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**FINANCIAL EDUCATION AMONG BRAZILIAN STUDENTS:
WHICH TOPICS SHOULD BE COVERED ACCORDING TO
FINANCIAL EXPERTS?**

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EXPERTS?**

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Orientador: Prof. Dr. Vinicius Augusto Brunassi Silva

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Financial education among Brazilian students: Which topics should be implemented according to financial experts?

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Abstract

Through a survey with 112 Brazilian financial experts, we found a common agreement regarding how financial topics should be approached in regular school and which updates and changes are desirable to the existing program from the Government (ENEF) to literate the young population in a proper way. The findings cover the age to start the program, topics to be taught, the training of the responsible for the classes, and interactions with agents and the government. This may help to delineate a better design program of financial education to achieve financial literacy of the population that shows poor performance in this subject nowadays.

Key-words: Financial education. ENEF. Financial literacy.

1 Introduction

Ruberto, Silveira, Vieira and Bender (2013) have shown a high level of indebtedness and defaulting among Brazilians and, according to Silva, Magro, Gorla and Nakamura (2017), it may occur due to lack of financial knowledge spread among the population that causes inability to manage financial resources and family expenses, creating a social and economic barrier faced by the people. The same author says that this problem is even more important to be solved once political, economic and social changes for next years are being discussed in National Congress. Those changes are mostly about retirement and pension rules, which would be even more under the population's responsibility in the future.

This scenario shows the importance, not only to increase the knowledge of the entire population, but also to literate them. This means that is necessary to provide conditions to the general population to join and interact in the financial system in a positive way. As Potrich, Vieira, & Kirch, (2015) said, financial literacy is about the capability and the behavioral outcomes that increased knowledge provides. This behavioral outcome follows a pattern: first, socialization influences individual's learning, that affects their financial attitudes, which are

predictive indicators of their behavior. This shows that financial education and behavior are linked and that attitudes can be modified through education, especially if provided by a prepared institution or other influencers with a properly designed program (Shim, Barber, Card, Xiao & Serido 2009).

Norvilitis and MacLean (2009) showed in their study that teenagers mostly acquire their financial knowledge from their parents; and it may be a problem in Brazil, once they're not fully capable, as the high level of indebtedness of population shows. Another study from Lewis, Mimura, Mauldin, Rupured and Jordan (2008) shows that teens also acquire knowledge from media and educators.

Brazilian Government with other financial institutions created the ENEF (Financial Education National Strategy) to encourage and develop financial education in adults and schools (Hofmanm & Moro, 2012). This indicates that the Government is already concerned about the importance of providing financial education to the population via a structured program, offered and conducted by a capable professional. Therefore, Brazilian Government and the literature already agree that a program should be implemented to conquer a more financially literate population, but; ENEF offer a very flexible and not fully spread design so the problem remains unsolved, once many schools are not providing financial education for their students, and those that already implement some type of financial program does it in a particular way, so each region, school and teacher is approaching financial matters with a different understanding and in a different sequence, achieving different results without a theoretical analysis supporting their implementation and, therefore, failing on providing the entire population a specific, tested and proved to be an efficient financial education program.

As Walstad and Soper (1986) shows in their study the amount of incentive from teachers and their preparation to administer financial contend in classroom is directly correlated to student's financial knowledge. Therefore, training the educators to provide financial education in schools is an important step to conquer a financial literate population, capable to make good decisions about money in the present, and not compromise their future.

Given the importance this theme has, other studies have already been conducted in the country: Conto, Faleiro, Führ and Kronbauer (2015) in Vale do Taquari, Silva and Powell (2013) in Blumenau and Bessa, Ferminao and Coria (2014) in São Paulo, but none of those actually implements an intervention to analyze its impact on student's knowledge, therefore it is still missing a good set of guidance to help implementing one, once ENEF's program isn't spread among the entire population and school's curriculum does not approach specifically how financial matters should be studied.

To evaluate if ENEF strategy is properly designed to the population, aiming to reverse this illiteracy from Brazil, we investigated among financial experts (University professors) their opinion on how a proper program should be designed and implemented to achieve a positive outcome regarding financial literacy and behavior to young ages in the country. This is necessary once it's understood that ENEF's initiative isn't setting specific guidance on how financial programs should be implemented; and it is understood that these professionals carry the knowledge on what's important to know regarding financial topics, so the regular population can interact with the market in a healthier way, so their opinion should matter in the design of such intervention.

After gathering the experts' opinion regarding the implementation of Financial Education in schools, it became possible to compare ENEF's program to experts' advices to answer the question: Is the existing financial education program consistent with experts' advices? Making it possible to update the design of the existing program from the Government to be more efficient to achieve population's financial literacy in a proper way. The results of this may study help: Brazilian Government to evaluate possible effective programs to implement in order to spread financial education among school students all over the country and the managers of those schools to also start providing their teachers more instruction regarding the best approach to implement such programs.

This study follows with a review of the existing literature about this topic, a session to expose the methodology adopted, results, conclusion and appendix.

2 Literature Review

2.1 Financial education

Financial knowledge gained by high school students during financial education programs impact their behavior some years after the intervention, in their adulthood (Bernheim, Garrett & Maki 2001). But these financial education programs need to be well-defined, properly implemented and correctly evaluated in order to effectively increase financial knowledge of students (Walstad, Rebeck, & MacDonald 2010).

Not only high school students should increase their financial knowledge through participating in financial education programs. Research with young ages shows positive results such as Go, Varcoe, Eng, Pho and Choi (2012) that studied the effectiveness of programs designed to primary school kids and Mandell (2008) that analyzed its effectiveness on pre-high school grades. Young adults, as shown by Chen and Volpe (1998) in their study with college

students, do not have adequate financial knowledge to behavior properly and might be benefited with an intervention. Not only kids, but also a generalized sample can be benefited by an education program, as Bruhn and Love (2014) observed gains in savings rates in Mexico City.

Financial education programs can assume different configurations; and the most effective way to choose how the program will be conducted is determined by the target audience characteristics, time and money resources available; and its purpose. For example, Mandell (2008) used an improvisational 1 hour play with 6th to 8th graders whilst Go *et al.* (2012) analyzed a 5 weeks intervention in which 4th and 5th graders spent one hour per week taking financial classes. Kalwij, Alessie, Dinkoba, Schonewille, van der Schors and van der Werf (2017) studied a 45 minutes cash quiz impact in 5th and 6th graders savings behavior. Newsletters covering financial topics, containing games and quizzes were adopted by Varcoe, Martin, Devitto and Go (2005) to analyze teen's knowledge and behavior impacts. FYF program consists on DVDs that addresses personal finance content that may be used by teachers with their students, and as Walstad *et al.* (2010) shows, it's an effective approach to increase high school students' financial knowledge. Many configurations of programs exist and it's important to understand how, when, and to whom adopt each possible intervention to get the best possible outcome.

