The Relationship of Youth Financial Literacy with Family Communication Patterns

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Abstract

Tittle: The relationship of youth financial literacy with family communication patterns

Improving the levels of financial literacy has been a strong topic on the agenda of governments, financial institutions, and schools. In an attempt to increase such levels, the focus has been on education, however research on this topic has provided mixed results, indicating that other relevant factors that may impact financial literacy need further exploration. This dissertation aims to study the relationship of family communication patterns with youth financial literacy as a means to understand if parental communication can be intervened to influence better financial decision-making. I hypothesize that conversation orientation will have a positive impact on the financial literacy test and that conformity orientation will have a negative impact. Additionally, I propose that children from the high conversation and low conformity orientations will be the best performing while low conversation and high conformity orientations will be the lower performers. The research was conducted in partnership with two schools where a survey was deployed among 9th-grade students. Results show that children from families with higher levels of conversation or conformity had higher performance on the financial literacy test, when including an interaction term of conversation and conformity in the analysis. Regarding the interaction of the two dimensions, the only significant difference was that children with high levels of conversation and low conformity (i.e., pluralistic families) outperformed those at low levels of conversation and high conformity (i.e., laissez-faire). This dissertation concludes that both conversation and conformity orientation positively relate to financial literacy and the interaction of these variables is still inconclusive.

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Keywords: Youth Financial Literacy; Financial Behavior; Financial Knowledge; Financial decision-making; Family Financial Socialization; Family Communication Patterns.

Sumário

Título: A relação entre literacia financeira infantil e os padrões de comunicação na família

Melhorar os níveis de literacia financeira tem sido um tópico relevante nas agendas de governos, instituições financeiras e escolas. Na tentativa de melhorar esses mesmos níveis, o foco tem sido a educação. Contudo, pesquisa sobre este tópico tem demonstrado resultados ambíguos, sugerindo que haverá outros fatores que impactam a literacia financeira e que necessitam de investigação adicional. Esta tese tem como objetivo estudar a relação dos padrões de comunicação na família com a literacia financeira em crianças, de maneira a entender se a comunicação parental pode ser estimulada de forma a melhorar as tomadas de decisão financeiras. É conjeturado que a orientação de conversação terá um impacto positivo no teste de literacia financeira e que a orientação de conformidade terá um impacto negativo. Adicionalmente, proponho que crianças de famílias com alta conversação e baixa conformidade obterão os melhores resultados e que, ao invés, as de baixa conversação e alta conformidade obterão a performance mais baixa. A pesquisa foi realizada em parceria com duas escolas onde o questionário foi distribuído a alunos do 9º ano. Os resultados exibem que crianças de famílias com altos níveis de conversação, ou conformidade tiveram melhores resultados, quando incluindo a interação entre conversação e conformidade. A única diferença significativa foi relativamente a crianças com níveis de alta conversação e baixa conformidade, que superaram os resultados das crianças com baixa conversação e alta conformidade. Esta dissertação conclui que tanto a conversação como a conformidade impactaram positivamente a literacia financeira e que a interação destas variáveis é inconclusiva.

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Palavras-chave: Literacia Financeira Infantil; Comportamento financeiro; Conhecimento Financeiro; Tomada de Decisão Financeira; Socialização Financeira na Família; Padrões de Comunicação na Família.

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Glossary

α	The probability of making Type I error; Cronbach's index of reliability
b	Unstandardized regression coefficient
&	And
F	Fisher's F ratio
M	Sample Mean
MD	Mean Difference
n	Number of cases per condition
N	Total number of cases
p	p-value
R^2	Multiple correlation squared
RQ	Research Question
SD	Standard Deviation
SE	Standard Error

1. Introduction

Quote:

> "Just as it was not possible to contribute to and thrive in an industrialized society without basic literacy—the ability to read and write—so it is not possible to successfully navigate today's world without being financially literate. Financial literacy truly is an essential skill for the 21st century." – Annamaria Lusardi (2015, p. 653), University Professor of Economics and Accountancy at the George Washington University

Financial literacy is a critical element for both individuals and society's economic and financial stability. Children are growing up in an increasingly complex environment in which they will eventually be responsible for their own financial well-being. Financial services and products have become more broadly available as a result of globalization and digital technology, but they have also become more complex and intricate to manage (OECD, 2017). Still, the levels of financial literacy among youth are not accompanying this financial evolution. Therefore, there is a clear need to improve financial literacy among the youths to ensure they can cope with the current economic needs.

