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THE RELATIONSHIP BETWEEN FINANCIAL KNOWLEDGE, ATTITUDE, AND BEHAVIOR FROM THE PERSPECTIVE OF UNIVERSITY STUDENTS IN BUSINESS AND ECONOMICS

ABSTRACT

This study analyzed the relationships among the elements of financial literacy—namely, financial knowledge, financial attitude, and financial behavior—from the perspective of university students in business and economics. The research was conducted through a survey applied to a final sample of 508 students, and data analysis involved descriptive statistics, analysis of variance, factor analysis, and multiple linear regression. The results confirmed a relationship between financial literacy and financial knowledge, although no significant associations were found with financial attitude or financial behavior. It was also found that prior knowledge of personal finance emerged as a relevant characteristic, while financial behavior presented the highest mean values among the analyzed factors. The study validated the instrument used to assess financial literacy in the university context. The findings contribute to theoretical, practical, and social domains, reinforcing the importance of further exploration of the topic and encouraging the development of new research focused on financial literacy among university students.

Keywords: Financial Management; University Students; Business; Economics.

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1 INTRODUCTION

Due to the increasing complexity of the financial market, financial literacy has become indispensable (Yin & Yang, 2022; Potrich, Vieira, & Kirch, 2015), particularly in a context characterized by instability and information asymmetry across global markets, the growing complexity of financial products and services, and the expansion of financial technology (Philippas & Avdoulas, 2020).

From this perspective, the Organization for Economic Co-operation and Development (OECD, 2013) defines financial literacy as a set of skills, knowledge, behaviors, attitudes, and other elements necessary to support individuals in their financial decision-making processes, to achieve well-being. Husain, Ramlee, Zain, and Jan (2021) emphasize that financial decision-making involves spending, saving, borrowing, and investing, and that these activities are directly influenced by financial literacy.

Despite its relevance, financial literacy remains low worldwide (OECD, 2020). This scenario results in inadequate financial management, as individuals with lower levels of financial literacy tend to struggle to make rational, informed financial decisions (Atkinson & Messy, 2011).

In line with this perspective, Oliveira, Costa, Silva, and Silva (2022) argue that the lack of financial knowledge leads to difficulties in financial planning, negatively affecting economic stability and potentially resulting in financial constraints, instability, and a reduction in both individual and collective well-being (Abrantes-Braga & Veludo-de-Oliveira, 2019). Considered a key differentiating factor, financial literacy reduces financial vulnerability, even during periods of crisis—such as the COVID-19 pandemic (Chhatwani & Mishra, 2021)—and decreases the propensity to become indebted (Potrich & Vieira, 2018).

Thus, low levels of financial literacy contribute to increased indebtedness (Lusardi & Tufano, 2009). In the Brazilian context, the country has reached a historic milestone in default rates. According to Serasa's Default Map, Brazil has accumulated nearly R$ 500 billion in outstanding debt, distributed among 79 million delinquent consumers. The report also indicates nine consecutive months of increases, with the addition of 318,000 new defaulters in September alone (Serasa Experian, 2025).

Given this scenario, the relevance of financial literacy becomes evident (Banthia & Dey, 2021). Allgood and Walstad (2016) demonstrate that financial literacy is essential for the population, as it enables individuals to manage their finances better and become more confident and aware in financial decision-making processes.

Among university students, young individuals face daily economic challenges, which intensify demand for financial products and services and underscore the need for effective financial management (Lusardi & Mitchell, 2011). Cude et al. (2006) argue that failures in financial management may compromise students' academic performance. According to Gerrans (2021), university represents a transitional period in which young individuals seek and achieve independence, including financial independence. In this regard, Mudzingiri and Koumba (2021) suggest that financial literacy may help young individuals more accurately anticipate their risk-related behaviors.

Leal, Santos, and Costa (2020) identify research gaps in studies that assess students' financial knowledge—not merely their perceptions, but their actual financial literacy. Similarly, Richardson, Alpert, and Tanner (2022) note the limited number of studies examining financial literacy and financial decision-making among young populations. This perspective is reinforced by Yew, Yong, Cheong, and Tey (2021), who highlight the scarcity of studies addressing financial literacy and financial behavior among young individuals.

Regarding prior studies focusing on university students, research by Channak et al. (2022), Goulart et al. (2022), Khalisharani et al. (2022), Ergun (2021), Acosta et al. (2021), Bogoni et al. (2021), Schwantz and Wink (2021), Trento and Braum (2020), Maluf et al. (2021), and Vieira, Potrich, and Mendes-da-Silva (2018) emphasizes the need for further research on financial literacy, particularly in terms of disseminating its concepts and assessing knowledge levels. Most findings express concern regarding the low levels of financial literacy among university students.