Scott (1990) analyzes consumer education in schools and define it as including four areas: **Consumer decision-making** includes factors that should be analyzed at purchase, for example: price, warranties, repair costs and even the advertising messages. **Economics:** the principles of supply and demand, the roles of consumers, producers and government; and the concepts of resources allocation. **Personal finance** should also be taught, covering household budgeting, money management, credit, financial instruments, taxes and inflation. And the last area that should be approached by the programs is **consumer rights and responsibilities:** willing to provide instructions regarding consumer's protection laws and regulations.

Financial education program should cover the four topics above, but it also needs to personalize the approach according to the reality of where it'll be implemented, as OECD (2013) indicates. Another recommendation involves continuation and evolution of projects because markets changes their complexity with time. Such changes occur naturally, but also because the individuals that are not capable to manage their own finances become a problem, affecting the entire society (Chen & Volpe, 1998) and require adaptation of financial products and services by financial agents to have their needs attended (Potrich et al., 2015).

Many examples of successful programs worldwide can be pointed: in Spain a first financial education program, that offered adapted material for teachers and pupils of secondary school, with the teacher's own initiative approach happened in 2008 with a positive outcome: 520 educational establishments taught financial education involving more than 45.000 students. In France, the program adopted also includes financial education materials being spread to teachers and students (8-11 years old), including workshops with bank volunteers and a website designed for children with games, quizzes and simulators, with a specific area for teachers, encouraging them to develop financial education topics in their classes. This initiative showed that example from community facilitated the dissemination of the program along with internet features. In Austria, workshops, seminars and tours to specific places illustrate the development of financial concepts and money policy for students; financial education seminars for teachers were adopted along with dissemination of specific materials for both groups, encouraging the coverage of a wide range of topics in classes, with the help of competitions and quizzes. It was successful and is being consolidated and implemented in many other parts of the country (EESC, 2011).

Through a proper financial education program, it is possible to change population's financial behavior to be more positive and healthier, as McCormick (2009) addresses in her review of literature: major part of studies shows a real need for a structured financial education program, with well-defined standards, teacher's training, behavioral outcomes analysis, proper evaluation and that start its implementation in young ages.

This study gathered local financial experts' opinion regarding the implementation of a program in Brazil. It delineates how the programs should be implemented regarding: student's age, responsible, which topics should be covered, curriculum, interaction with market and agents, and the participation of the Government in its regulation. This might help creating a new and structured, or even improving the existing financial education program, to attend especially Brazilian young population needs for this specific period of time. We did not expect to create a set of guidelines that should be forever followed, as the expectation involves a continuous update whereas the population learn and modify their behavior.

2.2 Financial education and behavior

Financial programs are capable of changing people's behavior if they are targeted to a specialized, and not generalized, public and if they have a satisfactory measurement instrument (Hathaway & Khatiwada 2008).

Financial education has a potential role to help individuals access their abilities to take saving and investing decisions, appreciate the value that financial advice has; and even equip them with financial tools to understand and deal with advisors and intermediaries, preparing them to this interaction (Lusardi, 2007) and it not only improves students' financial satisfaction and attitudes, but also develop their academic performance and satisfaction (Xiao & Shim, 2009).

Young and adult financial education are different due to the needs of each age: financial education for young people has the major purpose to build foundation for a better understanding of the financial world that will be useful at a later period of student's life, therefore, has a preventive characteristic. Adult financial education, on the other hand, is primarily designed to solve immediate problems and help on present decision-making process and present behavior, consisting in a corrective characteristic (Walstad et al., 2010).

It is beneficial to provide financial education before the individual start making financial decisions and sign financial contracts. It will prepare them to plan, analyze and choose correctly their actions (Lusardi, Mitchel, & Curto, 2010). This study focuses on school students due to this fact: they are still in time to learn how to behavior properly once they become adults.

Mandell and Klein (2009) in their study did not find a positive effect of high school students' financial education program on their subsequent financial behavior as adults. A new research with more respondents and control of the program offered is necessary to assure a more trustable result. But a positive effect of financial education on behavior is found by Sherraden, Johnson, Guo and Elliott (2010): it shows through a quasi-experimental study that elementary school kids can increase financial capability if they have access to a financial education program and a savings account which they would personal manage. This study shows that a hands-on design promotes higher behavioral achievement for young children.

Carlin and Robinson (2012) expose in their paper that financial abilities may be beneficiated by the jointure of financial education and decision support. Students may perform better if they receive financial education combined with decision-making advice, showing that other people's opinion interacts with their own knowledge, playing an important role in their attitudes and actions.

All these researches show that financial knowledge and behavior are connected, and providing a structured, specific and well-evaluated financial education program is a possible way to influence people's behavior to a more healthier one, corroborating the idea and design of the present study, that seeks to explore how a specific education program to Brazilian youth

should be built, based on local experts' opinion, aiming to improve their financial knowledge and subsequent behavior.

2.3 Financial Education and Behavior in Brazil

Savóia, Saito and Santana (2007) analyze the paradigms of financial education in Brazil and suggest that there is scarcity of incentives by governmental agencies, such as MEC (Education and Culture Minister); Universities, financial institutions and media. Some agencies as BACEN (Central Bank of Brazil), BOVESPA (São Paulo Stock Exchange) and CVM (Securities Commission) have some educational programs aiming to spread financial knowledge through population, but that's not enough to habilitate properly Brazilians about this theme. This exposes the real necessity of approaching financial matters in school scope, once other institutions fail when try to solve people's lack of knowledge.

This scenario is shown by Potrich et al. (2015) in their study that shows Brazil has the same status found in other countries regarding financial knowledge. They found that the same characteristics influence people in the same way, for example: women, less literate, and smaller income families suffer more with low level of financial literacy, showing that Brazilians face the same issues as other places.