For several financial decisions and behaviors, the advantages of financial literacy have been scientifically established. Improved financial literacy has been shown to improve stock market participation (van Rooij et al., 2011), retirement planning and savings (Clark et al., 2012; Jappelli & Padula, 2013), debt management (Stango & Zinman, 2009) and mortgage conditions (Duca & Kumar, 2014). Previous research has found a link between financial expertise and capital, with financial expertise accounting for 30 to 40% of the variance in retirement funds (Lusardi et al., 2017). As a result, boosting one's own financial literacy can result in significant short- and long-term rewards. Contrarily, low financial literacy has been related to poor financial decisions (Hilgert & Hogarth, 2003). Individuals who lack financial literacy face a variety of disadvantages, including a lack of adequate long-term investments (Yoong, 2011) and high borrowing rates and fees (Lusardi & Scheresberg, 2013).

However, within the literature on financial literacy, questions remain about the sources through which individuals acquire financial literacy. Much focus has been placed on financial education, but studies have shown that the impact of financial education on financial behavior does not hold in many circumstances (Fernandes et al., 2014). Other research has evaluated financial literacy among American teens using variables associated with parental education level, financial complexity, and family wealth (Lusardi et al., 2010) finding evidence that financial literacy is connected to family financial expertise and sociodemographic factors.

Several additional studies have looked at the impact of multiple socialization effects on young adults' financial literacy outside of the classroom. School, work, and family are the three main socializing influences (Shim et al., 2009). Hence, it is suggested that the acquisition of financial literacy is a complex process that involves several mechanisms but there is still missing information to connect the dots between different approaches and variables.

In the last couple decades, the role of socialization on youth financial literacy has emerged as an important field of study with focus on family socialization. It has been demonstrated that teenagers who were given more financial information from their parents had better financial goal setting and saving habits (Campenhout, 2015; Koonce et al., 2008). Furthermore, in a theoretical review of the family financial socialization process, Gudmunson and Danes (2011) point out that "poor family relationships lead to financial behaviors that do not improve financial well-being" (p. 661), highlighting that family interactions that are not financial in nature (e.g., family interpersonal communication, parenting style) also play a role in children's financial socialization. Thus, financial troubles are frequently linked to poor family functioning, making it relevant to further investigate this association.

Within this socialization process, communication plays a significant role in interpersonal relationships and financial socialization, as well as being an essential link to financial habits. Deenanath and collaborators (2019) and Zhu (2018) have examined parent-child financial discussion and found that it is associated with healthy financial conduct among teenagers, as mediated by subjective financial knowledge. As a result, it shows that the nature of the family social context not only provides opportunities to convey financial knowledge, but also that the regularity with which communication occurs leads to better money management practices (Gudmunson & Danes, 2011).

1.1 Problem Statement

This thesis' aim is to understand the impact of communication within family on adolescents' financial literacy. To do so, I used a survey-based approach to provide new insights on children's acquisition of financial knowledge from their parents. I assessed young adults' financial literacy and their parents' communication patterns to understand if the communication patterns within family, either financial or not in nature, create a communication scenario that allows parents to convey financial knowledge and expose children to what parents consider to be desirable financial behavior.

As a result, the communication context, as defined by family communication pattern theory, is expected to have an impact on young students assessed financial literacy. Therefore, this research tries to answer the question: "Do parents' communication patterns influence children's financial literacy?". This problem statement can be divided into two main research questions:

RQ1: Children from households where parents, in general, talk more with their children, are more open in hearing their opinions and tend to not avoid discussion or conflict will tend to have higher financial literacy.

RQ2: Children from households where parents, in general, talk less with their children, are less open in hearing them and tend avoid discussion or conflict will tend to have lower financial literacy.

By addressing these research questions, this thesis contributes to the existing literature on how family influences financial knowledge and behavior of young adults.

