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# RELATIONSHIP BETWEEN PERSONAL FINANCE AND CHARACTERISTICS OF ACCOUNTING UNIVERSITY STUDENTS

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## RELACIONAMENTO ENTRE FINANÇAS PESSOAIS E CARACTERÍSTICAS DOS ESTUDANTES DE CIÊNCIAS CONTÁBEIS

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**Miguel Angel Verdinelli (In memoriam)**

## ABSTRACT

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This research aimed to examine the associations between knowledge about personal finance and characteristics of Accounting Science students from a community college in the state of Santa Catarina, whose professional profile links the appropriate use of economic and financial resources. For this, we used an adaptation of Halpern's (2003) model, including financial education, credit management, and asset management dimensions. Data were collected through a questionnaire survey applied on-site with the students. In addition to the respondents' characteristics and personal finance questions, they were asked to assign a score to personal finance knowledge. The data were analyzed by factor analysis, ANOVA, and correlation analysis. Higher knowledge of financial education is associated with students who work compared to those who only study. Personal income is the characteristic that most influences the results. Students who have higher incomes, manage loans and financing better, reprising a better way to manage their debts and assets to get more appropriately. As for the correlations analyzed in the study, it confirms the positive and significant relationship between financial education, asset management and grade as well, but as a negative relationship with debt. The results corroborate the financial theories and empirical evidence.

**Keywords:** Financial Education. Credit management. Asset Management.

## RESUMO

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*Esta pesquisa teve como objetivo examinar as associações entre conhecimento sobre finanças pessoais e características de estudantes de Ciências Contábeis de um colégio comunitário no estado de Santa Catarina, cujo perfil profissional vincula o uso adequado de recursos econômicos e financeiros. Para isso, utilizamos uma adaptação do modelo de Halpern (2003), incluindo a educação financeira, a gestão de crédito e as dimensões de gerenciamento de ativos. Os dados foram coletados através de uma pesquisa de questionário aplicada em locais com os alunos. Além das características dos entrevistados e das questões relativas às finanças pessoais, foi solicitado que atribuisse uma pontuação ao conhecimento das finanças*

*peçoais. Os dados foram analisados por análise fatorial, ANOVA e análise de correlação. O maior conhecimento sobre educação financeira está associado a estudantes que trabalham em comparação com aqueles que só estudam. A renda pessoal é a característica que mais influencia os resultados. Estudantes que têm rendimentos mais altos, gerenciam melhor os empréstimos e o financiamento, repressão de uma maneira melhor de gerenciar suas dívidas e ativos para conseguir mais apropriadamente. Quanto às correlações analisadas no estudo, confirma a relação positiva e significativa entre a educação financeira, a gestão de ativos e a nota também, mas como uma relação negativa com a dívida. Os resultados corroboram as teorias financeiras e evidências empíricas.*

**Palavras-chave:** Educação financeira. Administração de crédito. Gestão de ativos.

## 1 INTRODUCTION

The topic of personal finance and debt has assumed a growing importance all over the world. In Brazil, due to the economic stability that began in the mid-1990 with the introduction of the Plano Real, there was a need to adapt to this new reality. After going through periods of high inflation, where the guard of purchasing power was just adopting a consumption behavior, it came to inflationary stability forcing changes in the way people manage their money.

Coupled with the increased credit supply of the Brazilian economic boom led people with little "financial literacy" (Financial Literacy) into debt. In turn, these indebted individuals, without money to meet their obligations, begin to manifest difficulties in personal, family and professional relationships (CERBASI, 2004), leading, in addition to economic problems, to the degree of social instability.

On the international scene, the financial and economic crisis started in 2008 in the United States, later spreading to the rest of the world, originated from loans to a specific segment of the population to finance real estate. The borrowers were citizens with low income, low education and low financial literacy, with no assets or securities for collateral loans (LUSARDI; TUFANO, 2009).

Although the basic understanding of financial literacy is related to a person's competence in money management, its definition has been formulated in various ways in the academic world (REMUND, 2010). Since the early twentieth century research in the United States existed in consumer education (JELLEY, 1958), but the complexity in managing financial matters in the last forty years, according to Greenspan (2003), has made the management of personal finances an important topic to be investigated today.

Personal financial management can be understood as the decision to define a strategy to be followed to maintain or accumulate assets and values that form the individual or family wealth (HALFELD, 2006). This strategy can be established in the short, medium, or long term, but always aiming at economic and financial stability. However, this presupposes conducting appropriate financial literacy.

After the 2008 crisis, the topic became valid and timely, and continues to be a concern for economists, financial market professionals, researchers in this area, and for governments. According to Lusardi and Mitchell (2007) it is increasingly important for households to acquire and manage economic expertise. However, as these authors point out, in practice there is widespread financial illiteracy. Thus, many households lack knowledge of basic economic concepts that would enable them to make sound economic and investment decisions.