Among studies involving university students in business and economics programs, Horobet et al. (2020) stand out for their assessment of financial literacy among Romanian students enrolled in these fields. The authors highlight the limited number of studies targeting this population and emphasize the need to expand research across institutions with diverse curricula and to employ more advanced statistical methods, such as logistic regression.

In terms of this research gap, it is important to consider that many university students do not yet have their own income or rely solely on limited earnings from internships, which restricts their practical experience in financial decision-making. Consequently, much of the literature focuses on individuals who have already completed higher education and are integrated into the labor market, where it is more feasible to assess whether academic training—particularly in business-related fields—effectively influences financial literacy levels.

Based on the above, the study addresses the following research question: What is the relationship between the elements of financial literacy from the perspective of university students in business and economics programs? Accordingly, the main objective of this study is to analyze the relationship between the elements of financial literacy from the perspective of university students in business and economics. The specific objectives are: (i) to analyze the variance of responses according to respondents' characteristics; (ii) to validate the research instrument for analyzing financial literacy elements in the context of business and economics students; and (iii) to identify relationships among the elements of financial literacy.

The contributions of this study are grounded in the dissemination of financial literacy, which is essential for improving quality of life (Chhatwani, 2022), given that financial literacy contributes to the development of financial management, enhances the effectiveness of financial decision-making, and enables individuals to achieve a better quality of life (Banthia & Dey, 2021). According to Allgood and Walstad (2016), financial literacy also contributes to knowledge generation, shaping individual well-being (Pereira & Coelho, 2020).

Furthermore, the study's findings may help diagnose levels of financial literacy, thereby supporting the formulation of policies to develop effective financial education programs (Ergun, 2021). In this regard, Channak et al. (2021) emphasize the importance of offering educational courses targeted at university students to improve financial attitudes and behaviors, ultimately reducing financial illiteracy rates. Therefore, improving financial literacy among young individuals requires concrete measures (Horobet et al., 2020).

To achieve the proposed objectives, the study is structured into five sections. Following this introduction, the theoretical framework is presented. The third section outlines the methodological aspects, characterizing the study as descriptive, with a survey as the technical procedure and a quantitative approach to the research problem. Data were collected through a structured questionnaire administered in person to university students enrolled in Business (Administration and Accounting) and Economics programs. Data analysis involved descriptive statistics and multiple linear regression techniques. The fourth section presents the results and discussion, followed by the final remarks and references.

2 THEORETICAL FRAMEWORK AND RESEARCH HYPOTHESES

The topic of financial literacy has been increasingly emphasized in the academic literature, largely associated with political, economic, and social transformations, as well as developments in financial markets (Bogoni et al., 2021). In this context, financial literacy can be understood as the ability to process financial information, and the use of that information supports financial decision-making. Thus, financial literacy extends beyond financial education, encompassing individuals' financial knowledge, behavior, and attitudes (Robb, Babiarz, & Woodyard, 2012).

Accordingly, the conceptualization of this topic involves multiple elements, ranging from basic financial concepts to the efficient management of financial resources (Potrich & Vieira, 2018). In this regard, Yanto et al. (2021) highlight that financial literacy is associated with several internal variables, including financial knowledge, financial attitudes, and financial behavior. Similarly, Agarwalla et al. (2015) argue that financial literacy comprises financial knowledge, financial attitudes, and financial behavior.

With respect to financial knowledge, Lusardi, Mitchell, and Curto (2010) emphasize it as an essential element for both individuals and society, as it provides a foundation for addressing various financial issues. In this sense, Richardson, Alpert, and Tanner (2022) argue that, given the importance of financial knowledge, increasing its dissemination and level among individuals is fundamental. Moreover, the diffusion of financial knowledge among young individuals is particularly relevant, as poor financial decisions may have long-term consequences (Lusardi, Mitchell, & Curto, 2010).

However, despite its relevance, financial knowledge remains at low levels among young individuals (Wee & Goy, 2022). Atkinson and Messy (2011) emphasize that individuals with low levels of financial knowledge are more likely to engage in irrational and imprudent financial decision-making and have difficulty managing their personal finances. Conversely, Robb, Babiarz, and Woodyard (2012) indicate that higher levels of financial knowledge are associated with greater financial awareness among individuals.

Thus, Hutson (2010) argues that financial literacy enables individuals to apply their financial knowledge in decision-making processes. Accordingly, financial literacy is directly related to financial knowledge (Banthia & Dey, 2021). Based on this rationale, the first research hypothesis is proposed: financial literacy is associated with financial knowledge.