Some programs to address this issue have already been suggested, like Silva and Powell's (2013) proposal of a financial education program that would be included in math classes for basic education schools in Brazil. That's a first step to introduce financial matters in existing school programs that can be implemented and aggregated to the current curriculum; and would be aligned with the definition and goals of basic education in Brazil, according to Federal Constitution (1988): the three steps of basic education including kindergarten, elementary and high school aims to develop the students, assuring an indispensable education to exercise their citizenship, and offer ways to progress in future work and studies (Curry, 2002).

Financial and regular education has different impacts in Brazilian population attitudes: scholarship level of individuals do not affect their saving's rate in the same way it influences their total income. Saving is directly correlated to financial literacy specifically (Costa & Miranda, 2013). These results show that regular education is not entirely capable to affect Brazilian's decision to choose a savings behavior, therefore financial education is required to do so.

To address the presented situation, Savóia et al. (2007) suggest 5 actions to be taken in the country: encourage a saving culture among the population; insert financial education

programs in all levels of tuition; develop concepts of credit, investment, and consumption through schools, universities, media and other sectors; promote coordinated efforts among Government and society; and, to monitor programs quality. If implemented, these steps should benefit the Brazilian population to acquire a better financial knowledge and subsequent behavior.

In 2015, Brazil was one of the countries joining the Program for International Student Assessment (PISA), a survey with 15 years old students from many countries that includes financial literacy evaluation. Brazilian students showed a below average performance, and only 3% of the participants were top performers in that topic. Students with the same level of performance in reading and mathematics tests performed, on average, better than Brazilian students in financial topics, showing that these teenagers could benefit if using these skills to pursue a higher level of financial literacy. The general suggestions from PISA 2015 assessment includes: tackle socio-economic inequalities, provide equal opportunities to boys and girls, target parents, help students make the most of the available learning opportunities at school, provide experiences outside school and address the needs of low-performance students.

2.4 ENEF

As one of the main objectives of the present study is to answer the questions whether or not the existing strategy adopted by Brazilian Government “ENEf” (Financial Education National Strategy) is aligned with the experts’ opinion on how financial matters should be implemented in Brazilians schools, this section is covering the main features of the proposal. All the information regarding the initiative was gathered from the official website (www.vidaedinheiro.gov.br) during 2019, including the books used in the learning process of the students.

This national strategy is a multisectoral mobilization to promote Financial Education in the country and was created by the Government through a Federal Decree in 2010. Its’ programs are guided by a specific and documented plan. The strategy involves Sectoral and Transversal programs: sectoral programs include actions with many organizations to develop financial education according to each one’s specialty. The transversal programs are divided into 3 categories: financial education in schools, financial education for adults and financial education week. In this work we focus in the first category of the Transversal Program.

The financial education in schools program is a set of 24 books (12 for the teacher, and 12 for the students – one for each year of the students’ academic life: 9 elementary and 3 high school grades). According to the presentation document, it was designed in order that any

teacher, regardless their specialization, is able to use and implement it. It is not clear if Financial Education should be approach in a specific subject or inside other disciplines according to the strategy, but the Common National Curricular Basis of Brazil (2018) includes Financial and economic matters as a part of math classes in all levels of tuition it is approached.

There are 2 dimensions of the knowledge: temporal and spatial. From them, 7 objectives that guides the initiative are exposed: form to citizenship; teach to consume and save in a conscious, responsible and ethic way; offer concepts and tools to decision making; to form disseminators; teach to plan in short, medium and long term; develop prevention culture; and, provide the possibility to change the actual condition. To achieve these 7 financial objectives, 8 themes are approached: rights and duties; insurance; security; consumption; credit; investment; planning and savings.

The elementary school part of the program focuses in 2 pillars: learning and knowledge reconnection, meaning that it's important the children to learn the concepts and make the connection of the information with attitudes and behaviors with its impacts on society. The high school part focuses on consolidating the knowledge; power the students with conscious of their capability and to capacity them to extend their knowledge to influence their families and others.

Financial content uses other subjects, as geography and history to contribute to the construction of concepts and behaviors. Different materials and methods are used in the learning process. Dynamics, texts, poetry, data collection, interviews, games, role plays, and others are included in the script, mainly with elementary school grades, allowing the students to explore the diversity of Brazilian culture and resources. The content approached in elementary school is faced as a preparation of the student, so they can get familiarized with the financial matters and link their knowledge with real world.

In the high school ages, formal and social contents are approached, such as financial crisis, income distribution, inflation, entrepreneurship, budget and social relations (debates and negotiations). These contents are presented throughout didactics situations existing in the books and the teacher can select how they'll be covered during the school year. Local and world socio-economic environment as study of the markets, security and public organizations are also included in the content, with individual and familiar issues. A big objective of the last years of the program is to multiply the knowledge from the students to their families and friends, developing the society directly and indirectly.

There are already 4 poles that develop financial education by facilitating the communication and spread of ENEF's transversal program to many school teachers around them, encouraging knowledge exchanging. One aim of this program lead is to invite Higher

Education institutions to serve as a pole in their area, to formalize partnerships with the State Secretary of Education to then develop post-graduation courses to offer to the public schools teachers to prepare them for teaching Financial Education content inside their classrooms.

It is important to notice that the program was developed aiming to be implemented in Brazilian reality, considering local specifications and financial systems. To implement the program in other societies, it would require adaptation.

3 Methods

3.1 Sample

The questionnaire was sent to 590 financial professors from Universities in Brazil and have been answered by 112 individuals, showing a response rate of 18,98%. The contacts which we were able to have more information available show that the entire sample of recipients was composed of 75,7% of men and 24,3% of women; 59% from public institutions and 41% from private universities. 15,4% of them were from the South, 7,1% from Midwest, 13,2% from Northeast, 8,1% from North and 56,2% coming from the Southeast of the country. Those distributions are aligned with the distribution from the 112 respondents, as will be more detailed in section 4.1.

Their contacts were extracted mainly through CAPES website that compiles information regarding location, program, evaluation, course specification and administrative data for the recommended *Stricto sensu* courses of Brazil. The search can be made by mark, area and region. All courses to be considered recommended and to be present in the website must achieve at least mark 3. We collected the e-mails from the coordination offices available to build our database after searching for financial areas of knowledge, as administration, economics and accounting in all regions of the country and sent a message requiring their Finance Professors contacts. The message was sent 3 times over a 2-month period.