In the professional sphere, in particular university graduates have the necessary technical training, but as has been proven in several studies (DANES; HIRA, 1987; VOLPE; CHEN; PAVLICKO, 1996; CHEN; VOLPE, 1998; AVARD et al., 2005; VOLPE; CHEN; LIU, 2006; MANDELL, 2008; ROBB; SHARPE, 2009). Students leave higher education without clearly knowing how finance works. Consequently, they do not understand investments, savings, retirement, pension, stock investment, and others (LANA et al., 2011).

In this context, the present research aims to analyze the associations between knowledge about personal finance and the characteristics of students attending accounting course, which specifically links the professional profile with the appropriate use of economic and financial resources. To this end, we used the model of Halpern (2003), applied to data from a survey conducted with students from the second to the eighth period of the course.

The empirical results are relevant and contribute to establish a diagnosis of the current situation of financial literacy at university, especially considering that students should have higher technical and professional knowledge for the subject. In addition, it is believed that the knowledge gained from institutional actions that can overcome the defects already mentioned in the works of Savoia, Saito and Santana (2007), Lana et al. can be planned (2011) and Lizote, Seamus and Lana (2012).

This study is structured in six sections, beginning with this introduction. The second section presents the theoretical framework of the paper, while the next section discusses the methodological procedures. Data and results are discussed in section 4, and next we present the conclusions and suggestions for future work. Finally, the last section contains the list of references cited.

## **2 THEORETICAL FRAMEWORKS**

In this section we try to define the theoretical framework that defined the study, starting from the conceptual evolution of financial education, then we describe Halpern's (2003) main reference model.

### **2.1 Financial Literacy**

As Kehiaian (2012) points out in his thesis, where he gave a brief history of the subject, financial education is a subject that has been working since the beginning of the last century. According to this author, Ellen Richards (KEHIAIAN 2012) wrote the first book discussing personal finance in 1905. However, the concept of financial education is more recent and has been defined in various ways.

According to Xu and Zia (2012), the term financial literacy can encompass different concepts. These include, for example, awareness and knowledge about finances, financial products, institutions, personal skills, money management skills, and financial planning. In practice, there is an overlap of these terms, even within the same text.

Some of the definitions include access to knowledge about the subject and its practical use (MOORE, 2003). Under this view, literacy presupposes the active application of knowledge, and to the extent that a person is more financially literate, he or she becomes more financially empowered. However, as Marcolin and Abraham (2006) emphasized, there is a need to develop research that relates to financial literacy behavior itself. In the authors' view, not all aspects of financial literacy are meaningful in determining good financial behavior and thus achieving successful operations and sustainability.

When reviewing the literature on the subject, one realizes that the same author, according to the work, uses or gives different definitions. For, as Lusardi and Tufano (2009) point out, the research topic often relates individuals' concepts of economics and finance to their financial decisions related to savings, retirement planning, and investment portfolio, a wide range to be covered by a unanimously accepted definition.

In Hung, Parker and Yoong (2009), the ways in which financial literacy has been defined include: i) a specific form of knowledge; ii) an ability to apply that knowledge; iii) a perceived knowledge; iv) having good financial behavior; and v) having financial experience. However, as Huston (2010) points out, the concept has been used as synonymous with financial education and financial literacy and furthermore argues that it does not fit, they are conceptually different things.

The author argues that two dimensions can be recognized for financial literacy. A relative knowledge or education that requires understanding and others related to application in managing

personal finances. This means that financial literacy is seen as the measure of how much an individual can understand and use information related to personal finance (HUSTON, 2010).

According to Huston (2010) the construct to be measured in four dimensions, namely: i) the value of money over time, purchasing power, financial statements; ii) borrowing, the future use of this resource through the use of revolving credit and installment loans. iii) investing or saving present resources for future use through savings accounts, stocks, bonds, mutual funds; and iv) asset protection through insurance products or other risk management activities.

Remund (2010) notes that several researchers have used the phrase to loosely describe the knowledge, confidence, motivation, and skills needed to effectively manage money skills. As a result, the existing literature provides a different conceptual definition and various operational settings. This author typifies the definitions found in his analysis into five categories: i) knowledge of financial concepts; ii) ability to communicate using these concepts; iii) ability to manage their personal finances; iv) ability to make appropriate financial decisions; and v) confidence in planning is effectively for future needs.

Based on five key concepts, Remund (2010, p 284) defined financial literacy as follows: financial literacy is a measure of the degree to which an individual understands key financial concepts and has the ability and confidence to manage, as appropriate, their personal finances through short- and long-term financial planning amidst the events that occur in their life and changing economic conditions.

However, being financially literate (having financial knowledge and the ability to apply it) does not mean that one has appropriate personal finance behavior. Several factors and conditions can influence financial behavior and financial well-being, as noted by Huston (2010).