Financial attitude, in turn, constitutes one of the core elements of financial literacy (OECD, 2013). According to Phan, Yap, and Dowling (2012), financial attitude involves financial management practices characterized by sound behaviors that help control personal finances, thereby avoiding unnecessary costs and indebtedness. Examples include budgeting practices and credit card management.

Banthia and Dey (2021) argue that financial attitude plays a fundamental role in shaping individuals' financial behavior. Ameliawati and Setiyani (2018) further assert that financial attitudes directly influence personal financial management decisions.

In this context, Robb and Woodyard (2011) state that financial literacy significantly influences financial attitudes. This perspective is supported by Banthia and Dey (2021) and Atkinson and Messy (2012), who find that financial literacy positively influences financial attitudes. Accordingly, the second research hypothesis is proposed: financial literacy is associated with financial attitude.

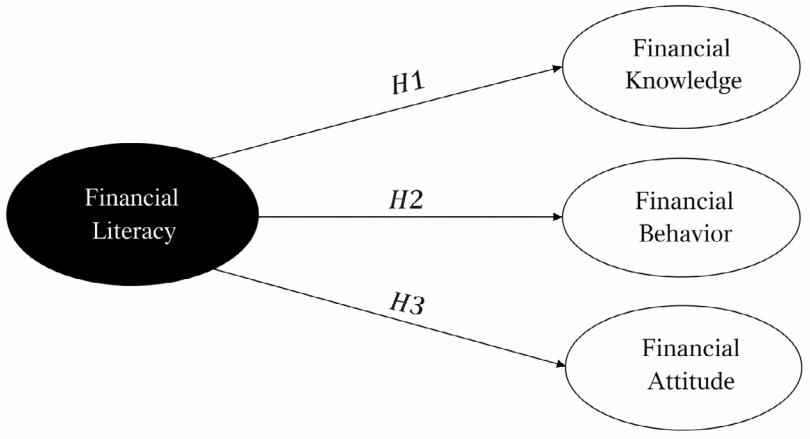
Financial behavior encompasses individual actions essential to financial decision-making and the efficient, prudent management of personal finances (Yanto et al., 2021). Thus, financial behavior involves habits and routines that may result in positive or negative outcomes in personal financial management (Atkinson & Messy, 2012).

Financial behavior can be considered one of the most critical dimensions of financial literacy (OECD, 2013). Khalisharani, Johan, and Sabri (2022) argue that financial literacy and financial behavior are directly related, as the dissemination of financial literacy improves financial behavior.

Empirical evidence from studies such as Kaiser and Menkhoff (2017) and Robb and Woodyard (2011) supports a direct relationship between financial literacy and financial behavior. Similarly, Mandell and Klein (2009) highlight that financial behavior is positively influenced by financial literacy. Based on these arguments, the third research hypothesis is proposed: financial literacy is associated with financial behavior.

To analyze the relationships among the elements of financial literacy from the perspective of university students enrolled in business and economics programs, the study presents its initial theoretical framework (Figure 1).

Figure 1: Initial Theoretical Framework



Svource: Prepared by the authors (2022).

The framework aims to examine the relationship between financial literacy and its core elements: financial knowledge, financial attitude, and financial behavior.

3 METHODOLOGY

The study employs a descriptive research design and uses a survey as the methodological procedure. The survey method involves collecting data directly from respondents, typically through structured questionnaires, enabling the identification of opinions, characteristics, or behaviors of a given group. The research approach was characterized as quantitative (Raupp & Beuren, 2006).

The study population comprised university students enrolled in Business programs (Administration and Accounting) and Economics, a group still underexplored in this research domain (Horobet et al., 2020). The minimum sample size was determined according to the criterion proposed by Hair Jr., Anderson, Tatham, and Black (1998), which recommends between 5 and 10 respondents per study variable. The final sample, non-probabilistic and selected by accessibility, was obtained after data purification and the exclusion of questionnaires identified as outliers (Hair Jr. et al., 2014). Outliers were identified and removed using the Z-score test, which measures the number of standard deviations above or below the population mean (Altman, Danovi, & Falini, 2015).

The final sample consisted of 508 university students enrolled in Business (Administration and Accounting) and Economics programs, exceeding the established criteria, with a ratio of 23.09 respondents per variable.

The predominant sample profile was male (51%), aged 21-25 years (45.9%), single (81.9%), and living with their parents (65.2%). Regarding employment status, most respondents (38.6%) were formally employed under the Brazilian labor regime, earning between two and four minimum wages (53.9%). Most students (51.2%) reported having studied personal finance, and were enrolled in Administration (49.6%), Accounting (43.9%), and Economics (6.5%).