We collected their responses to build our database among with a direct consultation of Universities' websites' in their Economic, Administration and Accounting departments to gather the contact from the Finance Professors of each, especially from the Universities we haven't receive any response from the coordination office. The search included professors responsible for teaching disciplines linked to finance, in example: Finance, Public Finances, Math Finance, Corporate Finance, Behavioral Finance and others. Among with these sources of information, some indications were received from the sample, expanding the number of individuals to 590. It is important to mention that some professors have forwarded the

questionnaire of this study to some colleagues, so the exact number of people that received it is unknown.

3.2 Methodology

We use a Survey with qualitative approach to answer which topics should be implemented in school financial education according to financial experts. The instrument adopted is a questionnaire (Appendix I) built specially for this research. It contains questions regarding the experts' financial path; their familiarity with existing financial education programs and questions of multiple choice or a scale from 1 to 10 on how much they agree with some statements about their beliefs on how financial matters should be addressed in schools.

The questions on the instrument are based on what the existing literature points as important to cover in financial education classes and on the instruments adopted by Chen and Volpe (1998) and Potrich et al. (2015) in their studies, plus OECD (2011) Guidance Notes for conducting an internationally comparable survey of financial literacy and also, Silva and Powell (2013) financial education program proposal. Several topics regarding finances are covered and the content of ENEF's books and the Financial Education test from PISA 2015 are captured in order to associate both instruments to this study.

The instrument was validated among professors and researchers to establish that its measures are clear and there's no misleading interpretation of the questions. The validation included analysis of the first version of the instrument, reading the main goals of the paper and a brief explanation on what was expected from the validators. They accessed the online questionnaire and answered its questions as they were first planned, after that; they suggested increments, new questions, new ways to ask a question to make it clearer and better methodology to measure the responses. We adapted the original questionnaire with the changes suggested to assure the instrument stands for its purpose and that it is easily understandable by the respondents.

Data collection happened during April and May of 2019 for the entire base of experts. The link for the online questionnaire with a brief explanation of the study and its' purpose was sent via e-mail for the individuals asking their participation. After 2 weeks we sent a thankful message for the entire base of experts, appreciating the participation of all and asking the participation of those who have not answered it yet. One month after the first message requiring their participation, the online questionnaire was closed, being no longer available for answering and the data was consolidated.

3.3 Data analysis

This research can be defined as descriptive, as the main result is the analysis of the answers of the individuals and the comparison of their answers to the financial education strategy adopted by ENEF. All answers were tabulated to get the total response for each question to build a common understanding of how financial education should be implemented in the schools, according to specialists' knowledge. The most chosen option of the multiple-choice questions and the statements with a higher average punctuation on 1-10 scale is considered as being those that more specialists agree that should be a part of the national curriculum, and therefore, must be adopted and stimulated by government so the young population becomes financially literate.

After the tabulation of the data and the analysis of the most important strategies to implement financial education in schools according to experts' opinion, the actual government initiative (ENEF) is analyzed and compared to the results of these research to answer the question: "Is the existing financial education program design consistent with experts' advices?" This is done to stablish which strategies are already being adopted, which ones should be incorporated to the existing curriculum or possibly, which adopted statements should be modified to make ENEF even more effective.

We executed Mann-Whitney non-parametric test to analyze the statistical differences by gender and title of the 1-10 scale questions of the questionnaire (questions 28-46 of the instrument in appendix 1). The gender analysis seeks for differences among men and women responses whilst title disregards the only 1 professor with graduation level and considered the responses of MSc and PhD experts to analyze.

4 Results

4.1 The respondents

Majority of respondents were male, from the Southeast of the country, which teaches for Universities as their main professional activity having a PhD degree. Half the sample comes from public institutions and the other half from private funding universities, showing the sample's balanced in this aspect. Figure 1 shows a summary of the individuals' characteristics, pointing that women are still under represented in financial academic world in Brazil and the experts are distributed according to financial development and number of inhabitants by region. As stated in section 3.1, the 112 respondents of this study can be considered as a representative sample of the initial 590 professors that composes the entire base of professors in this study and

the national base of financial professors, according to its' distribution by gender, region and the type of institution they work.

Nearly 100% (109 out of 112) of the participants agree that financial education should be taught in schools, although only 35.7% is familiarized with ENEF's initiative and 50.0% knows any other Financial Education program in the country.

