perform a poor analysis of the risk of investment.

Table 6. EI affects and gaps among students.

Dimensions, Skills, and EI Global	Associated Bias	Sense of Impact
Trait empathy	Confidence bias	negative

Self-control	Endowment bias	negative
mood control	Tolerance of risk	positive
Self-worth	Tolerance of risk	positive
Stress reduction	Tolerance of risk	positive
Self-motivation	Tolerance of risk	positive
EI global	Risk-averse	positive
	Talent bias	negative
	Loss-averse	negative
	Regret aversion	negative
	Optimism bias	negative
	Self-control bias	negative

The impact assessment of the PT deficit is presented in Table 7. According to the findings, students are openness, extraverted, and friendly than professionals. This suggests that they are less tolerant of risk and will find it more difficult to put together a risk-taking portfolio with substantial returns.

Table 7. PT gaps and effects on students

PT	Related Bias	Feeling of Effect
Openness	Risk-averse	negative
Agreeableness	Tolerance of risk	positive
Extraversion	Tolerance of risk	positive
Openness	Tolerance of risk	positive

Discussion

The findings of this investigation are consistent with previous research on students' EI deficits regarding professionals, as well as findings indicating a relationship between various PTs reported by professionals and students and financial market experience. The findings also show that the sample's students lacked self-worth, self-motivation, stress reduction, and mood control, suggesting that they may have a lower tolerance for risk than professionals. Upon deriving the conclusion that students exhibit a great propensity for economic tolerance of risk. This study has also brought attention to other aspects of the student EI deficit and how it affects financial behavior biases. This is particularly true for empathy, global EI levels, and self-control, which are linked to increased regret aversion, talent bias, confidence bias, and self-control bias, respectively.

However, concerning the PTs, earlier research indicated a strong correlation between extraversion and empathy, coupled with the biases in financial behavior. Our findings support earlier research on the lack of empathy alone and other personality traits like extraversion as well as openness. Student financial behavior biases towards financial industry professionals might be influenced by variations in their emotional intelligence and psychological traits. The results demonstrate intriguing conclusions for discussion, notwithstanding the notable disparities that were noted. In terms of emotion reduction, for instance, there were no notable variations. Maybe this is because having more life and professional experience in the financial sector doesn't necessarily translate into the development of specific emotional skills. The following happens due to the fact that educational instruction initiatives primarily focus on specific facets of emotional intelligence (EI), with major progress required in developing other emotional abilities that are essential for improving students' future financial behavior in the workforce.

Conclusion

Thus, the findings of this study reveal that PT and EI are important factors that affect financial behavior and bring biases. To avoid these biases, the study examines the PT and EI areas that require extra training among finance students in contrast to finance professionals. Employing the Big Four Index and Trait EI Survey that were adopted in the study, the findings show lowered EI skills in students in aspects such as empathy, mood control, self-motivation, stress reduction, optimism, and self-worth, and PT aspects, including extraversion, friendliness, mindfulness and openness. These deficiencies are related to financial behavior biases, including overconfidence, tolerance of risk, and fear of losing. It can be recommended that educational institutions equip finance students with adequate PT and EI training, which might help reduce these biases and improve their performance in relevant jobs. Due to the complexity and diversity of emotional regulation, it is challenging to fully capture all pertinent factors and how they relate to the efficacy of learning using the study's selected methodologies. To fully capture the intricacies of mood control and how it connects with learning efficacy, future research should investigate sophisticated, multi-dimensional methods and technologies. This may involve incorporating varied learning contexts and longitudinal studies.