The research instrument consisted of a structured questionnaire with 22 items, measured using a five-point Likert scale ranging from “Strongly Disagree” (1) to “Strongly Agree” (5). The questionnaires were printed and administered in person to students from four higher education institutions in a city located in Northeastern Brazil. The instrument was adapted from Louw, Fouché, and Oberholzer (2013) and Banthia and Dey (2021) and validated for the context of university students in business and economics programs. It was also subjected to translation procedures, expert evaluation, and pre-testing. Table 1 presents the validated research instrument for this context.

Table 1: Research Instrument

Theme	Item	Statements	Theoretical Background
Financial Literacy (FL)	V1	Two investments, namely A and B, have the same level of risk. A has a higher return than B. Therefore, B is the preferred investment choice.	Louw, Fouché & Oberholzer (2013)
	V2	A budget is a monetary expression of your financial priorities.	
	V3	Incurring debt is not advisable, as it may compromise long-term income.	
Financial Knowledge (FK)	V4	I am confident in performing basic numerical calculations without errors.	Banthia & Dey (2020)
	V5	I am confident in calculating simple interest.	
	V6	I am familiar with compound interest calculations.	
Financial Attitude (FA)	V7	I always keep myself informed about financial planning.	Banthia & Dey (2021)
	V8	I know different financial products.	
	V9	I keep myself informed about different investment options.	
	V10	I always stay informed about the stock market.	
	V11	I am confident in managing my financial matters.	
	V12	I clearly understand the role of agents in investment processes.	
Financial Behavior (FB)	V13	I can pay my bills on time.	Banthia & Dey (2021)
	V14	I keep records of all my financial activities.	
	V15	I tend to assess my financial capacity before making purchases.	
Respondent Characteristics	V16	Gender	Developed by the authors
	V17	Age	
	V18	Marital Status	
	V19	Residence	
	V20	Employment Status	
	V21	Have you studied personal finance?	
	V22	Income	

Source: Prepared by the authors (2022).

For the data analysis stage, the Statistical Package for the Social Sciences (SPSS) software (Byrne, 2010), version 21, was used. The data were analyzed using descriptive statistics, analysis of variance (ANOVA), factor analysis, and multiple linear regression, as detailed in the results and discussion section.

4 RESULTS AND DISCUSSION

4.1 Descriptive Statistics and Analysis of Variance (ANOVA)

To present the statistical data on the constructs of financial literacy, financial knowledge, financial attitude, and financial behavior, as well as their respective variables, Table 2 reports the mean values for each construct and variable.

Table 2: Mean Values of Constructs and Research Variables

Factor	Mean	Variable	Mean
Financial Literacy (FL)	3.34	V1	2.29
		V2	3.68
		V3	4.06
Financial Knowledge (FK)	3.43	V4	3.58
		V5	3.33
		V6	3.38
		V7	3.49
Financial Attitude (FA)	3.12	V8	3.21
		V9	3.02
		V10	2.66
		V11	3.31
		V12	3.06
Financial Behavior (FB)	3.91	V13	4.13
		V14	3.50
		V15	4.12

Source: Prepared by the authors (2022).

The results indicate that the construct with the highest mean was financial behavior, with an average of 3.91, followed by financial knowledge, financial literacy, and financial attitude. The mean values of the constructs were considered adequate, as they were all above 3 on a five-point scale, suggesting that financial literacy and its elements achieved satisfactory levels within the research sample. These findings are consistent with the OECD (2013), which states that financial behavior is the most relevant dimension of financial literacy and thus the most prominent factor. At the variable level, item V13 exhibited the highest mean (4.13).

This item corresponds to the statement related to paying bills on time, indicating efficient and prudent financial management among respondents. According to Yanto et al. (2021), this element is associated with financial behavior and is considered essential to financial decision-making.

Subsequently, the findings related to the analysis of variance (ANOVA) are presented, beginning with gender, marital status, and income (Table 3).

Table 3: Analysis of Variance (ANOVA) Test by Gender, Marital Status, and Income

Variables (Respondent Characteristics)	Factors	Sum of Squares	Mean Square	F	Sig.
Gender	FL	3.932	3.932	7.506	0.006
	FK	19.312	19.312	24.614	0.000
	FA	11.404	11.404	17.733	0.000
	FB	0.803	0.803	1.195	0.275
Marital Status	FL	0.484	0.242	0.455	0.634
	FK	3.798	1.899	2.325	0.099
	FA	5.133	2.567	3.908	0.021
	FB	0.959	0.479	0.712	0.491
Income	FL	6.577	1.644	3.152	0.014
	FK	13.766	3.441	4.300	0.002
	FA	19.355	4.839	7.667	0.000
	FB	5.483	1.371	2.056	0.085

Source: Prepared by the authors (2022).