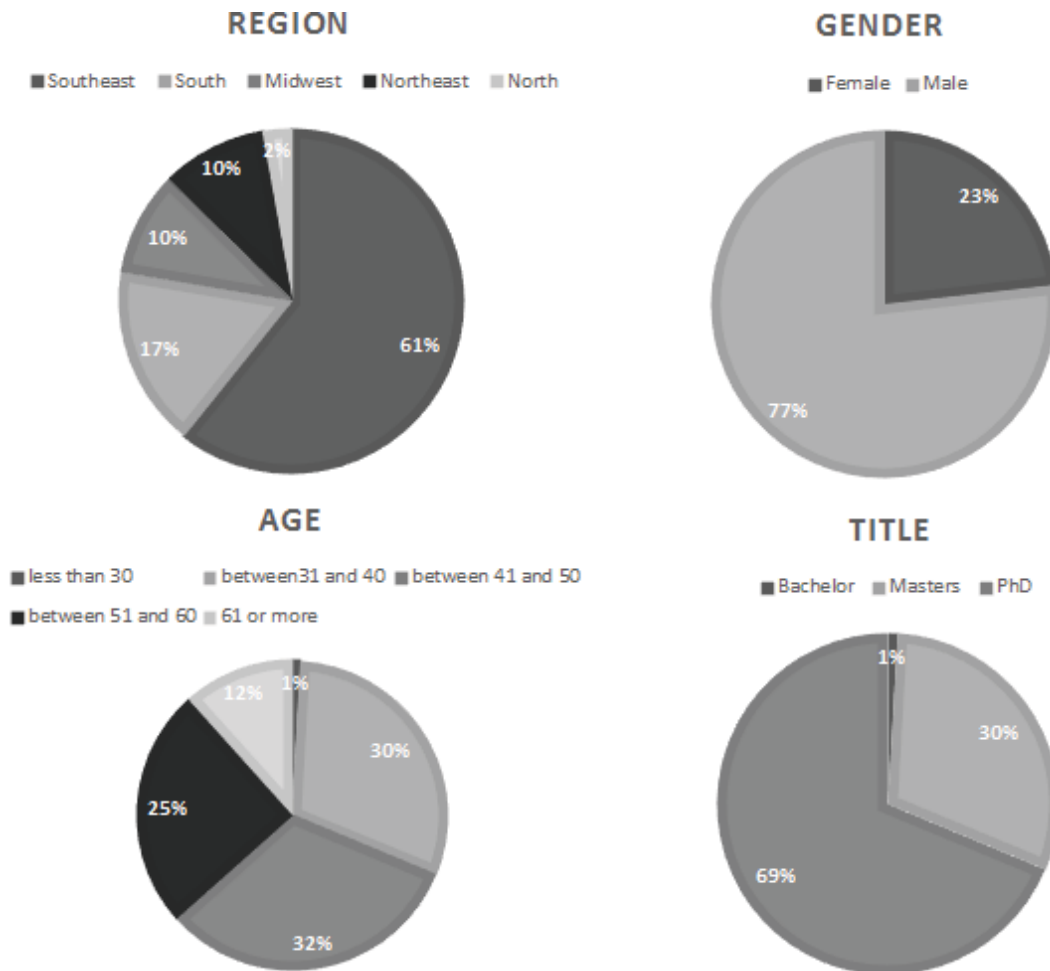


Figure 1. Individuals characteristics.

4.2 Financial education in schools

64,7% of MSc's and 74,3% of PhD's agree that financial education should be regulated by the Education Authority of Brazil; and 2/3 of respondents believe that exams should be applied to measure the learning process of the students, these professors are concentrated in Northeast, South and Southeast of the country. For 98 individuals the program should combine practical and theoretical knowledge, the entire female part of the sample agrees with it, and only 9 men believes knowledge should be only practical and other 2 think it should be only theoretical.

Regarding the structure of the program, majority of women prefer a flexible content designed by the criteria of the responsible for teaching the content (54%) while men tends to prefer following specific handouts of the program (55%). Only 9% of the respondents believe that financial education content in schools should be based in Financial Books. Table 1 resumes these results.

Table 1
How Financial education should be structured

Question	Answer	Men	Women	Total
Should the financial tuition be regulated by the public agencies and government?	Yes	58	20	78
	No	25	6	31
	Total	83	26	109
Should exams be applied to measure students learning?	Yes	52	21	73
	No	31	5	36
	Total	83	26	109
Kwoledge should be:	Theoretical	2	0	2
	Practical	9	0	9
	Both	72	26	98
	Total	83	26	109
Program should be structured according to:	Specific Handouts	46	11	57
	Criteria of the person responsible for teaching	28	14	42
	Financial Books	9	1	10
	Total	83	26	109

Regarding the topics that a program should cover, 18 questions were made. The first of them regarding the market that the program should focus: the respondents pointed that it should focus more in local (Brazilian) market. 84,6% of women agree that visits and tours to specific places (as schools, banks, and Stock Exchange) should happen depending on the location of the school whilst men agree only 68,2% in media with that, being the concentration of these individuals in North and Northeast of the country, regions not known by their financial centers, pointing that a more close interaction among population and market agents are desirable by the professors there. Regarding lectures and speeches with specific people (investors and professionals), in media 82,4% of the individuals agree that it should happen. Experiences like role-plays, interpretations and event simulation should be included in the program to majority of the professors, with 85,9% of agreement in southeast of Brazil against only 53,3% form North region.

There is 65% of agreement that microeconomics should be a topic, and a slightly larger percentage (68,8%) regarding the inclusion of macroeconomics in the curriculum. The biggest difference in these results come from the title of the respondents: professors with PhD tends to agree less with the inclusion of both topics, and MSc professors shows an agreement with

approaching micro and macroeconomics 5 and 10%, respectively, higher than the others. Sample agrees 76,4% with the approach of rights and duties of the consumer, being the North region the only that seems to disagree with this topic, with 43,3% of agreement in media. The most consensual topic among the individuals is regarding personal and family finances that must be taught in a Financial Education Program for Brazilian students showing 94,6% of agreement of the experts, balanced among their region, gender and title.

Table 2
Which topics should be included in the program

Question	Women	Men	Total
From 1 to 10, being 1 completely disagree and 10 completely agree, do you think:			
Knowledge should be based in international Markets?	3.92	3.47	3.58
Knowledge should be based in local Markets?	6.08	6.53	6.42
Should exist tours to specific places (banks, stock exchange, companies)?	8.46	6.82	7.21
Should exist lectures and speeches with specific guests (investors and professionals)?	9.00	8.00	8.24
Should exist experiences like role-plays, interpretations and event simulation?	9.00	8.22	8.40
Microeconomics should be a topic?	7.85	6.08	6.50
Macroeconomics should be a topic?	8.15	6.48	6.88
Consumer law should be a topic?	8.73	7.30	7.64
Personal and family finances should be a topic?	9.92	9.31	9.46
Economic ideologies should be a topic?	4.92	3.37	3.74
Should the family be included in the learning process?	9.00	7.90	8.17
Should courseware to be studied at home be included in the program?	9.23	8.33	8.54
Changes imposed by the evolution of the markets be interpreted?	8.62	7.13	7.49
Social security and retirement planning should be a topic?	9.5	8.30	8.59
Income and consume taxes should be a topic?	9.04	7.94	8.20
Consumer habits should be a topic?	9.42	8.59	8.79
Past economic events and their subsequent influences should be a topic?	8.73	7.30	7.64
Investments, stock exchange and exchange rate should be a topic?	8.42	7.36	7.61
Financial math should be a topic?	9.38	8.46	8.68

Economic and political ideologies are also very consensual among the experts regarding the exclusion of those topics, both should not be covered in the content as 33 and 48 respondents respectively completely disagree with the approach of such topics. In media, the respondents agree 81,7% with the statement that the family should be included in the learning process, and 85,4% with the fact that courseware to be studied at home should be available. There's an agreement of 74,9% among the respondents that the changes imposed by evolution of markets should be interpreted, and 76,4% that analysis of past economic events and their subsequent influences should be included in the program. 95% of women and 83% of men agree that social security and retirement planning content should be a topic along with a media of 90,4% of women and 79,4% of men agreement about including content regarding income and consume taxes. Consumer habits should also be addressed for the major of respondents. Investments,

exchange rates and stock exchange functioning are relevant topics for an average of 76,1%, having the South and Southeast regions dragging the media down with 73,7% and 74,5% respectively, once North shows an agreement of 100% with the inclusion of this topic. Financial math is relevant, in media, for 86,8% of the respondents. These results are shown above in Table 2.