## **2.2 Personal Finance Model**

The model suggested by Halpern (2003) treats personal finance in three main aspects: financial education, credit management and asset management, which we address below.

### **2.2.1 Financial Education**

Education involves individuals in a teaching and learning process and is better and deepens knowledge. Regarding financial education, Jacob, Hudson, and Bush (2000), explain that the term "education" implies knowledge of practices, rights, social norms, and attitudes necessary for understanding and functioning financial tasks. The term "financial" applies to a wide range of money-related activities in our daily lives: from controlling a bank account to managing a credit card; from making a monthly budget through taking out a loan; buying insurance or making an investment, among others.

Financial education is the way in which an individual seeks to acquire the knowledge necessary to manage finances consistently and make good decisions about them. The ability to properly manage income by making essential decisions regarding the use of available resources and aiming for today's events, but without thinking about the future. For Halfeld (2006), financial education is essential to help consumers plan and manage their income and guide them to save and invest.

Its importance, according to Frankenberg (1999), can be analyzed from several perspectives, among which are the most personal and consequences, ranging from the disorganization of household accounts to the inclusion of the name in systems such as the Credit Protection Service. Rocha (2009), who argues that inefficient money management leaves consumers vulnerable to serious financial crises, complements this statement. In the same perspective, Assaf Neto (2005) discusses market operations and competitive forces are compromised when consumers lack the skills to effectively manage their finances.

Thus, we highlight the value of financial education, understanding the intelligence to read and interpret numbers. That is, using information to organize financial planning to ensure a healthy and

balanced future consumption in personal finances. When such education is obtained and improved, individuals plan their future to add assets, have a satisfactory level of income, and know how to prepare budgets adjusted with their financial capabilities.

### **2.2.2 Credit Management**

The supply of credit in Brazil has increased greatly in recent years, allowing many Brazilians to realize their goals and dreams in a timelier manner. In addition, as Silva (2006) puts it, it is necessary that all this accelerated consumption becomes controlled, so that these purchases express a positive history for Brazil and do not increase indebtedness.

Thus, Securato (2002) points out that personal financial planning must be effective, because when the individual invests in assets, he can identify the best way to use his credits, thus not taking risks greater than his financial capacity and in the event of a crisis, he finds a way to stay in the market.

Non-financial life planning leads to wasteful spending and prevents the chance of obtaining savings or investments for a profitable personal life, which brings future guarantees. Cerbasi (2004) advises that before taking advantage of the credit opportunities that the market offers, it is essential to observe the cost-benefit relationship with the purchase that will be made and if there are still possibilities of obtaining a compatible product, but at a lower value or if the request is really useful.

The financial market has provided consumers with the opportunity to buy with payment terms in exaggerated ways, which can cause bad behavior. Always before making a purchase over time, especially if the payments are many, it is essential to prepare a plan, checking the availability of money for the discharge of each installment according to the month of delivery (HALFELD, 2006).

The role of credit is important for the growth of the country because the purchasing power increases generating more production and therefore more jobs. However, following Securato's (2002) guidelines, people must be aware before contracting a credit, in order not to compromise the family budget with several debts and interest rates.

### **2.2.3 Asset Management**

In a narrow sense, investment is the allocation of assets in cash or securities that can bring a higher return than initially invested. The financial income generated by the period in which the funds have remained invested compensates for the time in which these values have been paralyzed and unable to perform other transactions (GITMAN, 2001).

Investment can also be considered in the application of assets such as the purchase of vehicles, land, or real estate, but to bring the investor expectations of profit on the funds that have been spent on them. This would be a broader sense about investments, looking for ways to be profitable apparently by making the individual apply their resources to capture them with future earnings and thus make other investments.

For Frankenberg (1999), looking for investments that are profitable is a difficult task, especially if the investor makes insecurities. Depending on the situation, for example, the resources to be invested may be high, leaving the individual at risk due to the uncertain representation of the amount to be invested. On the other hand, not facing these risks can also lose the ability to allocate a resource that brings benefits.

Assaf Neto (2005) points out that an important task to be performed to occur with efficiency in the application of resources is the investment management. Claims management in an organized and balanced way, trying to make key decisions regarding the choice of an investment and achieve personal financial success.

Thus, to begin managing any investment, it is necessary for individuals to first organize their personal finances. Controlling debt and making a coherent plan should demonstrate the reality of their financial situation and their resources, those already committed to some available for spending and

investments. As Alfest (2004) guides, a crucial step is to make a clear definition of the objectives of the investments, or in another word, decide that all available resources will be applied.

It follows, therefore, that without such a definition, individuals may take unnecessary financial actions to the detriment of financial investments in health. Therefore, it is necessary to act rationally. To check what one prioritizes in one's personal life and follow exactly what was budgeted, while paying attention to new acquisitions outside the budget, so as not to alienate one's focus.

