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FINANCIAL KNOWLEDGE AND BEHAVIOR: A STUDY ON FINANCIAL LITERACY THROUGHOUT THE ACADEMIC TRAJECTORY OF UNIVERSITY STUDENTS

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ABSTRACT

This study examines the influence of academic trajectory on the financial literacy indicators of students at Faculdade Três Pontas (Fateps), exploring how progression across academic terms, exposure to formal instruction, and subjective factors relate to the development of financial competencies. The results were obtained through a quantitative, descriptive, and exploratory analysis conducted with a structured questionnaire adapted from the *Toolkit for Measuring Financial Literacy and Financial Inclusion* of the Organisation for Economic Co-operation and Development (OECD, 2022). The sample consisted of 230 students from five different academic programs and was analyzed using descriptive statistics, nonparametric tests (Kruskal-Wallis and Mann-Whitney), and post hoc tests. The average financial literacy score identified was 73 points, above the national average of 60 points, with the highest performances in the dimensions of attitudes (mean ranking of 78.20 percent) and behavior (74.68 percent). Despite achieving above-average results, the knowledge dimension revealed weaknesses (68.75 percent), particularly regarding the understanding of investments. The findings indicate that access to finance-related courses positively contributes to student performance, although it is not a determining factor for financial literacy indicators. This underscores the role of practical experiences and the socioeconomic environment in the educational process and provides valuable insights for the debate and improvement of more integrated public policies and educational strategies capable of fostering autonomy, critical awareness, and greater preparedness among young people for the economic challenges of adult life.

Keywords: Financial Literacy. Financial Education. Academic Trajectory.

Edited in Portuguese and English. Original version in Portuguese.

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1 INTRODUCTION

In recent years, the Brazilian population has gained increasingly broader access to the formal financial system. Banking digitalization, the emergence of new technologies, and the expansion of credit offerings have facilitated account opening, the use of electronic payment methods, and exposure to investments. According to the Central Bank of Brazil (2021) and the Brazilian Financial and Capital Markets Association (ANBIMA, 2020), this process has been accompanied by a significant increase in the number of individuals with active accounts and engaged with financial products. At the same time, the National Strategy for Financial Education (ENEF) has promoted initiatives aimed primarily at school communities and the economically active population, seeking to expand access to information and encourage more informed decision-making (Brazilian Federation of Financial Education, FBEF, 2021).

Despite these advances, studies show that easier access to financial services does not necessarily result from greater autonomy or understanding regarding money management. The *OECD/INFE 2023 International Survey of Adult Financial Literacy* reports that Brazil has an average financial literacy score of 60 points, below both the OECD country average of 63 points and the recommended benchmark of 70 points. The greatest difficulties are related to understanding interest rates, risk, and the selection of financial products (Organisation for Economic Co-operation and Development, OECD, 2023). These findings demonstrate that financial inclusion, while necessary, is not sufficient to guarantee consistent behaviors and sustainable decisions throughout life (Lusardi and Mitchell, 2011, 2014).

Given this reality, the promotion of financial resilience has gained prominence, understood as the capacity to maintain budgetary balance, cope with economic shocks, and recover financially from unexpected events (Kempson and Poppe, 2018; Cruz et al., 2023). Individuals with higher resilience are able to save, plan expenses, use credit responsibly, and avoid excessive indebtedness. The absence of these skills, combined with facilitated access, may increase financial vulnerability, especially in contexts marked by social inequality (OECD, 2020).

In this context, financial literacy is recognized as an essential instrument for building more conscious and sustainable behaviors and is considered by Lusardi and Mitchell (2014) as a form of human capital with a direct impact on individuals' well-being and economic security. However, several studies suggest that pedagogical strategies focused exclusively on the transmission of technical knowledge have limited effectiveness, particularly when they overlook the behavioral, contextual, and emotional aspects that influence financial decision-making (Campara, 2020; Faveri and Knupp, 2018).

Aligned with this perspective, the OECD (2022) proposes a conceptual model structured around three dimensions that constitute financial literacy: knowledge, behavior, and attitudes. Knowledge refers to the understanding of basic and intermediate financial concepts. Behavior relates to daily financial management practices, such as organizing expenses and building savings. Attitudes encompass aspects such as self-confidence, risk aversion, and long-term orientation. Studies indicate that the main challenge lies in transforming knowledge into practical behavior (Campara, 2020; Cruz et al., 2023).

The field of investments exemplifies this. Even with greater access to information, many Brazilians demonstrate insecurity or lack of interest in the subject, which leads to conservative choices or reluctance to engage with the market (ANBIMA, 2020; Faveri and Knupp, 2018). The behavioral finance literature supports this observation by highlighting that biases such as loss aversion, overconfidence, and procrastination affect financial decision-making across all levels of schooling (Tversky & Kahneman, 1974; Thaler, 2017).