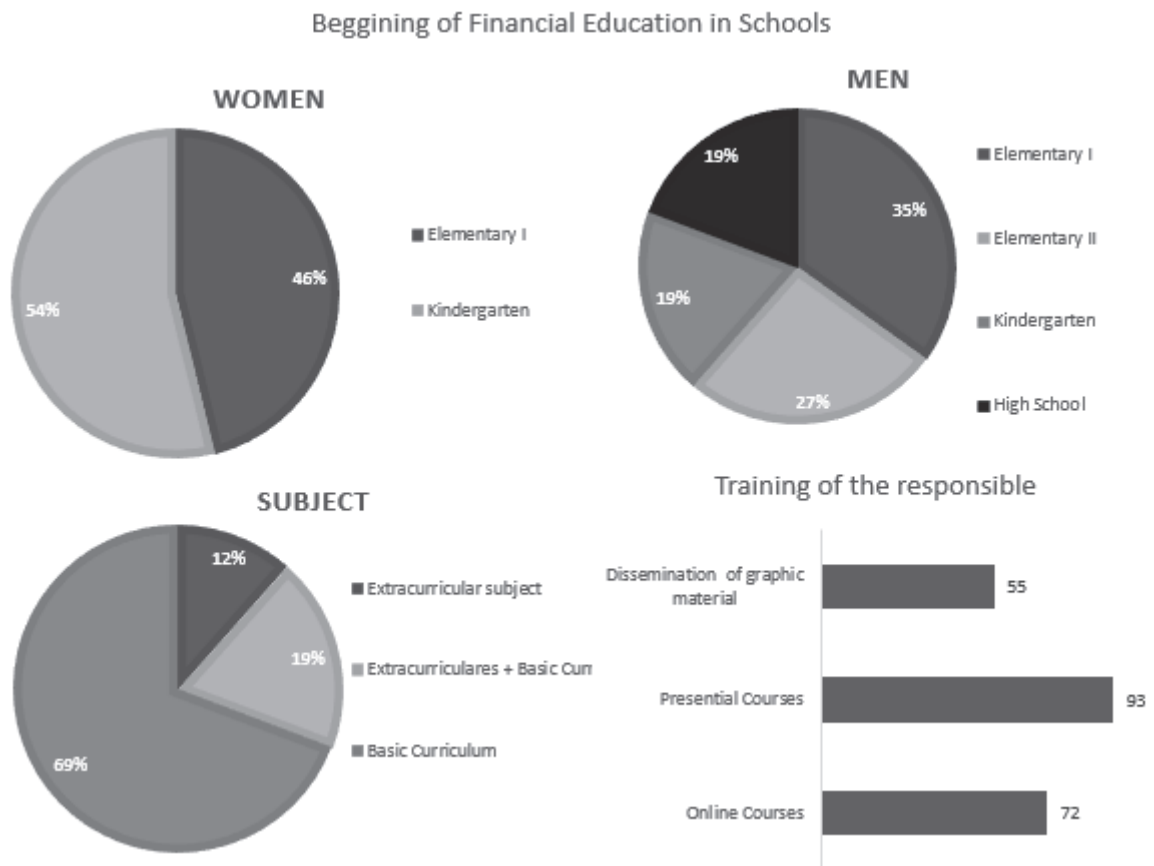


Figure 2. Format of the program.

About the format of the program, a media of 79,8% agreement with mandatory financial education classes is shown, with a higher agreement among women (88,5%) then men (77,1%). Majority of the sample (37,6%) agree that the tuition regarding financial education should start in the first years of elementary school. 20,2% think it should start in the last years of elementary school, 27,5% say it should start in kindergarten and the minority of the respondents (14,6%) believe that financial education should start only during high school. Women tend to agree that it should start earlier than men. For 66 respondents financial education should be approach in the basic curriculum of education, whilst 30 people agree it can be approach in extracurricular subjects; 10 people think it should be available on both.

The sample agree that for the first years of elementary school it should be approach inside other subjects' classes (as math, sociology or history) but for the last years of elementary and high school, their opinion is that a specific subject to approach financial education should be created. Regarding the responsible for teaching financial education, for all levels of tuition, the professors pointed that it should be provided by someone who took part in a course to become a Financial Education teacher, except for high school teaching in which the responses are even among the responsible being a Financial Professor or someone who joined a Financial Education teaching course.

Mann-Whitney non-parametric test point that differences among men and women tends to be more statistically significant whilst MSc and PhD show significance only for question 30, regarding lectures and speeches with specific guests with 10% confidence. Gender plays a more important characteristic to analyze experts responses, once only 2 questions didn't show any statistical difference, 4 questions present 10%, 10 questions have 5% confidence level of statistical difference and 3 at 1% level. Table 3 shows the summary of the test.

Table 3
Mann-Whitney non-parametric Test

Question	Gender	Title
Knowledge should be based in international or local Markets?	0.447	0.465
Should exist tours to specific places (banks, stock exchange, companies)?	0.036 **	0.472
Should exist lectures and speeches with specific guests (investors and professionals)?	0.025 **	0.077 *
Should exist experiences like role-plays, interpretations nad event simulation?	0.099 *	0.772
Microeconomics should be a topic?	0.010 **	0.342
Macroeconomics should be a topic?	0.010 **	0.509
Consumer law should be a topic?	0.010 **	0.271
Personal and family finances should be a topic?	0.023 **	0.424
Economic ideologies should be a topic?	0.069 *	0.889
Political ideologies should be a topic?	0.150	0.542
Should the family be included in the learning process?	0.052 *	0.201
Should courseware to be studies at home be included in the program?	0.022 **	0.430
Changes imposed by the evolution of the markets be interpreted?	0.013 **	0.234
Social secutiry and retirement planning should be a topic?	0.006 ***	0.119
Income and consume taxes should be a topic?	0.008 ***	0.136
Consumer habits should be a topic?	0.008 ***	0.136
Past economic events and their subsequent influences should be a topic?	0.050 **	0.222
Investments, stock exchange and exchange rate should be a topic?	0.054 *	0.267
Financial math should be a topic?	0.044 **	0.190

4.3 Comparison to ENEF

ENEF initiative is already aligned with expert's opinion in some matters, like the beginning of Financial education in elementary age, the approach in regular curriculum instead

of not mandatory extra-classes and some of the specific topics that are already covered like investments, financial math, security, taxes, micro and macroeconomics, evolution of the markets, personal finance, consumer rights and duties. Some other points that experts do agree that should be covered along with the students are not mentioned in ENEF's program and could be included: visits and tours, exams to measure the knowledge of students and the success of the program, speeches and lectures with some people of interest and include homework. ENEF is not specific regarding the approach of economic or political ideologies and the experts believe it should remain not approached.