Along this line of thought, Halfeld (2006) argues that the best investment to be made is the one that does not involve the investor's financial health, bringing more peace to pursue his goals. It is essential to find out the degree of risk tolerance, since the higher the risk in general, the higher the profitability. According to Assaf Neto (2005), what the investor feels safe to allocate his resources characterizes the risk tolerance. And, in case of a crisis, not to bring significant losses.

Financial success, shows Costa (2004), lies in the correct management of personal finances. The individual who can effectively organize and plan his financial life is also able to make significant reserves, obtaining security in time of need and long-term sustainability. These same individuals also have the power and all the necessary instructions to seek good investments without debt to achieve what is desired. In this sense, the young person who thinks ahead and starts early to save disciplined part of their income will be able to achieve a comfortable life in the future, ensuring financial balance and success in their investments.

### 3 DATA AND METHODS

The data for this research (BABBIE, 2003) were obtained from 231 self-report questionnaires applied on-site to Accounting students at a community college in Santa Catarina. The instrument was divided into two blocks. The first to collect general data from the respondent, including the individual profile and the family profile. In the second block, composed of 22 statements to be answered on an agreement scale, the data for Halpern's (2003) model emerged. This part was supplemented with a self-assessment score that students gave for their knowledge of personal finance. This instrument was used in research by Lana et al. (2011) and Lizote et al. (2012).

All completed instruments were organized in an Excel® spreadsheet, in which data preprocessing was performed (HAIR Jr. et al., 2009). Three respondents were excluded from the database because the number of missing data exceeded the maximum set of three. After this first procedure, we identified 36 missing data, and only one student did not answer three questions, eight did not answer two, and seventeen answered only one question. Since the number of blank cells is very small with respect to the maximum allowed, and since it is not associated with any pattern, it was decided to fill the empty cells with the median value of the corresponding question. The outliers were evaluated by the Box Plots Statistic® software's graph function, using a factor of 1.5 deviations. In total, 65 outliers were detected, representing approximately 1.3% of the collected data. After verifying that they were distributed among the various respondents and items, we decided to keep them in the base. It was also found that there were no typos.

In order to assess the normality of the distribution of the variables, considering that the data came from a Likert scale, performed the calculations of skewness and kurtosis (HAIR Jr. et al., 2009). Finney and DiStefano (2006) report that the data for the second coefficient of skewness and kurtosis for 7 in the module can be considered almost normal. It was confirmed that no value exceeded these limits and as a result of the described procedures, the final base was composed of 228 questionnaires and 33 variables divided into 10 of the first block, the second 22 and the last in which the student assigned a score from 0-10 on their knowledge and management of their personal finances.

The statistical methods were exploratory factor analysis (EFA), analysis of variance (ANOVA) and correlation analysis. For them all assumptions of their use were evaluated (HAIR Jr. et al., 2009).

Before performing the factor analysis, we calculated Cronbach's alpha for each dimension or component of the construct in question and the correlation of the item with the total, according to the procedure suggested by Churchill Jr. (1979). We subsequently used the Kaiser, Meyer and Olkin test and Bartlett's test to confirm the feasibility of using the factor analysis test.

The AFE was used for principal component extraction, which does not require multinormal, and the factors were extracted according to the Kaiser criterion of correlation matrices. Further restrictions were employed that factor loadings were equal to or greater than 0.60 in magnitudes and greater than or equal to 0.4 in uniformity. The variance extracted by the factor in the case of one-dimensionality should be greater than or equal to 40%. In the AFC it was used as a criterion coefficient between the indicators and the dimension or construct considered greater than or equal to 0.5. From the factors obtained with the indicators that reached the minimum stipulated to be maintained were the factor scores generated for the respondents, which were used in the subsequent processing. ANOVAs were always performed in a univariate manner and therefore very robust to violations of normality and homoscedasticity (HARRIS, 1975).

#### **4 RESULTS AND DISCUSSION**

Through descriptive analysis, we present the profile of the undergraduate accounting students who responded to the survey instrument during the intensive courses taught in February 2014. In total, of the 228 cases considered valid, 43 students are 19 years old or younger; between 20 and 29 years old, 155 cases; 25 cases between 30 and 39 years old; and only 5 cases are over 40 years old. Regarding personal income, 11.40% receive up to BRL 1,000.00 (the exchange rate is about BRL 2.30 per dollar unit); 75.88% from BRL 1,000.00 and BRL 3,500.00; 6.58% above that; and 6.14% did not answer. With regard to training, 152 of the interviewees attended high school exclusively in public schools, 52 in private schools, and 10 had mixed training (14 did not answer this item).