Even so, the notion remains widespread that maturity, everyday life experiences, increased income, and exposure to technical content contribute to the development of better financial competencies (Ponchio et al., 2020). In this context, the present study sought to address this gap

by investigating the financial literacy levels of students at Faculdade Três Pontas (Fateps), with a focus on exposure to finance-related courses and the impact of academic trajectory.

2 THEORETICAL FRAMEWORK

2.1 Financial Literacy

Financial literacy has been widely researched and recognized as one of the pillars of sustainable economic development and financial citizenship (Lusardi and Mitchell, 2011; OECD, 2020). The OECD (2022) proposes a multidimensional approach composed of three main components: knowledge, behavior, and attitudes. This structure enables financial literacy to be understood beyond cognitive ability, incorporating practical skills and subjective elements that directly influence decision-making.

Financial knowledge, understood primarily as conceptual mastery, encompasses topics such as inflation, compound interest, risk, return, diversification, and the basic functioning of financial products and institutions (Ponchio et al., 2020). In the behavioral domain, everyday practices are assessed, such as personal budgeting, saving habits, and control over recurring expenses (Kempson and Poppe, 2018). Financial attitudes refer to an individual's willingness to make long-term commitments, demonstrate self-confidence, postpone immediate rewards, and seek information before making decisions. These three dimensions have been used as an international benchmark for measuring financial literacy among adults and young people (OECD, 2020; OECD/INFE, 2022).

Such a structure has been particularly useful for studies comparing different sociodemographic profiles and economic contexts, especially with regard to understanding their impacts as determinants of human development and their positive effects on economic decision-making (Lusardi, 2019). According to Lusardi and Mitchell (2014), individuals with higher levels of financial literacy tend to plan their finances more effectively, avoid excessive debt, and achieve greater economic security. In this sense, financial literacy constitutes a long-term investment whose returns include greater resilience to economic shocks and an enhanced capacity to cope with uncertain contexts.

However, the development of these competencies is not limited to access to formal content. The literature indicates that academic exposure, although relevant, does not in itself guarantee the internalization of financially healthy behaviors and attitudes (Cruz et al., 2023). As Muller and Vaz-Curado (2019) point out, financial education requires more than technical knowledge; it demands contextualized pedagogical practices, active learning strategies, and the stimulation of critical thinking.

These findings reinforce the importance of knowledge as a formative stage but also highlight its limitations as an isolated factor. In light of this, the present study tested hypothesis **H1: that financial literacy indicators are higher in programs with greater access to courses related to finance**, as a way to examine the relationship between knowledge indicators and the institution's overall literacy indicators, as well as the parameters established by OECD (2023).

2.2 Economic Behavior and Financial Decision-Making

Behavioral finance provides essential foundations for understanding why technical knowledge alone does not necessarily lead to better financial choices. Amos Tversky and Daniel Kahneman, through prospect theory (1974), demonstrated that economic decisions are strongly influenced by cognitive biases such as loss aversion, overconfidence, inertia, and unrealistic optimism. Richard Thaler (2017), by proposing the concept of *nudge*, reinforces that the decision-making environment plays a decisive role, potentially inducing better or worse choices depending on how options are presented.

These contributions indicate that individuals' rationality is limited by emotional, social, and environmental factors. Therefore, understanding the financial behavior of a specific group requires considering variables such as self-control, impulsivity, beliefs, locus of control, and personality traits (Faveri and Knupp, 2018). These subjective characteristics directly influence attitudes such as delaying rewards, willingness to invest, and long-term planning.

This behavioral perspective also enables analysis of the role of formal education in the development of financial literacy. Although academic progression may suggest the development of stronger competencies, studies show that this effect depends on the educational context, the quality of exposure to financial topics, and the practical experience accumulated over time (Campara, 2020; Cruz et al., 2023). Conversely, previous studies (Ponchio et al., 2020; OECD, 2020) reveal that such relationships are neither linear nor guaranteed. Beyond curriculum design, elements such as maturity, family background, professional experience, and perceptions of well-being influence autonomy and confidence in economic decision-making.

Based on these principles, the study also tested hypothesis **H2: that financial literacy levels increase as students progress academically**. By incorporating behavioral dimensions into practical application, it becomes possible to broaden the understanding of both the limits and possibilities of university education. As noted by Faveri and Knupp (2018), the development of solid financial attitudes requires time, consistency, and support. In light of these considerations, this investigation sought to contribute to the understanding of potential factors that influence the consolidation of financial literacy within the university environment.

3 METHODOLOGICAL PROCEDURES

This study aimed to assess the levels of financial literacy among students at Faculdade Três Pontas (Fateps) and to analyze the potential impacts of academic trajectory, specifically through segmentation by academic program, term, and exposure to formal financial content, on the indicators of knowledge, behavior, and attitudes. Although all dimensions were evaluated according to the proposed framework (OECD, 2022), the analysis focuses on measuring the effects of formal education on the knowledge dimension, based on the hypothesis that academic exposure to financial content enhances technical mastery of the subject.