1.2 Relevance

This analysis provides new insights and contributions on financial literacy and family communication patterns. Financial literacy research has had a tendency to concentrate more on high-school and college students, overlooking children (Huston, 2010). It also focuses more on acquisition of financial knowledge through formal education, even though researchers have shown that education tends to have a decaying effect over time (Fernandes et al., 2014; Willis, 2011)

Given that parents are an important influence on children's development (Shim et al., 2010), studying the role of parents and family in children's financial literacy is pivotal. Furthermore, with financial services becoming increasingly complex, governments, policy makers and financial institutions have gained more interest in financial socialization as a means to place efforts directed at improving consumer financial literacy, capacity, and well-being in the context of individual and family social settings and interactions. (Gardt et al., 2021; Xiao, 2016). Overall, this thesis aims to give the reader a good overview of the role of family socialization of Portuguese families and assess whether they have a relationship with youth financial literacy using a survey study.

The remainder of the paper is laid out as follows. The second chapter delves more into the concepts that will be discussed in this analysis. Chapter 3 introduces the sample and outlines the survey instrument chosen. The results are presented in Chapter 4, in particular the sample's characteristics and the link between family communication patterns and youth financial literacy. Chapter 5 discusses the dissertation's key results, consequences, limitations, and recommendations for further research. Finally, Chapter 6 provides a quick conclusion to the reader.

2. Literature Review

Financial literacy is especially crucial for the young, as they will be faced with financial decisions that will have effects throughout their lifetime. An example of such decisions is whether or not to go to college and how to fund that education. In her paper on Financial Literacy Skills for the 21st Century, Lusardi (2015) highlights that younger generations face increased challenges when it comes to financial matters. The combination of increased responsibility in personal decisions, plus increased availability and complexity of financial products and services creates a high need for knowledge to make healthy financial decisions from a young age. The Organization for Economic Cooperation and Development (OECD) has conducted extensive studies to determine the level of financial literacy among the youth in different countries. In a 2020 report, the OECD highlighted that more than 15% of children from the participating countries performed below baseline in terms of proficiency (OECD, 2020). This means that the students could only perform simple financial tasks but failed in critical financial literacy tasks, such as recognizing the value of a simple budget. Portugal students' performance was on the OECD average alongside with the United States and Latvia. A significant portion of students classified into level 3 of proficiency, out of 5 levels, with around 30% of students falling into that level for Portugal, Italy, Lithuania, Poland and Spain. Thus, there is a clear need to improve financial literacy among the youths to ensure they can cope with the current economic needs and decisions.

2.1 Defining and measuring financial literacy

When it comes to the literature about financial literacy a few challenges arise regarding its definition and measurement which can make it difficult to compare results. According to Bay and collaborators (2014), there is no universally accepted definition for financial literacy. Huston (2010) defines it as contemplating two dimensions: measuring how well an individual can 1) understand and 2) use personal finance-related information. Other scholars have attempted to provide different definitions of financial literacy. For example, according to (Remund, 2010), financial literacy is a measure of how a person can understand financial concepts and have the confidence to make short- and long-term planning irrespective of the changing economic conditions. Overall, financial literacy refers to the capacity to manage one's financial resources in the most fundamental sense.

As defined by the Organization for Economic Cooperation and Development (OECD), financial literacy refers to the blend of financial knowledge, skills, attitude, and behaviors that help a person make prudent financial decisions and achieve financial wellbeing (Atkinson, 2012). This definition is adopted in the current thesis due to its comprehensiveness, the combination of various valuable components in the measurement of financial literacy, and given it is the definition underlying the financial literacy test adopted in this thesis, as will be seen later.

Financial literacy does not yet have a set of standardized examinations available. There are varied methods that can be used to measure financial literacy, and they vary according to the conceptual definitions of different researchers. Some of the ways researchers use to determine the level of financial literacy include assessing whether participants understand concepts such as capital market system, household cash flow, and emergency fund (Hung et al., 2009), as well as the use of performance tests or self-assessment (Huston, 2010). Performance tests are knowledge-based and assess whether one understands the conceptual definitions (Hung et al., 2009). In turn, self-assessments are used to assess how much participants think they know (confidence in knowledge) (OECD, 2014) . Other researchers use subjective financial literacy measurement to measure the financial confidence level of the participants. For example, Lusardi and Mitchell (2007) measured the subjective financial literacy by assessing two scores in their study. The first score assesses the knowledge of concepts and their ability to use them, and the second score assesses the participant's confidence in using that same financial knowledge. In summary, there is not yet a consistently used test to measure financial literacy which makes the process of further research on the topic and the comparison with previous studies more difficult.