The analysis of variance (ANOVA) was conducted to compare mean differences across distinct groups of respondents (Pestana & Gageiro, 2008), considering a significance level of $p < 0.05$. The variables age and type of residence did not present statistically significant differences across any of the analyzed constructs; therefore, their results were omitted. Similarly, marital status did not affect university students' responses.

However, significant differences were observed in relation to gender and income within the constructs of financial knowledge and financial attitude. Specifically, male respondents exhibited higher mean scores on these constructs, consistent with prior studies that have identified gender disparities in financial literacy.

Likewise, respondents with higher income levels reported greater financial knowledge and more favorable financial attitudes, suggesting that economic conditions facilitate greater exposure to and familiarity with financial concepts. These differences indicate that the development of financial literacy may be influenced by both sociodemographic factors and access to resources, reinforcing the need for more targeted educational interventions.

Following these analyses, additional ANOVA tests were conducted for the variables prior knowledge of personal finance, employment status, and field of study (Table 4).

Table 4: Analysis of Variance Test by Personal Finance Knowledge, Employment Status, and Field of Study

Variables (Respondent Characteristics)	Factors	Sum of Squares	Mean Square	F	Sig.
Personal Finance Knowledge	FL	1.149	1.149	2.171	0.141
	FK	31.685	31.685	41.683	0.000
	FA	52.665	52.665	93.779	0.000
	FB	13.667	13.667	21.140	0.000
Employment Status	FL	4.195	1.049	1.993	0.094
	FK	6.971	1.743	2.142	0.075
	FA	14.389	3.597	5.612	0.000
	FB	2.706	0.676	1.006	0.404
Field of Study	FL	2.799	1.399	2.655	0.071
	FK	21.823	10.911	13.968	0.000
	FA	14.697	7.348	11.520	0.000
	FB	0.883	0.442	0.656	0.519

Source: Prepared by the authors (2022).

Among the variables analyzed, knowledge of personal finance was statistically significant across the constructs of financial knowledge, financial attitude, and financial behavior, thereby emerging as a key distinguishing factor in university students' responses. Employment status showed a significant difference only regarding financial attitude. The field of study, in turn, showed significant differences in financial knowledge and attitudes.

The findings related to knowledge of personal finance are consistent with the perspective of Lusardi, Mitchell, and Curto (2010), who emphasize that this type of knowledge is essential for both individuals and society as a whole, as it provides a foundation for addressing a wide range of financial issues.

4.2 Exploratory and Confirmatory Factor Analysis

To validate the research instrument within the study sample, an Exploratory Factor Analysis (EFA) was conducted. This technique aims to identify the underlying structure of a data matrix by determining the number of factors and the grouping of variables (Brown, 2006).

To assess the adequacy of the sample for EFA, the Kaiser-Meyer-Olkin (KMO) measure and Bartlett's test of sphericity were calculated, as recommended by Hair Jr. et al. (2010) and Marôco (2010), as presented in Table 5.

Table 5: Kaiser–Meyer–Olkin (KMO) Measure and Bartlett's Test of Sphericity

Test	Statistic	Value
Kaiser–Meyer–Olkin (KMO) Measure of Sampling Adequacy	—	0.816
Bartlett's Test of Sphericity	Approx. Chi-Square	2199.833
	—	3314.867
	df	105
	—	406
	Sig.	0.000
	—	0.000

Source: Prepared by the authors (2022).

Based on the rotation and the results of the applied tests, the consistency of the observed variables was confirmed, indicating the adequacy of the sample for factor analysis, as evidenced by comparisons of the test results with the parameters established by Hair et al. (2010). Furthermore, according to Kaiser and Rice (1974), the KMO coefficient is considered excellent when it ranges from 0.80 to 0.90.

Data normality was assessed using the Shapiro–Wilk and Kolmogorov–Smirnov (Lilliefors) tests (Lilliefors, 1967; Shapiro & Wilk, 1965). To evaluate the reliability of the research instrument, Cronbach's alpha was calculated, a measure commonly used for this purpose (Bland & Altman, 1997). The results indicated satisfactory reliability in representing the factors as the study's latent variables, with a coefficient of 0.845; values closer to 1 indicate higher reliability (Hair Jr. et al., 2005).