The research adopts a quantitative approach with a descriptive and exploratory design. This method was chosen due to its capacity to measure variables, compare groups, and test hypotheses using statistical criteria, thereby allowing for the identification of empirical patterns with greater precision and objectivity (Gil, 2019; Marconi and Lakatos, 2022). Although qualitative methodologies may deepen the understanding of subjective aspects of financial literacy, the quantitative approach proved more suitable for the proposed objectives, particularly because it enables comparative analysis across different programs and academic stages.

Data collection was carried out between August and September 2024 at the institution itself. The target population consisted of 330 students regularly enrolled in the second academic semester of 2024 across the programs in Business Administration, Accounting Sciences, Law, Physical Education, and Pedagogy. The sample size was calculated with a 99 percent confidence interval and a 5 percent margin of error, estimating 221 respondents approached randomly. In the end, 230 valid responses were obtained, as presented in Table 1.

Table 1
Distribution of respondents by academic program

Group	Population	Estimated sample	Respondents
Fateps	330	221	230
Business Administration	81	54	55
Accounting Sciences	38	25	27

Law	138	92	93
Physical Education	37	25	31
Pedagogy	36	24	24

Source: Prepared by the authors, 2024.

The sample was stratified in a nonproportional manner, meaning that participants were distributed across programs and academic terms without maintaining the exact proportion of enrolled students in each stratum, as shown in Table 2. Even so, a minimum number of respondents was proportionally defined for each program and term to ensure that all class groups were represented in the sample, although some groups exceeded the initially established number of responses. This strategy makes it possible to capture greater diversity among academic profiles and enables comparative analyses across different training groups (Gil, 2019).

Table 2

Distribution of students by program and academic term

	2nd term	4th term	6th term	8th term	10th term
Business Administration	19	12	16	8	0
Accounting Sciences	9	6	10	2	0
Law	26	22	16	9	18
Physical Education	10	21	0	0	0
Pedagogy	9	6	9	0	0

Source: Prepared by the authors, 2024.

In addition, an analysis of the pedagogical plans of the programs offered by the institution was conducted to identify which degrees provide students with courses related to financial topics. This stage made it possible to map formal exposure to financial content and was essential for supporting the interpretation of the results and verifying potential relationships between the academic curriculum and the financial literacy levels observed.

It was found that the programs in Business Administration and Accounting Sciences offer the greatest number of specialized courses, with a total of twelve disciplines related to the financial area. The Law program includes only one course on the subject, and the Pedagogy program includes three. The Physical Education program, in turn, does not offer any content that addresses financial aspects directly or indirectly.

The instrument used was a structured and internationally validated questionnaire based on the *Toolkit for Measuring Financial Literacy and Financial Inclusion* (OECD/INFE, 2022), approved by the Research Ethics Committee under protocol number CAAE: 82448824.1.0000.511. The original questionnaire contains twenty questions and adopts a binary scoring system in which answers are classified as correct or incorrect, with a maximum score of seven points for knowledge, nine for behavior, and four for attitudes.

For this study, the original instrument was translated and adapted to the target audience, maintaining the number and content of the questions but expanding the response options through the adoption of a five-point Likert scale, as shown in Table 3. Statements that reflected behaviors and attitudes aligned with financial literacy were scored progressively from 1 to 5 points, while those indicating less aligned postures received inverse scoring from 5 to 1. This adaptation required the reconfiguration of the instrument's total score, establishing a maximum of 40 points for the knowledge dimension, 40 for behavior, and 20 for attitudes, totaling 100 points (OECD/INFE, 2022).

Table 3
Correspondence values adopted for the Likert scale

Response option presented	Correspondence value
Strongly disagree	1
Partially disagree	2
Neither agree nor disagree	3
Partially agree	4
Strongly agree	5

Source: Prepared by the authors, 2024.

This methodological adjustment was adopted with the aim of obtaining more detailed data on respondents' financial perceptions and behaviors. Unlike the binary logic, which tends to restrict the variability of responses and penalize uncertainty with a score of zero, the Likert scale makes it possible to capture different degrees of understanding and attitudes, favoring more nuanced comparative analyses between groups and providing greater statistical sensitivity in the interpretations. This approach is widely recommended in studies involving behavioral aspects due to its ability to capture subjective nuances in an ordered manner (Martins and Theóphilo, 2009).

Data analysis was conducted based on the percentage of the score obtained in each dimension, which allowed for the standardization of results and comparison with the international indicators reported by the OECD. It is acknowledged, however, that this methodological adjustment prevents an exact equivalence with the data from the original survey. Even so, the use of percentage distribution was a deliberate strategy to reduce the structural effects of this difference and enable a more coherent comparative analysis between local data and international results (OECD/INFE, 2022).