Moreover, a recurrent limitation of the performance tests is the scoring. In an analysis by Huston (2010) on 52 novel studies that proposed methods to measure financial literacy, it was reported that nine out of ten studies did not provide a metric for determining whether or not a respondent was financially literate, and the remaining were split evenly between a financial literacy threshold and a grading system for interpreting the measure's results. This ambiguity is also an obstacle to a common or broad understanding of the financial literacy construct.

Furthermore, the lack of comprehensiveness of some of these tests create limitations that may influence the results and their interpretation. For example, some tests are lacking in fully addressing personal finance components and prioritize cognitive testing including financial mathematics, cognitive knowledge and general math skills (Hung et al., 2009). Such tests fall short in presenting comprehensive results given the importance of non-cognitive variables such as confidence, perseverance and openness to problem solving, which have been shown to be strongly associated with financial literacy scores (OECD, 2014). Hence, even though there have been reports that financial literacy has a significant relationship with arithmetic and reading ability (Clark et al., 2018) this does not necessarily translate into healthy financial performance and behavior. This point is extremely important given the scope of financial literacy goes beyond financial knowledge. Financial knowledge is an important component of financial literacy, but it is not the same as it. Financial literacy also has an application dimension, implying that a person must be able and confident in using his or her financial knowledge to make financial decisions (Huston, 2010). As such, a good financial literacy test should encompass both cognitive and non-cognitive assessments.

In addition, the majority of reviewed tests focused on specific audiences with the most common being college students (Huston, 2010). When looking for a suitable measurement for an audience of young adults (around 15 years old), the test that stood out was the OECD's Program for International Student Assessment (PISA) financial literacy test. The PISA OECD's financial literacy test was introduced in 2012. It was the first large-scale international research to test young people's financial literacy (Lusardi, 2015) . The test was designed with a group of experts and with several stakeholders from different countries, including regulators, practitioners, and academics, as well as representatives of treasury departments and central banks (Lusardi, 2015). It was developed through the course of two years, and it describes financial literacy as it relates to kids. The test is organized around three domains that are important for assessing 15-year-old children: content, processes, and context (OECD, 2019b). The context, development process and participants that ground the construction of this test were already great indicators for it to be a good measurement instrument to use in the current study.

Furthermore, the PISA financial literacy test was the most meticulous and complete tests to measure financial literacy on youth. The instrument addresses the measurement of both cognitive and non-cognitive domains (OECD, 2019b). On the cognitive side it addresses content such as: 1) money and transactions, 2) planning and managing finances, 3) risk and reward, 4) identifying financial information. On the non-cognitive side, it assesses: 1) financial behavior and attitudes, 2) access to and use of money and financial products, and 3) confidence in one's own financial decisions (OECD, 2019b). Hence, the test overcomes some of the previously mentioned limitations of other tests.

Also, the assessment question format and coding were also taken into consideration to avoid potential biases during the test's development. The framework of the PISA financial literacy test highlights that research suggest that different groups, for example boys and girls, respond differently to the several item formats (OECD, 2019b). As such, and to overcome the impact of this problematic, the test encompasses a mixture of multiple-choice and constructed-response items.

Despite its benefits, the PISA financial literacy test also has characteristics that limits its use. First, the majority of the questions are not public. Second, the whole test is composed of around 43 items and can take up to one and a half hour to answer (OECD, 2019b), which makes its adoption difficult for researchers outside the OECD scope. Nevertheless, the benefits of this test outweigh its costs so it was adopted in this thesis.