We found that some other features of the program are not in line with financial experts believes, like the responsible for teaching the students, the methodology to train this person and the subject that would approach financial education: ENEF include Financial topics in other subjects whilst respondents pointed that a specific subject, focused in financial topics should exist. Table 4 shows a resume of the comparison among ENEF initiative and the respondent's opinion.

Table 4
Comparison to ENEF

Topic	Government Strategy	Respondents	Update
Start of Financial Education	First years of Elementary School	First years of Elementary School	Keep
Responsible for Teaching	Any teacher with Financial Education course	Financial Education Trainer	Change
Training the responsible	Mostly dissemination of specific books	Mostly Presential Courses	Change
Approach	Regular Curriculum	Regular Curriculum	Keep
Subjects	Other Subjects Classes	Financial Education Subject	Change
Exams	No	Yes	Change
Material	Specific Books of the program	Specific Books of the program	Keep
Market	Local	Local	Keep
Speeches and Lectures	Not mentioned	Yes	Add
Rights and Duties	Yes	Yes	Keep
Security	Yes	Yes	Keep
Personal and Family	Yes	Yes	Keep
Visits and tours	Not mentioned	Yes	Add
Income/Consume taxes	Yes	Yes	Keep
Role-plays and Event	Yes	Yes	Keep
Micro/Macroeconomics	Yes	Yes	Keep
Economic Ideologies	Not mentioned	No	Add
Homework	Not mentioned	Yes	Add
Evolution of Markets	Yes	Yes	Keep
Investments	Yes	Yes	Keep
Financial math	Yes	Yes	Keep

These directions on how Financial Education should be taught in comparison to how it is already being approached by the existing curriculum from the Government is the main advance of these paper, as other researches started studying this problem in the country as

Pelicioli in 2011 that analyzed mathematical teaching and its influences in financial education using interviews with financial consultants and students but didn't include ENEF's gaps or other financial topics in his study; or even Hofmann and Moro in 2012 paper regarding ENEF perspectives show a different approach, focusing in the mathematical part of financial education. The present study shows a possible design that may be more effective for Brazilian young population to learn about finance and offers the main features that should be updated in the existing curriculum. It is important to note that Financial Education must be developed countrywide and incentivized and regulated by the existing Authority of the country and the first step to do so, is to add specific financial classes from the first years of tuition so the topic is covered in a proper way for all students.

5 Conclusion

This study aimed to analyze how financial education should be approached in Brazilian schools, according to Brazilian financial experts, once they are considered more familiarized with the market and the main problems faced by the population. In a second step, the opinions of these experts were compared to ENEF's initiative from the government, to establish which changes or additions might be helpful for the existing design.

The main achievement of the paper is to analyze how things are being done and suggest improvements based in a practical study, and, if implemented, reinforce financial education in Brazil to be more effective for the population.

Financial experts agree that financial education must be a topic in school, starting from early ages, and should be covered within a specific discipline focused on this matter, led by an instructor specialized and trained. Knowledge should include practical and theoretical lessons to exemplify how the theory works, and how students interact daily with financial decisions. Some of the features considered important by the financial professors are already included in ENEF's initiative, and some others, should be included, as the specific discipline focused only in financial education, improve the preparation of the instructor, include exams, homework, and a hands-on design.

We believe that with this adaptation, financial education in Brazil can develop its concepts and prepare the population to have a healthier interaction with financial agents and the market, allowing and encouraging better behavior, for future adults, leading the country to a better economic position.

For next studies it is important to adapt the questionnaire and implementation by region, once Brazil is a continental country, and build a design based on the findings of the present

study to implement and analyze with pre and post intervention, treatment and non-treatment groups how successful this design might be in order to consider it an efficient design program, focused on this country's needs.

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Appendix

I – QUESTIONNAIRE

Questionário: Como a educação financeira deve ser implementada nas escolas brasileiras?

Sobre você

1. Idade	<input type="checkbox"/> Até 30 anos	<input type="checkbox"/> Entre 31 e 40 anos	<input type="checkbox"/> entre 41 e 50 anos	<input type="checkbox"/> entre 51 e 60 anos	<input type="checkbox"/> Mais de 60 anos
2. Gênero	<input type="checkbox"/> Feminino	<input type="checkbox"/> Masculino	<input type="checkbox"/> Não Binário		
3. Anos de Docência	<input type="checkbox"/> Menos de 5	<input type="checkbox"/> entre 5 e 10	<input type="checkbox"/> entre 11 e 20	<input type="checkbox"/> entre 21 e 30	<input type="checkbox"/> 31 ou mais
4. Grau de escolaridade	<input type="checkbox"/> Graduação	<input type="checkbox"/> Mestrado	<input type="checkbox"/> Doutorado		
5. Principal atividade profissional	<input type="checkbox"/> Acadêmica (docência)	<input type="checkbox"/> Mercado (empresarial)			
6. Principal atividade acadêmica	<input type="checkbox"/> Ensino	<input type="checkbox"/> Pesquisa			
7. Principal instituição de ensino	<input type="checkbox"/> Pública	<input type="checkbox"/> Privada			
8. Nível acadêmico que leciona	<input type="checkbox"/> Graduação	<input type="checkbox"/> Mestrado	<input type="checkbox"/> Doutorado	<input type="checkbox"/> Especialização/MBA	
9. Região de atuação profissional	<input type="checkbox"/> Norte	<input type="checkbox"/> Nordeste	<input type="checkbox"/> Centro-oeste	<input type="checkbox"/> Sul	<input type="checkbox"/> Sudeste

Programas de Educação Financeira

10. Você conhece a ENEF (Estratégia Nacional de Educação Financeira)?	<input type="checkbox"/> Sim	<input type="checkbox"/> Não
11. Você conhece algum outro programa de educação financeira?	<input type="checkbox"/> Sim	<input type="checkbox"/> Não

Educação Financeira nas Escolas

12. Em sua opinião, a educação financeira deve ser abordada no ensino básico (infantil,	<input type="checkbox"/> Sim	<input type="checkbox"/> Não
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Como a Educação Financeira deve ser abordada nas escolas?