Data were analyzed using Excel and SPSS. Descriptive analyses included frequency, mean, median, and standard deviation. Nonparametric tests were then applied, appropriate for ordinal variables, such as the data collected, and for non-normal distributions. The Kruskal-Wallis test was used to compare indicators among three or more groups; for comparisons between two groups, the Mann-Whitney U test was applied (Mann and Whitney, 1947; Kruskal and Wallis, 1952). When statistically significant differences were identified, the Dunn-Bonferroni post hoc test was performed to adjust p-values, minimizing the risk of Type I error and ensuring greater reliability of the conclusions (Dunn, 1964).

The selection of these techniques aligns with the objectives of the study, as it allows for the examination of associations between academic variables and financial literacy scores with analytical rigor. As methodological limitations, self-perception bias is acknowledged, given that the instrument is based on self-reporting, which may lead respondents to overestimate or underestimate their competencies (Ponchio et al., 2020). In addition, data collection occurred at a specific time in the semester, which may influence the degree of exposure to course content. Finally, it is noted that the results refer to a single institution, which limits the generalization of the findings, although the diversity of programs contributes to the internal validity of the analysis.

4 RESULTS AND DISCUSSION

4.1 Descriptive analyses

The descriptive analysis of the data used as a comparative basis the results of the *OECD/INFE 2023 International Survey of Adult Financial Literacy* (Organisation for Economic Co-operation and Development, OECD, 2023), an international study in which the original assessment instrument adapted for this research was applied. The survey was conducted in thirty-nine countries, including twenty OECD member nations and eight G20 countries, a group that

comprises the world's largest economies and plays a significant role in coordinating international economic policies.

In Brazil, the sample from the original OECD study consisted of 2,000 individuals interviewed between March and April 2023. The findings indicated an overall financial literacy average of 60 points, a value lower than both the average of the evaluated countries (63 points) and the ideal benchmark established by the OECD (70 points). When segmented by dimension, Brazilian respondents achieved an average of 53 percent in knowledge, 68 percent in behavior, and 53 percent in attitudes (OECD, 2023). Although the methodological differences adopted in this research prevent a fully equivalent comparison, these data were used as an interpretative reference, allowing the results of the Fateps students to be contextualized.

In the institutional context analyzed, the results indicated an overall average financial literacy score of 73 points, higher than the national average reported by the OECD (2023). When segmented across the three evaluated dimensions, the average performance was 68.75 percent in knowledge, 74.68 percent in behavior, and 78.20 percent in attitudes, as presented in Table 4.

Table 4

Financial literacy level at Fateps

Knowledge	**Mean**	**Median**	**Mode**
Personal finance is a complicated subject for me	3.05	3	3
I feel comfortable managing my finances	4.05	4	5
I am able to adjust my expenses to my income	3.82	4	5
I make a plan to manage my income and expenses	3.32	4	4
I try to reduce my expenses to keep my budget balanced	3.85	4	5
Before buying something. I carefully assess whether I can afford it	4.03	5	5
When I think about investing, I always have doubts	2.15	2	1
I am able to save or invest my money	3.23	3.5	4
Total possible score	40		
Score obtained	27.50		
Percentage of achievement	**68.75%**		
Behavior	**Overall**		
I delay or fail to pay my bills	4.34	5	5
I seek loans whenever necessary to keep my bills up to date	4.33	5	5
I always think before buying something, and I consider myself a conscious consumer	3.37	4	4
I am able to save money regularly	3.05	3	4
I personally keep close track of my finances	4.44	5	5
I always think about my long-term financial situation	4.07	4	5
I usually save money for specific goals	3.79	4	5
Impulse buying takes a significant toll on my budget	2.48	2	1
Total possible score	40		
Score obtained	29.87		
Percentage of achievement	**74.68%**		
Attitude	**Overall**		
I tend to live for today and leave tomorrow for tomorrow	3.49	4	5
I prefer to pay interest rather than wait to buy something	3.64	4	5
I do not worry about going into debt	4.57	5	5
I am afraid of spending more than I can	3.94	5	5
Total possible score	20		
Score obtained	15.64		
Percentage of achievement	**78.20%**		
Average literacy index	**Overall**		
Total possible score	100		
Score obtained	73.01		
Average financial literacy percentage at Fateps	**73.01%**		

Source: Prepared by the authors, 2024.

These data indicate that Fateps students demonstrate greater ease in the dimensions related to everyday financial practices and behavioral predispositions, while facing greater challenges in understanding theoretical foundations. This pattern is consistent with the findings reported by the OECD (2023), which show lower performance in the knowledge dimension compared to the others.

The overall average of 73 points reinforces the tendency observed by the OECD (2023) that adults with higher education tend to exhibit higher levels of financial literacy than those with lower levels of schooling, highlighting the formative potential of the university environment. Also in line with the international study, young Brazilian adults show higher performance than older age groups, a trend reflected in the Fateps results, as most respondents are between 18 and 29 years old.

4.2 Hypothesis testing

The analysis of financial literacy indicators by program and academic term, focusing on the possible influences of access to formal education and academic progression, revealed that, with the exception of the sixth term of Accounting Sciences, all other groups showed their lowest performance in the knowledge dimension.