2.2 Factors influencing financial literacy in youth

Financial literacy acquisition can be associated with many different factors. The level of financial literacy among the youths is determined by several factors such as peer influence, educational attainment, and family characteristics. A study conducted by Lusardi and collaborators (2010) on financial literacy found a strong correlation between education attainment and financial literacy. Respondents who attended college were 4%, 11% and 15% more likely to answer correctly questions related to interest rate, inflation, and risk diversification, respectively, compared to participants who had no college attendance. Even for participants who graduated from high school the probability of correctly answering questions related with inflation was 6% higher than participants who didn't. The study also found that family characteristics such as the family financial expertise affected the financial literacy of the youths. Youths whose parents had retirement investments or owned stock were 6% and 8% more likely to correctly answer questions related with risk diversification, respectively, than their counterparts. This shows that family characteristics such as educational levels and financial practices play a significant role in financial literacy among the youths.

Furthermore, the PISA financial literacy assessment conducted by the OECD found that there was a small but statistically significant difference in performance between boys and girls by 2 points (OECD, 2020). This difference increased to 10 points when accounting for mathematics or reading performance. Additionally, children from more affluent households outperformed their counterparts from less affluent families across all participating OECD countries and economies by roughly 75 points (see appendix B) (OECD, 2020). Immigrant kids from similar socioeconomic backgrounds performed worse than non-immigrant children by only five points below. Finland, Estonia, and Portugal are among the countries with a gap between the two groups higher than the average for the OECD. As such, demographics and socioeconomic status are also factors impacting financial literacy. Another potential factor is financial socialization, to which we turn to next.

2.3 Financial socialization theory

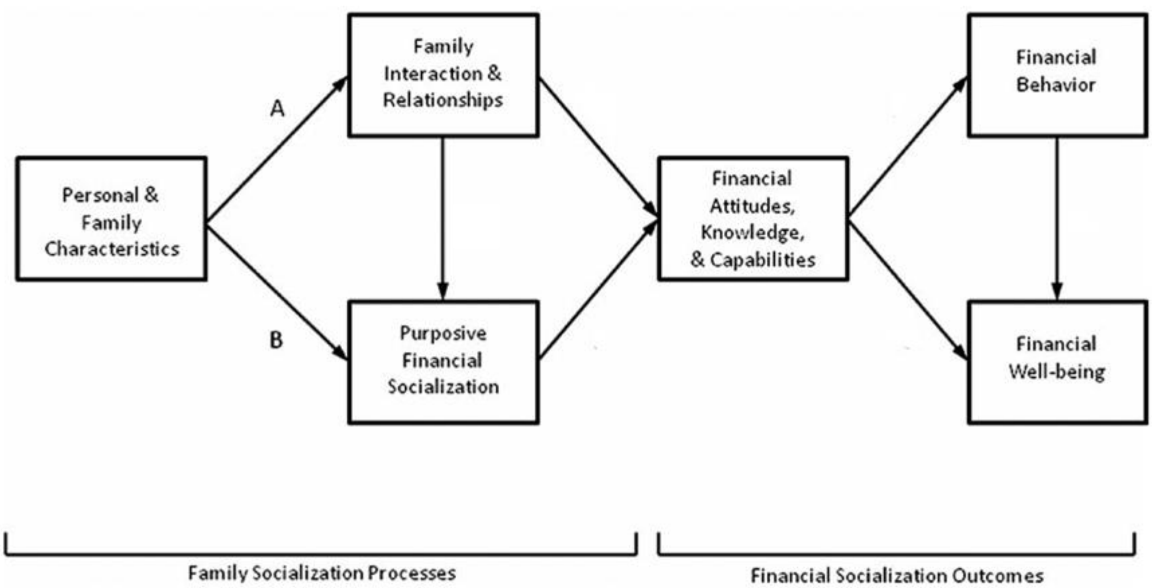
Based on the financial socialization theory, what children and teens see, learn and experience during their childhood and adolescence influences their financial aptitude and decision-making (Marchant & Harrison, 2020). Financial socialization is a subset of general human socialization, described by Danes (1994) as "the process of acquiring and developing values, attitudes, standards, norms, knowledge, and behaviors that contribute to the financial viability and individual well-being" (p. 128). In other words, current members of a group assist newer members integrating the group's morals, norms, procedures, positions, and attitudes to their thinking and behavior through socialization mechanisms (Xiao, 2016). Hence, financial socialization is the transfer of these values, norms, rules, among others, regarding financial affairs. In summary, financial socialization theory assesses how people, namely children, acquire non-cognitive skills towards financial matters, previously established to be of relevance regarding financial literacy.