13. O ensino da educação financeira nas escolas deve ser obrigatório?	<input type="checkbox"/> Sim	<input type="checkbox"/> Não			
14. Em qual nível deve-se iniciar o ensino financeiro nas escolas?	<input type="checkbox"/> Infantil	<input type="checkbox"/> Fundamental I	<input type="checkbox"/> Fundamental II	<input type="checkbox"/> Médio	
15. O tema deve ser abordado em:	<input type="checkbox"/> Disciplinas extra-curriculares	<input type="checkbox"/> no currículo básico			
16. Para o ensino infantil o conteúdo deve ser abordado em aulas:	<input type="checkbox"/> Específicas de Educação Financeira	<input type="checkbox"/> De Disciplinas já existentes (como matemática, sociologia, história)	<input type="checkbox"/> Acredito o ensino deva iniciar em níveis escolares mais avançados		
17. Para o ensino fundamental I o conteúdo deve ser abordado em aulas:	<input type="checkbox"/> Específicas de Educação Financeira	<input type="checkbox"/> De Disciplinas já existentes (como matemática, sociologia, história)	<input type="checkbox"/> Acredito o ensino deva iniciar em níveis escolares mais avançados		
18. Para o ensino fundamental II o conteúdo deve ser abordado em aulas:	<input type="checkbox"/> Específicas de Educação Financeira	<input type="checkbox"/> De Disciplinas já existentes (como matemática, sociologia, história)	<input type="checkbox"/> Acredito o ensino deva iniciar em níveis escolares mais avançados		
19. Para o ensino médio o conteúdo deve ser abordado em aulas:	<input type="checkbox"/> Específicas de Educação Financeira	<input type="checkbox"/> De Disciplinas já existentes (como matemática, sociologia, história)			
20. Quem deve ser responsável por ministrar o conteúdo para o ensino infantil?	<input type="checkbox"/> Pedagogo	<input type="checkbox"/> Professor de outra disciplina	<input type="checkbox"/> Professor de Finanças	<input type="checkbox"/> Quem tiver participado de curso de educador financeiro	<input type="checkbox"/> Acredito o ensino deva iniciar em níveis escolares mais avançados

21. Quem deve ser responsável por ministrar o conteúdo para o ensino fundamental I?	<input type="checkbox"/> Pedagogo	<input type="checkbox"/> Professor de outra disciplina	<input type="checkbox"/> Professor de Finanças	<input type="checkbox"/> Quem tiver participado de curso de educador financeiro	<input type="checkbox"/> Acredito o ensino deva iniciar em níveis escolares mais avançados
22. Quem deve ser responsável por ministrar o conteúdo para o ensino fundamental II?	<input type="checkbox"/> Pedagogo	<input type="checkbox"/> Professor de outra disciplina	<input type="checkbox"/> Professor de Finanças	<input type="checkbox"/> Quem tiver participado de curso de educador financeiro	<input type="checkbox"/> Acredito o ensino deva iniciar em níveis escolares mais avançados
23. Quem deve ser responsável por ministrar o conteúdo para o ensino médio?	<input type="checkbox"/> Pedagogo	<input type="checkbox"/> Professor de outra disciplina	<input type="checkbox"/> Professor de Finanças	<input type="checkbox"/> Quem tiver participado de curso de educador financeiro	
24. Como capacitar o responsável por ministrar o conteúdo?	<input type="checkbox"/> Cursos online	<input type="checkbox"/> Cursos presenciais	<input type="checkbox"/> Disseminação de materiais gráficos e visuais		
25. Deve haver exame para auferir a aprendizagem dos alunos?	<input type="checkbox"/> Sim	<input type="checkbox"/> Não			
26. O conhecimento deve ser:	<input type="checkbox"/> Teórico	<input type="checkbox"/> Prático	<input type="checkbox"/> Ambos		
27. O programa deve ser estruturado de acordo com:	<input type="checkbox"/> Livros de Finanças	<input type="checkbox"/> Apostilas específicas do programa	<input type="checkbox"/> Os critérios dos responsável por ministrar o conteúdo		

Como a Educação Financeira deve ser abordada nas escolas?

		1	2	3	4	5	6	7	8	9	10	
28. O conhecimento deve ser baseado:	Mercado Brasileiro	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Mercado Internacional
29. Deve haver visitas e passeios a locais específicos (como bancos, bolsa de valores, empresas) dependendo do local da escola?	Discordo totalmente	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Concordo totalmente
30. Deve haver palestras com pessoas específicas (como investidores, profissionais da área, etc)?	Discordo totalmente	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Concordo totalmente
31. Deve haver vivências específicas (como interpretações, simulações de eventos, encenações, etc)?	Discordo totalmente	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Concordo totalmente
32. Deve-se abordar conteúdo acerca de microeconomia?	Discordo totalmente	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Concordo totalmente
33. Deve-se abordar conteúdo acerca de macroeconomia?	Discordo totalmente	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Concordo totalmente
34. Deve-se abordar conteúdo acerca de leis do consumidor?	Discordo totalmente	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Concordo totalmente
35. Deve-se abordar conteúdo acerca de finanças pessoais e familiar?	Discordo totalmente	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Concordo totalmente
36. Deve-se abordar conteúdo acerca de ideologias econômicas?	Discordo totalmente	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Concordo totalmente
37. Deve-se abordar conteúdo acerca de políticas?	Discordo totalmente	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Concordo totalmente
38. Deve-se envolver a família no processo de aprendizagem?	Discordo totalmente	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Concordo totalmente
39. Deve-se oferecer material didático a ser estudado em casa?	Discordo totalmente	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Concordo totalmente
40. Deve-se interpretar as mudanças impostas pela evolução dos mercados (como as inovações criadas e novas formas de interação entre os agentes)?	Discordo totalmente	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Concordo totalmente
41. Deve-se abordar conteúdo sobre previdência social e planejamento da aposentadoria?	Discordo totalmente	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Concordo totalmente

42. Deve-se abordar conteúdo sobre tributos que incidem sobre a renda e o consumo?	Discordo totalmente	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Concordo totalmente
43. Deve-se abordar conteúdo acerca de hábitos de consumo?	Discordo totalmente	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Concordo totalmente
44. Deve-se analisar acontecimentos econômicos passados e suas influências nos dias atuais?	Discordo totalmente	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Concordo totalmente
45. Deve-se abordar temas como investimentos, bolsa de valores e taxas cambiais?	Discordo totalmente	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Concordo totalmente
46. Deve-se abordar conteúdo acerca de matemática financeira?	Discordo totalmente	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Concordo totalmente