The vast majority of the students, 94% of the respondents are working. Only 14 students engaged exclusively in higher education and 3 who left the question unfilled. The female respondents were 148, representing 64.91% of the total. As the course periods in which the students are enrolled: 2nd. were 5 cases; 3rd, 42 cases; 4th, 24 cases; 5th, 49 cases; 6th, 19 cases; 7th, of 54 cases; and 8th, 35 participants. Students still living with their parents are the majority, reaching 148 cases, as those living with their spouses are 43, 29 living alone, with family or friends 7 and only one item left blank. Finally, regarding family background, 46.9% of fathers and 52.6% of mothers had not completed high school and 14.5% of fathers and 13.5% of mothers had completed college. When asked about the average score they would give to their knowledge and management of their personal finances, 33 students left this question blank, but the average among the 195 who responded was 7.21 with a median and mode at 8.00 and a standard deviation of 1.72.

With the collected data on personal finance, the dimensions of financial education, credit management and asset management were calculated, since it used a Likert scale, the mean, standard deviation, skewness, and kurtosis effects to check if they are quasi-normal, since it cannot use normality tests. The results are shown in Table 1.

Table 1 - Mean values, standard deviations, skewness and kurtosis of the construct's financial education, credit management and asset management

	Mean	S.D.	skws	kts		Mean	S.D.	skws	kts		Mean	S.D.	skws	kts			
Financial Literacy	Q1	5,24	1,7304	-0,7943	-0,1987	Credit Management	Q9	3,12	2,7030	0,5870	-1,5584	Asset Management	Q17	2,25	2,1023	1,4592	0,6020
	Q2	5,31	1,6019	-0,6931	-0,3502		Q10	1,96	2,0161	1,8539	1,7641		Q18	2,27	2,0161	1,3797	0,4498
	Q3	5,79	1,5845	-1,3518	1,0657		Q11	5,78	1,5721	-1,3068	0,9641		Q19	3,84	2,0403	0,0523	-1,1226
	Q4	4,77	2,1308	-0,4839	-1,1591		Q12	1,93	1,8356	1,7986	1,7862		Q20	3,06	2,2235	0,6626	-1,0289
	Q5	5,10	1,5433	-0,4677	-0,5094		Q13	3,85	2,5822	0,0286	-1,7528		Q21	3,51	1,8189	0,2450	-0,8045
	Q6	3,98	1,8924	0,1066	-1,0772		Q14	4,56	2,7783	-0,3845	-1,7526		Q22	2,99	2,4013	0,6704	-1,2572
	Q7	4,68	1,8485	-0,3578	-0,9091		Q15	3,34	2,7296	0,4316	-1,6969						
	Q8	4,63	1,9091	-0,3794	-1,0176		Q16	4,61	2,6064	-0,4773	-1,5704						

Source: Research data.

Noting that the values of skewness and kurtosis do not exceed the maximum defined by Finney and DiStefano (2006) of, in absolute numbers, 2 and 7, respectively. It was confirmed that they could be considered normal. When evaluating the dimension of the averages, it can be seen that financial education for the overall average of eight questions is 4.94, higher than that calculated for credit management (3.64) and asset management (2.99). This indicates that students have greater difficulty with financial management, in relation to debt or the use of money.

Furthermore, to relate these dimensions to the students' characteristics, an exploratory factor analysis (EFA) was conducted in order to define the items that best reflect each of them. Initially, for each dimension, the possibility of performing factor analysis according to the Churchill Jr. (1979) proposal was confirmed. Cronbach's alpha values were calculated: 0.774 for financial education; 0.578 for credit management; and 0.693 for asset management. In turn, the item-total correlations were all above 0.3 for financial education and asset management while credit management for the 8 indicators only 3 exceeded this value, indicating that the size would not be represented by a single factor. Tests for Kaiser, Meyer and Olkin (KMO) and Bartlett's sphericity (BTS) showed that all three dimensions can be analyzed. The KMO values were 0.776, 0.577 and 0.698 for financial education, credit management and asset management, respectively, were always greater than the minimum value 0.5 suggested by Hair et al. (2009). The significance of the BTS in all three cases had p-values less than 0.001.

Given these results, we proceeded to perform the EFA, taking as minimum values the threshold values established in the methodological procedures. The results are shown in Table 2, where it can be seen that credit management, done after varimax rotation, presents three well-defined subdivisions. The first concerns loans and financing; the second with debts; and the last with the way of engaging the payments due.

Table 2 - Load factor for issues of constructs: a) financial education; b) credit management; and c) asset management. \* The factor loadings represent less than 0.30

a		Fator 1	b			Fator 1	Fator 2	Fator 3	c		Fator 1
Q3	-0,6813		Q9	0,9462	*	*		Q17	-0,6201		
Q4	-0,7089		Q10	*	0,7200	*		Q18	-0,6137		
Q5	-0,7352		Q11	*	-0,6841	*		Q19	-0,7444		
Q6	-0,6692		Q12	*	0,7353	*		Q20	-0,6630		
Q7	-0,7123		Q14	*	*	0,7634		Q21	-0,6596		
Var. Expl.	2,4626		Q15	0,9125	*	*		Var. Expl.	2,1900		
% Var.	49,25		Q16	*	*	0,8172		% Var.	43,80		
			Var. Expl.	1,8037	1,5422	1,3162					
			% Var.	25,77	22,03	18,80					

Source: Research data.