Regarding hypothesis H1, which proposed that financial literacy indicators would be higher in programs with greater access to finance-related courses, the results do not confirm this assumption. Although the programs in Business Administration and Accounting Sciences achieved the highest average performances in the knowledge dimension (71.46 percent and 71.27 percent, respectively), the Physical Education program recorded the second-highest overall performance, despite not including any finance-related courses in its curriculum.

Table 5
Analysis of knowledge, behavior, and attitude indicators by program

			Knowledge		Behavior		Attitudes	
Business Administration	2nd term	Mean	30.88	77.20%	32.21	80.53%	16.53	82.65%
	4th term	Mean	24.92	62.30%	28.17	70.43%	14.33	71.65%
	6th term	Mean	30.38	75.95%	30.82	77.05%	16.44	82.20%
	8th term	Mean	28.15	70.38%	31.91	79.78%	16.51	82.55%
Program total		**75.31%**	**28.58**	**71.46%**	**30.78**	**76.95%**	**15.95**	**79.76%**
Accounting Sciences	2nd term	Mean	28	70.00%	30.45	76.13%	15.22	76.10%
	4th term	Mean	23.83	59.58%	27	67.50%	13.49	67.45%
	6th term	Mean	30.7	76.75%	31	77.50%	15.2	76.00%
	8th term	Mean	31.5	78.75%	32	80.00%	18.5	92.50%
Program total		**74.22%**	**28.51**	**71.27%**	**30.11**	**75.28%**	**15.60**	**78.01%**
Law	2nd term	Mean	26.61	66.53%	30.03	75.08%	14.85	74.25%
	4th term	Mean	26.91	67.28%	28.91	72.28%	15.4	77.00%
	6th term	Mean	25.45	63.63%	27.89	69.73%	15.89	79.45%
	8th term	Mean	23.34	58.35%	26.78	66.95%	15.54	77.70%
	10th term	Mean	29.17	72.93%	31.33	78.33%	17.38	86.90%
Program total		**71.10%**	**26.30**	**65.74%**	**28.99**	**72.47%**	**15.81**	**79.06%**
Physical Education	2nd term	Mean	30.3	75.75%	32.6	81.50%	16.4	82.00%
	4th term	Mean	26.37	65.93%	29.13	72.83%	15.2	76.00%
Program total		**75.00%**	**28.34**	**70.84%**	**30.87**	**77.17%**	**15.80**	**79.00%**
Pedagogy	2nd term	Mean	24.45	61.13%	27.88	69.70%	15.33	76.65%
	4th term	Mean	25.32	63.30%	29.35	73.38%	14.84	74.20%
	6th term	Mean	28.78	71.95%	30.11	75.28%	15.11	75.55%

Program total	**70.39%**	**26.18**	**65.46%**	**29.11**	**72.79%**	**15.09**	**75.47%**
Total	**Mean**	**27.5**	**68.75%**	**29.87**	**74.68%**	**15.68**	**78.20%**

Source: Prepared by the authors, 2025.

This result suggests that although formal education has a positive influence on conceptual mastery, as argued by Annamaria Lusardi and Olivia Mitchell (2014), it is not the only determining factor of financial literacy levels. Other elements, such as individual experiences, family environment, and prior knowledge, may play a significant role in the development of these competencies (Campara, 2020).

When testing hypothesis H2, which stated that financial literacy levels increase as students progress academically, the results presented in Table 6 indicate that the hypothesis could not be confirmed. Although a positive progression was observed in several of the analyzed academic terms, this advancement did not remain linear or consistent throughout the entire trajectory. Furthermore, the limited availability of class cohorts in some programs, due to the fact that certain degrees are relatively new at the institution, hindered the complete measurement of the academic trajectory in specific programs.

Table 6
Analysis of financial literacy indicators throughout the academic journey

Business Administration		**Accounting Sciences**		**Law**		**Physical Education**		**Pedagogy**		**Average total by academic term**
2º T.	79,62%	2º T.	73.67%	2º T.	71.49%	2º T.	79.30%	2º T.	67.66%	74.35%
4º T.	67.42%	4º T.	64.32%	4º T.	71.22%	4º T.	70.70%	4º T.	69.51%	68.63%
6º T	77.64%	6º T	76.90%	6º T	69.23%	6º T	-	6º T	74.00%	74.44%
8º T.	76.57%	8º T.	82.00%	8º T.	65.66%	8º T.	-	8º T.	-	74.74%
10º T.	-	10º T.	-	10º T.	77.88%	10º T.	-	10º T.	-	77.88%

Source: Prepared by the authors, 2025.

Even so, with the aim of identifying in which programs and at which stages of academic training students face the greatest difficulties, nonparametric statistical tests (Kruskal-Wallis and Mann-Whitney U) were applied to all variables in the instrument. These analyses made it possible to identify significant patterns of variation among groups and to map the most critical stages in the development of financial literacy competencies.