The data also demonstrated adequacy in terms of covariance, anti-image correlation, and communalities (Hair Jr. et al., 2010; Fávero et al., 2009). In accordance with Marôco (2010), the total variance explained was assessed using the principal component extraction method, yielding four components (factors) with a cumulative variance of 58.13%, which is considered acceptable for the applied social sciences (Hair et al., 2010).

Subsequently, EFA rotation was performed using the principal component extraction method and the Varimax rotation method with Kaiser normalization (Table 6).

Table 6: Factor Grouping and Factor Loadings by Variable (EFA)

Factor	Variables	Factor Loading
Financial Literacy (FL)	V1	0.717
	V2	0.715
	V3	0.450
Financial Knowledge (FK)	V4	0.811
	V5	0.854
	V6	0.722
Financial Attitude (FA)	V7	0.668
	V8	0.747
	V9	0.851
	V10	0.853
	V11	0.631
	V12	0.689
Financial Behavior (FB)	V13	0.662
	V14	0.682
	V15	0.795

Source: Prepared by the authors (2022).

The factor loadings of each variable were examined, adopting a minimum acceptable threshold of 0.400, as recommended by Figueiredo Filho and Silva Júnior (2010).

To statistically validate the observed variables that compose the research instrument, a Confirmatory Factor Analysis (CFA) was conducted to confirm the study's variables and factors (Dancey & Reidy, 2019). For the confirmatory analysis, the results were presented separately for each block (factor) that constitutes the research instrument (Table 7).

Table 7: Kaiser–Meyer–Olkin (KMO) Measure and Bartlett's Test of Sphericity (Intra-block)

KMO and Bartlett's Test	Factor 1	Factor 2	Factor 3	Factor 4
Kaiser–Meyer–Olkin (KMO) Measure of Sampling Adequacy	0.546	0.851	0.638	0.583
Bartlett's Test of Sphericity				
Approx. Chi-Square	25.095	1272.806	459.527	156.140
df	3	15	3	3
Sig.	0.000	0.000	0.000	0.000

Source: Prepared by the authors (2022).

Based on the reported findings, it can be concluded that the indicators are statistically satisfactory in terms of variable consistency and the adequacy of the factor analysis technique, in accordance with the parameters established by Hair et al. (2010).

Accordingly, Table 8 presents the factor groupings and loadings for each variable from the Confirmatory Factor Analysis (CFA).

Table 8: Factor Grouping and Factor Loadings by Variable (CFA)

Factor	Variables	Factor Loading
Financial Literacy (FL)	V1	0.674
	V2	0.708
	V3	0.549
Financial Knowledge (FK)	V4	0.787
	V5	0.896
	V6	0.806
	V7	0.731
Financial Attitude (FA)	V8	0.763
	V9	0.845
	V10	0.812
	V11	0.718
	V12	0.715
Financial Behavior (FB)	V13	0.686
	V14	0.700
	V15	0.822

Source: Prepared by the authors (2022).

By grouping factors and their loadings, it was confirmed that the clustering of variables supported the conceptual framework established in the literature. Specifically, the constructs of financial knowledge, financial attitude, and financial behavior, as defined by Banthia and Dey (2021), as well as the financial literacy construct highlighted by Louw, Fouché, and Oberholzer (2013), were validated among university students enrolled in business and economics programs.

4.3 Multiple Linear Regression (MLR)

To examine the relationships among the study variables, multiple linear regression was performed, a technique applied when the dependent variable is influenced by one or more independent variables (Downing, 2011). Accordingly, financial knowledge, financial attitude, and financial behavior were considered independent variables, while financial literacy was the dependent variable.

$$Y=\beta 1x1+\beta 2x2+\cdots+\beta 5x5+\beta 0$$

To assess multicollinearity, the Pearson correlation matrix was generated. According to Wooldridge (2006), this test aims to identify correlations among variables exceeding 0.80. The results indicated that no multicollinearity was present among the study variables.

Subsequently, the results obtained from the multiple linear regression analysis of the research hypotheses are presented (Table 9).

Table 9: Multiple Linear Regression Analysis of Research Hypotheses

Independent Variable	Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
Financial Knowledge	1	0.104[a]	0.011	0.009	0.70058
Financial Attitude	1	0.010[a]	0.000	-0.002	0.70438
Financial Behavior	1	0.027[a]	0.001	-0.001	0.70417

Source: Prepared by the authors (2022).