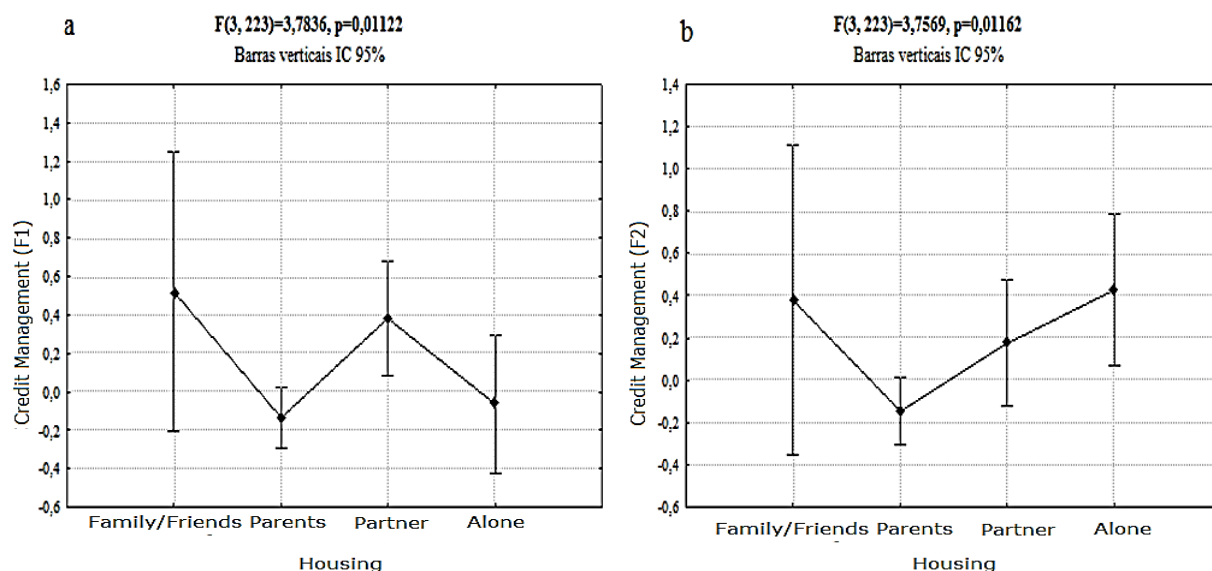
Once these results were obtained, the factor scores were generated for each factor extracted. Thus, each student has a standardized value for the three dimensions of personal finance, which is used to run ANOVAs fabricating as categorical predictors the sociodemographic data surveyed.

For the financial education dimension, only the fact that the student's work showed differences in contrast. Those who studied only showed a significantly lower mean. As for the credit management dimension, the subdivision concerning loans and financing, expressed by factor 1, showed differences in the simultaneous comparison for various student characteristics. Thus, for the retrospective comparison of age, done with the Tukey test for an unequal number of observations, it indicates that the 20-29 age group has a statistically higher score than students up to 19 years old. For the term, using the same test in paired comparisons, it appears that eighth-period students are distinguished by having a higher mean score than those who enrolled in the third term.

When it was used as a predictor of who the student lives with, differences were also observed in the paired comparison, this happening with the first and second factor scores, which reflects their debts. These results are shown in Figure 1, where it can be seen that students who live with their spouse and finance take out more loans than those who still live with their parents. The paired test confirms this fact by showing that the mean for the former is significantly higher than that calculated for students living with their parents. On the other hand, those who live alone differ on the second factor from those who live with their parents. In other words, they tend to incur more debt.