4.3 Nonparametric tests

For the group-based investigation, nonparametric statistical tests were applied, as these are recommended when data do not follow a normal distribution or are derived from ordinal scales, such as the Likert scale used in this study (Pestana & Gageiro, 2014).

These tests allow for robust comparisons between independent groups, even when sample sizes are small or distributions are asymmetric. In the context of this study, they were essential for assessing whether the differences observed between programs and academic terms are statistically significant and may therefore be attributed to academic trajectory and exposure to formal instruction.

Two widely adopted tests were used in this type of analysis: the Kruskal-Wallis test and the Mann-Whitney U test. The Kruskal-Wallis test (Kruskal and Wallis, 1952), applied to programs with at least three active academic terms (Business Administration, Accounting Sciences, Law, and Pedagogy), assesses whether significant differences exist among stages of academic training. The Mann-Whitney U test (Mann and Whitney, 1947), recommended for

comparing two groups, was used for the Physical Education program, which included only students from the 2nd and 4th terms. Both tests compare medians and are suitable for data with non-normal distributions.

Rejection of the null hypothesis indicates that at least one group differs significantly from the others, which may signal effects of academic progression, formal exposure, and individual student experiences. All instrument variables were tested by program and term, although not all programs showed significant variations. The variables for which the null hypothesis was rejected are presented in Figure 1. These findings help identify specific moments along the university trajectory in which financial competencies advance or decline, enabling a more critical understanding of the effectiveness of academic training in this field.

Figure1

Results of the Kruskal-Wallis and Mann-Whitney tests

Business Administration			
Null hypothesis	Test	Sig.	Decision
The distribution of "I feel comfortable managing my finances" is the same across the academic term categories	Independent Samples Kruskal-Wallis Test	**0.039**	Reject the null hypothesis.
The distribution of "I make a plan to manage my income and expenses" is the same across the academic term categories	Independent Samples Kruskal-Wallis Test	**0.018**	Reject the null hypothesis.
The distribution of "Before buying something, I carefully assess whether I can afford it" is the same across the academic term categories	Independent Samples Kruskal-Wallis Test	**0.006**	Reject the null hypothesis.
The distribution of "I always think before buying something, and I consider myself a conscious consumer" is the same across the academic term categories	Independent Samples Kruskal-Wallis Test	**0.021**	Reject the null hypothesis.
The distribution of "I tend to live for today and leave tomorrow for tomorrow" is the same across the academic term categories	Independent Samples Kruskal-Wallis Test	**0.008**	Reject the null hypothesis.
Law			
Null hypothesis	Test	Sig.	Decision
The distribution of "Personal finance is a complicated subject for me" is the same across the academic term categories	Independent Samples Kruskal-Wallis Test	**0.028**	Reject the null hypothesis.
The distribution of "I tend to live for today and leave tomorrow for tomorrow" is the same across the academic term categories	Independent Samples Kruskal-Wallis Test	**0.045**	Reject the null hypothesis.
Physical Education			
Null hypothesis	Test	Sig.	Decision
The distribution of "I always think before buying something, and I consider myself a conscious consumer" is the same across the academic term categories	Independent Samples Mann-Whitney U Test	**0.39**	Reject the null hypothesis.

Source: Prepared by the authors, 2025.

The group-based analysis presented in Figure 1 showed that the Accounting Sciences and Pedagogy programs did not exhibit statistically significant differences between academic terms in any of the three financial literacy dimensions.

In the case of Accounting Sciences, this stability may be associated with early and continuous exposure to content related to financial management, which tends to promote a homogeneous consolidation of competencies throughout the degree. Although this performance is

positive, it may also indicate the presence of a "ceiling effect," in which academic progression does not yield further substantial gains. This scenario reinforces the importance of pedagogical strategies that stimulate progressive knowledge development over the course of the program (Biggs and Tang, 2011).

In the Pedagogy program, the absence of specific courses focused on financial education appears to result in a less structured learning process on the topic. As a consequence, literacy levels tend to remain stable throughout the degree, reflecting the limitations of curricular transversality in addressing gaps in economic competencies essential for the exercise of citizenship (Silva, 2017).

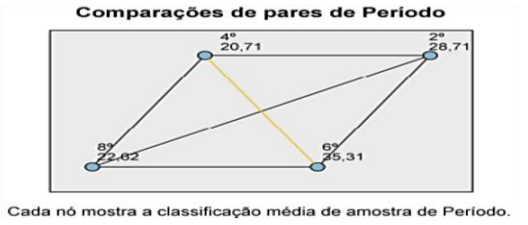
The literature indicates that in contexts with low formal exposure, the internalization of financial concepts depends more heavily on individual experiences than on institutional pedagogical mediation. This dynamic may amplify pre-existing inequalities, particularly among students with lower levels of financial or cultural capital (Lusardi and Mitchell, 2014).

The Business Administration program, in contrast, showed the largest number of statistically significant variations between academic terms, as illustrated in Figure 2. Differences were observed across all three financial literacy categories, indicating that in this group, academic progression more clearly influenced the analyzed indicators.