The first regression result examined the relationship between financial literacy and financial knowledge, yielding an R^2 value of 0.11. Although this value confirms the existence of a relationship between the variables, it indicates that the relationship is weak, as only 11% of the variance in financial literacy is explained by financial knowledge, which suggests that, while knowledge is a relevant component of financial literacy, it is not sufficient on its own to determine students' literacy levels. Other factors—possibly behavioral, socioeconomic, or educational—are likely to exert a more substantial influence. Therefore, beyond identifying the existence of a relationship, understanding its magnitude is essential, as it underscores that interventions focused solely on increasing financial knowledge may have a limited impact, reinforcing the need for broader, more integrated approaches to the development of financial literacy.

Subsequently, the results of the multiple linear regression analysis concerning the dependent variable, financial attitude, are presented, with an R^2 value of 0.00. This result indicates the absence of a relationship between financial literacy and financial attitudes, thereby rejecting the second research hypothesis. This finding contrasts with the existing literature, which emphasizes that financial literacy has a strong impact on financial attitude, with prior studies demonstrating that higher levels of financial literacy positively influence financial attitudes (Robb & Woodyard, 2011; Atkinson & Messy, 2012; Banthia & Dey, 2021). It can be inferred that this discrepancy may be associated with the study's target population—university students in business and economics programs—given the lack of empirical support for this hypothesis.

Continuing the analysis, the regression results examining the relationship between financial literacy and financial behavior indicated no significant relationship, as evidenced by an R^2 value of 0.001. This result leads to the rejection of the third research hypothesis, which proposed a direct relationship between financial literacy and financial behavior. This finding diverges from theoretical expectations, as studies such as Kaiser and Menkhoff (2017), Robb and Woodyard (2011), and Mandell and Klein (2009) have reported a direct relationship between financial literacy and financial behavior. However, this theoretical relationship was not supported by the empirical data of the present study.

To further identify relationships among the study constructs, additional linear regression analyses were conducted among the elements of financial literacy. The results highlighted a relationship between the dependent variable, financial attitude, and the independent variable, financial behavior, which emerged as the strongest among those tested, as presented in Table 10.

Table 10: Multiple Linear Regression Analysis of the Relationship Among Constructs

Dependent Variable	Independent Variable	Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
Financial Attitude	Financial Behavior	1	0.359[a]	0.129	0.127	0.84656

Source: Prepared by the authors (2022).

Based on the results presented in Table 10, the relationship between financial attitude (dependent variable) and financial behavior (independent variable) yielded an R^2 of 0.12, indicating that approximately 12% of the variance in financial attitude can be explained by respondents' financial behavior. Although this percentage indicates a moderate relationship, its statistical significance suggests a meaningful connection between the constructs. This finding suggests that students who adopt more organized financial practices—such as timely bill payment or systematic expense tracking—also tend to develop more favorable attitudes toward financial planning and the pursuit of investment-related information. This interpretation is consistent with Sorongan (2022), who argues that financial behavior plays a structuring role in the development of more mature financial perceptions and dispositions.

Furthermore, this result aligns with the theoretical model proposed by Onodugo et al. (2021), which demonstrates that financial attitudes do not emerge in isolation but are shaped by everyday habits and by how individuals interact with their financial environment. In this sense, financial behavior serves as a practical learning mechanism, reinforcing more prudent and strategic decision-making. It is important to note that, although the R^2 value is not high, this is common in studies involving psychological and behavioral constructs, where multiple external variables simultaneously influence outcomes. Nevertheless, the observed level of explanatory power underscores the relevance of educational interventions that integrate both behavioral and attitudinal aspects, as strengthening one construct tends to affect the other positively.

Finally, this finding helps address a gap in the national literature, which often analyzes financial literacy components in isolation. By demonstrating a significant relationship between financial behavior and financial attitude, the study shows that everyday financial management practices not only reflect financial literacy but also influence how individuals perceive, evaluate, and position themselves in economic decision-making. This understanding is consistent with Potrich, Vieira, and Kirch (2015), who argue that financial literacy results from a dynamic interaction among knowledge, attitudes, and behaviors, being continuously shaped by practical experience and the socioeconomic context. Therefore, the results reinforce the importance of educational policies that promote practical experience from the early stages of academic training, especially for students in business and economics programs, for whom these competencies are directly relevant.

To provide a clearer evaluation of the research hypotheses, Table 11 summarizes the statistically significant relationships, those that were rejected, and the explanatory power of each regression model. Accordingly, the table systematically presents the hypotheses, their respective results, and the analytical decisions based on empirical evidence.