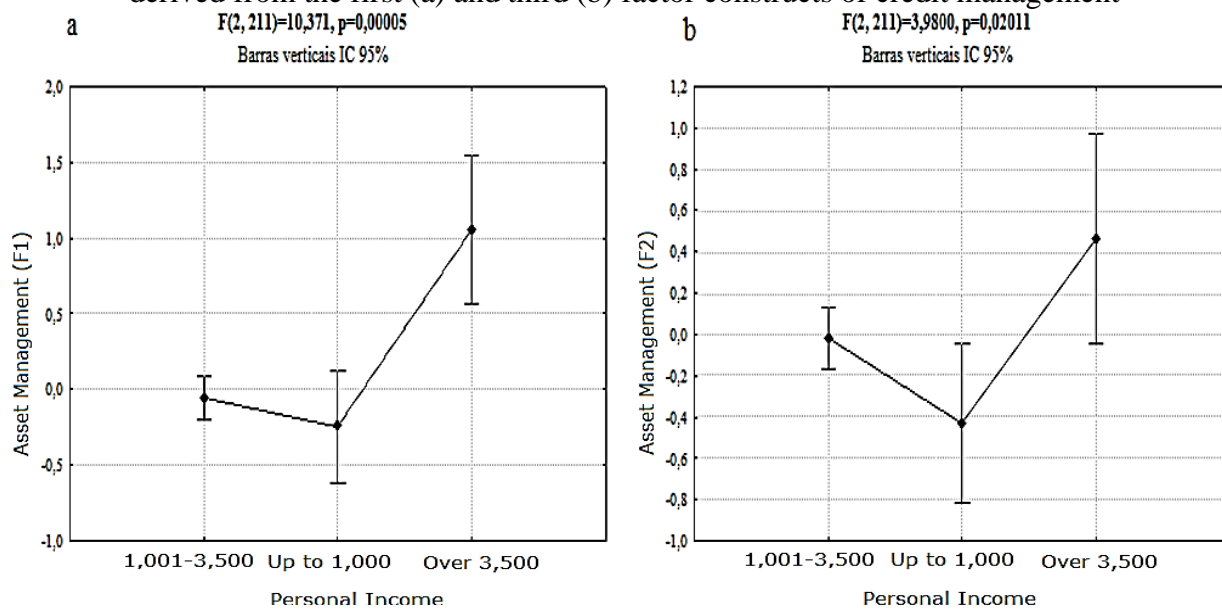
Figure 2 shows simultaneous comparisons of personal income factor scores. We find that those with higher income are different from the other two groups for borrowing more (Fig. 2a) and the middle group for failing payments due (Fig. 2b). In both cases, those with higher income also have statistically higher means. For credit management, even in relation to factor 2 which expresses their debts, family income as a predictor shows that those in the BRL 1.001,00 to BRL 3.500,00 range have higher real averages than those with income between BRL 3.501,00 and BRL 5.000,00. This indicates that this lower range gets into more debt. Finally, for this dimension, the third factor besides showing differences in personal income also shows with student's age and period as predictors.

Figure 1 - Comparison in simultaneous ANOVAs for housing measured by factor scores derived from the first (a) and second (b) credit management construct factor.



Source: Research data.

Figure 2 - Comparison in simultaneous ANOVAs for personal income as measured by factor scores derived from the first (a) and third (b) factor constructs of credit management

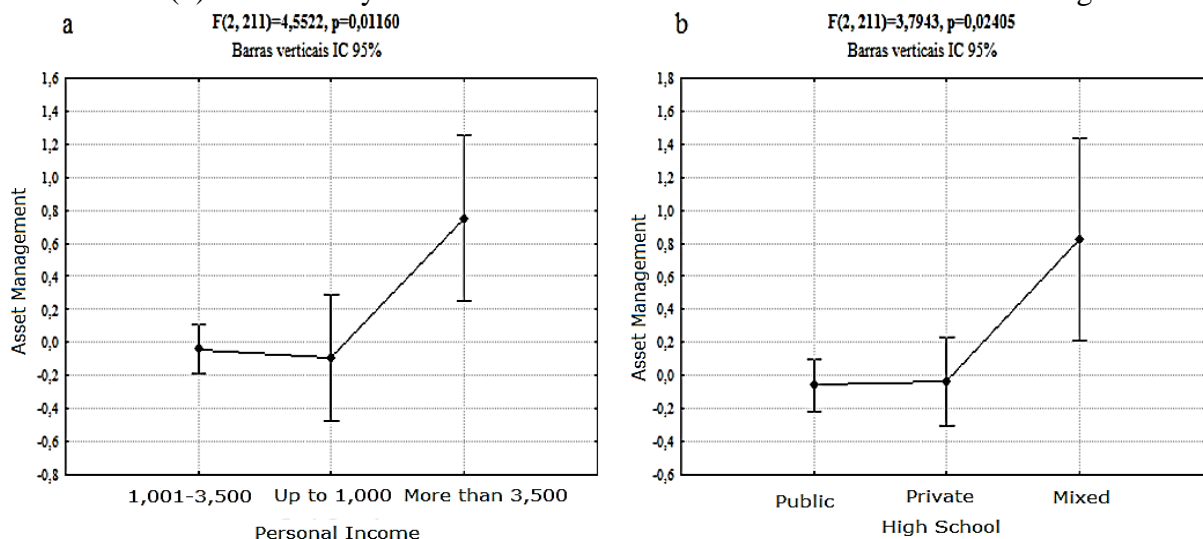


Source: Research data.

In the first case, those aged 20 to 29 are those with a significantly higher average than those under 20. Regarding semester, students who are in their fourth and seventh terms are higher than students enrolled in the third term averages.

Differences in Asset Management occur in simultaneous comparisons when the categorical predictors are personal income and high school student training. Both results are shown in Figure 3.

Figure 3 - simultaneous comparison in ANOVAs for personal income (a) and for training in high school (b) measured by factor scores derived from factor construct asset management



Source: Research data.