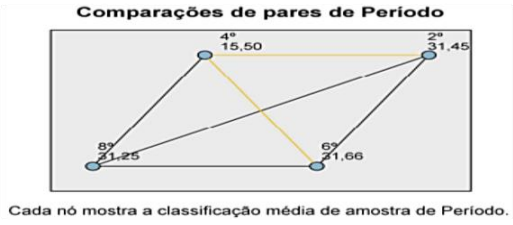
Figure 2

Results of the Dunn-Bonferroni post hoc tests for the Business Administration program

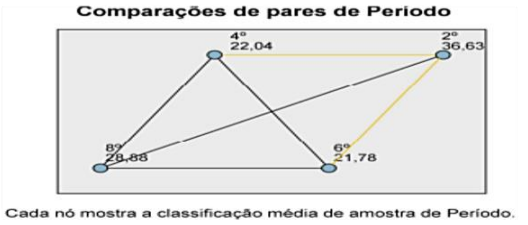
V02: "Me sinto à vontade ao administrar minhas finanças"



V04: "Faço um plano para gerenciar minhas receitas e despesas"



V06: "Antes de comprar algo, analiso cuidadosamente se posso pagar"



V011: "Sempre penso antes de comprar algo, me considero um consumidor consciente"

V17: "Tendo a viver o hoje e deixar o amanhã para amanhã"

Variável	Comparação por pares períodos	Estatística de Teste	Erro Padrão	Estatística de Teste Padrão	Sig.	Sig.Aj.
V02	4º-6º	-14,604	5,494	-2,658	0,008	0,047
V04	4º-2º	15,947	5,708	2,794	0,005	0,031
V04	4º-6º	-16,156	5,912	-2,733	0,006	0,038
V06	6º-2º	14,850	4,779	3,107	0,002	0,011
V06	4º-2º	14,59	5,194	2,809	0,005	0,030
V11	4º-2º	15,789	5,692	2,774	0,006	0,033
V17	4º-6º	-20,083	5,929	-3,388	0,001	0,004

Cada fileira testa a hipótese nula de que as distribuições da comparação por pares são a mesma. Significâncias assintóticas (teste de 2 lados) são exibidas. O nível de significância é 0,05.

Source: Prepared by the authors, 2025.

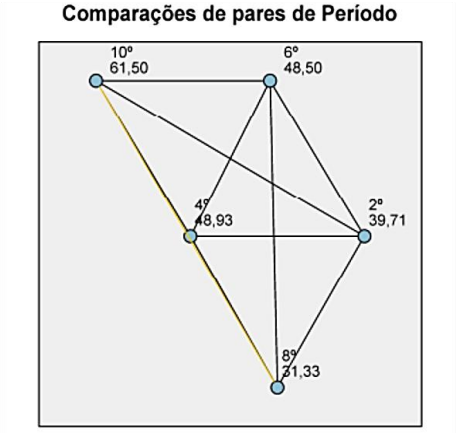
The application of the Dunn-Bonferroni post hoc test (1964) made it possible to identify that the main differences occurred between the 4th and 6th terms, suggesting an improvement in self-confidence and in the mastery of financial practices during this stage of the program. However, performance did not evolve linearly, and in certain terms the data indicated a decline in indicators related to financial planning and conscious consumption. Such oscillations may reflect the impact of new academic responsibilities, internships, or work experiences, which challenge individual financial management and influence financial behavior.

Furthermore, these fluctuations reinforce the notion that financial literacy is not only a cumulative and technical process but also a dynamic one, subject to emotional and contextual variables. As argued by Annamaria Lusardi and Peter Tufano (2015), even individuals with strong financial knowledge may experience insecurity when faced with external pressures, excess information, or changes in their economic reality.

In the Law program, as shown in Figure 3, the results indicated significant differences in two variables, suggesting changes in financial perception throughout the degree. Variable V01 showed a statistical difference between the 8th and 10th terms, with an increase in the perception of financial complexity in the final stages, possibly due to greater exposure to real-life challenges. Variable V17, in turn, indicated an intensification of this trend in the 10th term compared with the 2nd term. This context tends to heighten feelings of insecurity and postponement in financial decision-making, especially in phases of transition to the labor market (Lusardi & Mitchell, 2014; OECD, 2023).

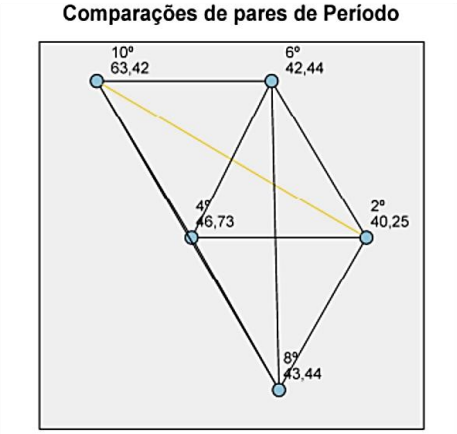
Figure 3
Results of the Dunn-Bonferroni post hoc tests for the Law program

V01: "Finanças pessoais é um assunto complicado para mim"



Cada nó mostra a classificação média de amostra de Período.