Table 11: Summary of Research Hypotheses Results

Hypothesis	Description	Statistical Result	Interpretation	Decision
H1	Financial literacy is associated with financial knowledge.	$R = 0.104$; $R^2 = 0.011$	A relationship exists, but it is weak: only 1.1% of the variance in financial literacy is explained by financial knowledge.	Supported
H2	Financial literacy is associated with financial attitude.	$R = 0.010$; $R^2 = 0.000$	No significant relationship was found.	Rejected
H3	Financial literacy is associated with financial behavior.	$R = 0.027$; $R^2 = 0.001$	No significant relationship was found.	Rejected
H4 (Additional – ANOVA/Regression among constructs)	Financial behavior is associated with financial attitude.	$R = 0.359$; $R^2 = 0.129$	Moderate relationship: 12.9% of the variance in financial attitude is explained by financial behavior.	Supported

Source: Research data.

Based on the summary in the table, only the hypothesis linking financial literacy to financial knowledge was confirmed, albeit with low explanatory power. The hypotheses linking financial literacy to financial attitudes and behavior were not supported, suggesting that these elements, within the investigated context, may be influenced by additional variables not included in the model.

On the other hand, the significant relationship between financial behavior and financial attitude reinforces the understanding that daily practices and habits shape financial dispositions, as indicated by Sorongan (2022) and Onodugo et al. (2021). This finding is also consistent with the perspective of Potrich, Vieira, and Kirch (2015), who describe financial literacy as a multifactorial construct influenced by the dynamic interaction among knowledge, attitudes, and behaviors.

Thus, these results advance the theoretical understanding of the topic and point to relevant directions for future research aimed at more comprehensively understanding the determinants of financial literacy among university students.

5 FINAL REMARKS

Considering factors such as economic crises, financial instability, the increasing complexity of financial products, the expansion of financial technology, and other challenges inherent to personal financial decision-making, financial literacy has become indispensable for individuals, representing a key factor in reducing financial vulnerability. In this context, the present study focused on university students enrolled in Business (Administration and Accounting) and Economics programs, examining how financial literacy and its components may help young individuals anticipate risk-related behaviors and improve the efficiency of financial decision-making.

Accordingly, the study analyzed the relationships among the elements of financial literacy from the perspective of university students in business and economics programs, considering financial knowledge, financial attitude, and financial behavior as its core components.

Based on the results, the main research objective was achieved, as the relationships among the financial literacy elements were examined using the proposed hypotheses. The multiple linear regression analysis confirmed the first hypothesis—that financial literacy is associated with financial knowledge—while rejecting the second and third hypotheses, which proposed relationships between financial literacy and financial attitude, and between financial literacy and financial behavior, respectively. It is inferred that these results may be associated with the specific characteristics of the target population, namely students in business and economics programs, given the lack of empirical support for the latter hypotheses.

Regarding the specific objectives, these were also achieved. Initially, the variance in responses by respondents' characteristics was analyzed, revealing that age and type of residence did not show significant differences across any constructs, nor did marital status. In contrast, gender, income, and employment status showed significant variation in responses. Among the variables analyzed, knowledge of personal finance emerged as the most significant factor, presenting differences across the constructs of financial knowledge, financial attitude, and financial behavior.

Another relevant finding concerns the construct with the highest mean: financial behavior (mean = 3.91), followed by financial knowledge, financial literacy, and financial attitude. These mean values were considered adequate, as they exceeded 3 on a five-point scale, indicating that financial literacy and its elements achieved satisfactory levels within the sample.

Furthermore, the study successfully validated the research instrument through factor analysis, confirming its suitability for analyzing financial literacy elements among university students in business and economics programs.

Finally, the objective of identifying relationships among the elements of financial literacy was achieved through multiple linear regression, which revealed a significant relationship between financial attitude and financial behavior.

Despite the relevance of these findings, some limitations should be acknowledged. The sample was restricted to university students from business programs (Administration and Accounting) at four higher education institutions in a city in Northeastern Brazil, limiting the generalizability of the results.

Nevertheless, the study offers theoretical, practical, and social contributions. From a theoretical perspective, it advances discussions on financial literacy and promotes its dissemination as a key tool for individual well-being, while encouraging further research in a relatively underexplored sample. From a practical standpoint, the findings contribute to improving financial management practices, supporting more effective financial decision-making, and enhancing individuals' quality of life. From a social perspective, the study provides insights into developing strategies to promote financial literacy practices, thereby reducing financial vulnerability and the propensity to indebtedness.

Finally, future research directions include applying the research instrument to university students from other regions and academic fields, as well as employing alternative statistical techniques. Additionally, future studies may incorporate new elements of financial literacy, encompassing factors and dimensions not addressed in the present investigation.

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