It can be observed that students who have an income higher than BRL 3,500.00 are those who best manage their assets, significantly differentiating them from those who have a higher income to do the pairing test. On the other hand, those who attended high school in both public and private schools differ significantly from those who attended only one type of educational establishment.

Finally, it was used as a predictor to observe that students attributed to their knowledge and management of their personal finances. This was done by categorizing the scores using a range from one to six and the following integer values (7, 8, 9 and 10). In the ANOVAs conducted for the three dimensions, only significant differences occurred in simultaneous comparisons of financial education and asset management factor scores. In both cases, the means are increasing from the first to the last period, indicating that their knowledge and the way they manage their finances improve as they advance in their studies. As a final analysis was performed to calculate the correlations between the factor scores generated by the EFA. Added to this was the score that students assigned to their knowledge and management of their personal finances. The results are shown in Table 3.

Table 3 - Correlations between factor scores of the constructs and the score N represents the number of pairs included in the correlation calculation

	Fin. Literacy	Asset Mng	Score
Fin. Literacy	*	<b>0,4767</b>	<b>0,5283</b>
		N=228	N=195
		<b>p=0,000</b>	<b>p=0,000</b>
Credit Mng.(F1)	0,0402	0,0998	0,0262
	N=228	N=228	N=195
	<b>p=0,546</b>	<b>p=0,133</b>	<b>p=0,716</b>
Credit Mng. (F2)	<b>-0,3218</b>	<b>-0,1738</b>	<b>-0,1816</b>
	N=228	N=228	N=195
	<b>p=0,000</b>	<b>p=0,009</b>	<b>p=0,011</b>
Credit Mng. (F3)	0,0725	0,0806	0,0445
	N=228	N=228	N=195
	<b>p=0,275</b>	<b>p=0,225</b>	<b>p=0,537</b>
Asset Mng.	<b>0,4767</b>	*	<b>0,4199</b>
	N=228		N=195
	<b>p=0,000</b>		<b>p=0,000</b>

Source: Research data.

In the table, it appears that financial education correlates positively and significantly with asset management and the grade given. Similarly, asset management makes the grade.

In turn, the extension of managerial credit derived only from factor 2, which refers to contractual debts, the subdivision has significant correlation with financial education, asset management and the grade, but with a negative sign. That is, as knowledge increases, debts incurred decrease.

## 5 FINAL CONSIDERATIONS

In the study, we sought to examine the level of knowledge that students in the accounting course have about personal finance. We chose this course according to its professional profile, considering that students should have the same greater familiarity with finance. To conduct the research, we surveyed the students participating in the intensive courses held in February 2014, producing 228 valid questionnaires. We collected data from an adaptation of Halpern's (2003) model, as Lana et al. (2011), including the dimensions: financial education; credit management; and asset management.

The use of exploratory factor analysis allowed us to verify that financial education and asset management behaved unidimensional, as most items reflecting these dimensions correlated with a single factor. As for credit management, three subdivisions were recognized, representing loans and financing;

the generation of debt; and how to cope with debt. Recognized as fixing the factor scores were generated, representing the standardized and appropriately constructed dimensions of personal finance. These records were the dependent variables in the analyses of variance conducted and used to analyze the correlations between them and the self-assessment score that the respondents gave their knowledge on the subject.

The results obtained for the scale financial education using the students' characteristics showed differences only for the working students, which showed that they have more knowledge. On the other hand, the mean scores used as predictors of self-assessment for this scale indicate that students increase their knowledge as they progress in their studies. Therefore, those who are enrolled in recent terms differ from those who are at the beginning. This result is similar to that found by Lana et al. (2011) for interest in personal finance studies, one of the two subdivisions that featured the financial education dimension in that study.

For the credit management and asset management dimensions, one characteristic that influenced was the student's personal income. Generally, those with higher incomes have greater loans and financing, handle their debts as well, and manage their assets better. This is very relevant when considering that 94% of the students who participated in the research work. In the study by Lizote et al. (2012) also conducted with accounting students, the respondents who worked differed from those who studied only by assigning higher scores to their knowledge of personal finance.

As for the correlations analyzed in the study, we confirmed the positive and significant relationship between financial education, asset management and the self-assessment score as well, but as a negative relationship with debt, expressed by scale factor 2 (credit management). These results corroborate the financial theories and empirical evidence found by Lana et al. (2011) and differ from the findings of Lizote et al. (2012), who reported no relationship between respondents' perceptions of their personal finances and credit management.

Finally, it is important to note that this study did not seek to find causal relationships, but only to analyze the associations that exist between some personal and family characteristics of the students participating in the study and their knowledge about personal finance. Therefore, it is suggested that further studies including other proposed models be developed to investigate this issue, especially for deeper causal relationships. The fits also suggest that other graduate programs be contemplated.

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