V17: "Tendo a viver o hoje e deixar o amanhã para amanhã"



Cada nó mostra a classificação média de amostra de Período.

Variável	Comparação por pares períodos	Estatística de Teste	Erro Padrão	Estatística de Teste Padrão	Sig.	Sig.Aj.
V01	8º-10º	-30,167	10,7	-2,819	0,005	0,048
V17	2º-10º	-23,167	7,929	-2,922	0,003	0,035

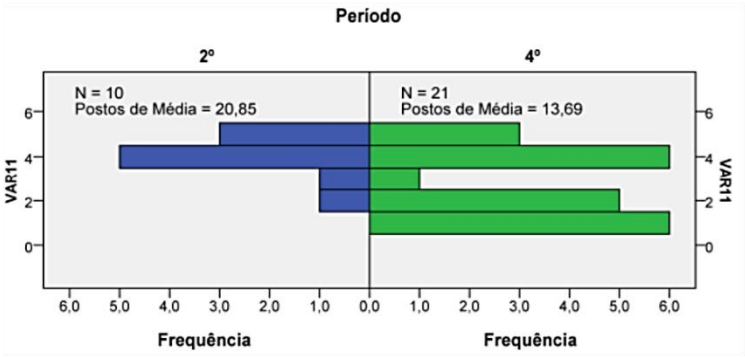
Cada fileira testa a hipótese nula de que as distribuições da comparação por pares são a mesma. Significâncias assintóticas (teste de 2 lados) são exibidas. O nível de significância é 0,05.

Source: Prepared by the authors, 2025.

Finally, Figure 4 presents the results of the Mann-Whitney test applied to the Physical Education program. A statistically significant difference was identified between the 2nd and 4th terms, indicating a change in attitudes toward conscious consumption over the course of the

program. This behavior is similar to what was observed in other programs and may reflect fluctuations in financial habits resulting from personal, academic, or economic changes.

Figure 4
Results of the Mann-Whitney tests for the Physical Education program



N total	31
Mann-Whitney U	56,500
Wilcoxon W	287,500
Estatística de teste	56,500
Modelo padrão	22,873
Estatística de Teste Padronizado	-2,120
Sig. assintótico (teste de 2 lados)	,034
Sig exata (teste de 2 lados)	,039

Source: Prepared by the authors, 2025.

Overall, the comparison tests across academic terms revealed that academic progression alone is not a determining factor in improving financial literacy indicators. The data suggest that there is no linear progression in the development of financial competencies. In some cases, students in more advanced stages showed lower performance, reinforcing the role of individual experiences, socioeconomic context, and prior behaviors as significant influences in the construction of financial literacy (Lusardi & Mitchell, 2014; Xia & Lusardi, 2014; OECD, 2023).

5 FINAL CONSIDERATIONS

The results of this study show that university students' financial literacy does not evolve linearly throughout their academic trajectory, nor is it conditioned solely by the presence of finance-related courses. Although programs such as Business Administration and Accounting Sciences displayed higher knowledge indicators, the strong performance of programs with little or no formal exposure to the topic, such as Physical Education, highlights the influence of factors external to institutional training, including personal experiences, socioeconomic context, and prior knowledge.

The hypothesis that academic advancement and exposure to formal content would guarantee greater technical mastery was not fully confirmed. Fluctuations in the results, including among more advanced academic terms, point to the need to revise teaching strategies and indicate

that formal education, when disconnected from applied practices and the promotion of autonomy, is limited in its capacity to transform knowledge into behavior.

In light of this, further investigation into the role of contextual and subjective variables in financial formation is recommended, particularly through longitudinal studies that follow students' trajectories and evaluate the impacts of specific pedagogical interventions. It is also relevant to explore mixed methodologies that combine quantitative and qualitative data, capable of capturing nuances of the educational process and the meanings individuals attribute to their financial decisions. Such approaches may contribute to the design of more effective and context-sensitive educational policies aimed at promoting greater economic equity.

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CONFLICT OF INTERESTS

The authors declare that there is no conflict of interest regarding this submitted work.

DATA AVAILABILITY

The dataset supporting the results of this study is not publicly available.

AUTHOR CONTRIBUTIONS

Roles	1st author	2nd author	3rd author	4th author
Conceptualization	♦	♦	♦	
Data Curation	♦	♦		♦
Formal Analysis	♦			♦
Funding Acquisition			♦	
Investigation	♦			♦
Methodology		♦		
Project Administration		♦		
Resources			♦	
Software				♦
Supervision		♦	♦	♦
Validation		♦	♦	♦
Visualization	♦			
Writing – Original Draft	♦			
Writing – Review and Editing		♦	♦	