References

[1]   H. Halimatussakdiyah, S. Martono, and K. Sudarma, "Influence of Life Style and Financial Literacy to Consumptive Behavior through Self-Control of Unisnu FEB College Students Jepara," Journal of Economic Education, vol. 8, no.1, pp. 75-80, 2019. https://doi.org/10.15294/jeec.v8i1.32080

[2]   K.F. CHONG, M.F. SABRI, A.S. MAGLI, H. ABD RAHIM, N. MOKHTAR, and M.A. OTHMAN, "The effects of financial literacy, self-efficacy and self-coping on financial behavior of emerging adults," The Journal of Asian Finance, Economics and Business, vol. 8, no. 3, pp. 905-915, 2021. https://doi.org/10.13106/jafeb.2021.vol8.no3.0905

[3]   Susanti, and S. Widiastuti, "Personal financial behavior in Surakarta students," International Journal of Entrepreneurship, Business and Creative Economy, vol. 1, no. 1, pp. 66-73, 2021. https://doi.org/10.31098/ijebce.v1i1.448

[4]   P.J. Morgan, and T.Q. Long, "Financial literacy, financial inclusion, and savings behavior in Laos," Journal of Asian Economics, vol. 68, p. 101197, 2020. https://doi.org/10.1016/j.asieco.2020.101197

[5]   F. Ahmad, and R. Oriani, "Is the investor's reliance on cognition and emotional regulation predict preference for selecting value versus growth stocks?," The European Journal of Finance, vol. 29, no. 13, pp. 1555-1578, 2023. https://doi.org/10.1080/1351847X.2022.2086478

[6]   J. Khoirunnisaa, and I.R. Johan, "The effects of financial literacy and self-control towards financial behavior among high school students in Bogor," Journal of Consumer Sciences, vol. 5, no. 2, pp. 73-86, 2020. https://doi.org/10.29244/jcs.5.2.73-86

[7]   G. Ozer, and U. Mutlu, "The effects of personality traits on financial behavior," Journal of Business Economics and Finance, vol. 8, no. 3, pp. 155-164, 2019. https://doi.org/10.17261/Pressacademia.2019.1122

[8]   D. De Bortoli, N. da Costa Jr, M. Goulart, and J. Campara, "Personality traits and investor profile analysis: A behavioral finance study," PloS one, vol. 14, no. 3, p. e0214062, 2019. https://doi.org/10.1371/journal.pone.0214062

[9]   T. Kaiser, A. Lusardi, L. Menkhoff, and C. Urban, "Financial education affects financial knowledge and downstream behaviors," Journal of Financial Economics, vol. 145, no. 2, pp. 255-272, 2022. https://doi.org/10.1016/j.jfineco.2021.09.022

[10] M. Sabri, R. Wijekoon, and H. Rahim, "The influence of money attitude, financial practices, self-efficacy and emotion coping on employees' financial well-being," Management Science Letters, vol. 10, no. 4, pp. 889-900, 2020. http://dx.doi.org/10.5267/j.msl.2019.10.007

[11] S. Aren, and H.N. Hamamci, "Relationship between risk aversion, risky investment intention, investment choices: Impact of personality traits and emotion," Kybernetes, vol. 49, no. 11, pp. 2651-2682, 2020. https://doi.org/10.1108/K-07-2019-0455

[12] M. Dubyna, O. Popelo, N. Kholiavko, A. Zhavoronok, M. Fedyshyn, and I. Yakushko, "Mapping the literature on financial behavior: A bibliometric analysis using the VOSviewer program," WSEAS Transactions on Business and Economics, vol. 19, pp. 231-246, 2022.

[13] C. Urban, M. Schmeiser, J.M. Collins, and A. Brown, "The effects of high school personal financial education policies on financial behavior," Economics of Education Review, vol. 78, p. 101786, 2020. https://doi.org/10.1016/j.econedurev.2018.03.006

[14] H.K. Baker, S. Kumar, and N. Goyal, "Personality traits and investor sentiment," Review of Behavioral Finance, vol. 13, no.4, pp. 354-369, 2021. https://doi.org/10.1108/RBF-08-2017-0077

[15] H.C. Liu, and J.S. Lin, "Impact of internet integrated financial education on students' financial awareness and financial behavior," Frontiers in psychology, vol. 12, p. 751709, 2021. https://doi.org/10.3389/fpsyg.2021.751709

[16] D. Nano, and T. Lukani, "Does Students' Financial Behaviour Differ Based on Their Family Income?," 2021. https://doi.org/10.26417/ejes.v1i1.p76-82