This financial socialization process occurs in numerous social contexts. In a children/young adult context, this encompasses relationships such as parent-child, peer-to-peer, teacher-learner, and producer-consumer (Gudmunson et al., 2016). According to Shim and collaborators (2010), parents, schools, and the workplace all have a role in anticipatory financial socialization throughout adolescence.–These researchers interviewed over 2,000 college students and discovered that parental financial activities and contact with children had a long-lasting effect on financial knowledge, attitude, and conduct. Additional research discovered that both the family and school environments have a positive influence on children's financial literacy and suggests that financial literacy has a positive moderating effect between parent financial socialization and financial decision making (Grohmann et al., 2015). Shim and collaborators (2010) present even more robust evidence of the association between family and financial knowledge via a long-term longitudinal study. Together, these studies have established that children acquire financial knowledge and behavior through socialization processes via different mechanisms and agents.

Among the several financial socialization agents, family stands out. Some theorists present several reasons that highlight family, and namely parents, as the primary socializers of the social sphere of a child (Grusec, 2011). This line of research falls into the family financial socialization category. For Grusec (2011), parents are the main social agents for children because they are biologically suited to be primary careers for their children in order to guarantee "their own reproductive success" (p. 245), and, in most communities, parents are expected to fulfill this task. He further hypothesizes that parents' roles as resource managers and how they communicate with their children about resource allocation have a significant impact on family financial socialization processes. This argument is supported by several researchers' findings, where parents are repeatedly shown to be one of the main financial social agents that affect their children's financial views and conduct. (Gutter et al., 2010; Shim et al., 2010). Additionally, Gudmunson and Danes (2011b) proposed a conceptual model to study the family socialization theory regarding trends in financial literacy research (see Figure 1). The model depicts the link between the family socialization process and its outcomes by defining conceptual categories and illustrating theoretical links with practical examples.

Figure 1

Gudmunson and Dane's (2011) conceptual model of family financial socialization



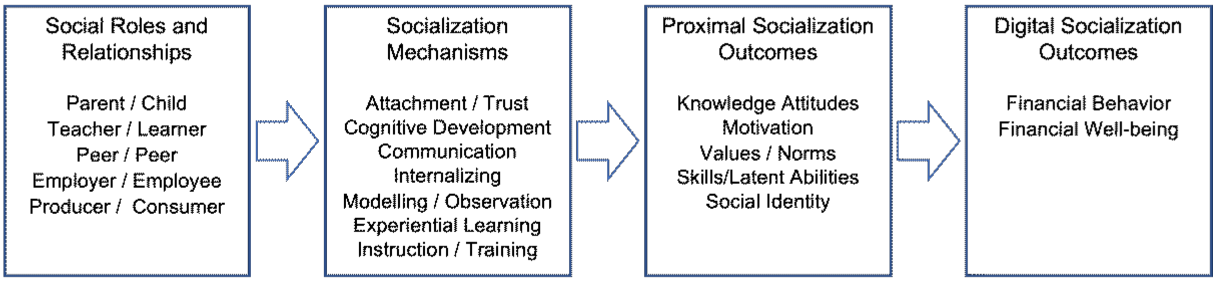
In other words, the model assesses how several aspects of the socialization process, such as family characteristics (e.g., socioeconomic status, household size), family interactions (e.g., communication, style of parenting), and financial knowledge, interact with each other and impact financial outcomes. Their study on family interaction and relationships found that family interaction influences factors such as the development of financial perspective, financial capability development, and knowledge transfer. The researchers argued that the effects of demographic characteristics often found in the financial literacy literature are transmitted through the socialization process.

The process of financial socialization happens in purposive ways (Figure 1, B) – by actively engaging in teaching, demonstrating, and practicing of financial topics and behaviors, for example through the use of allowances or involving children in financial activities such as shopping; and non-purposive ways (Figure 1, A) – through implicit communication of norms and behaviors in day-to-day exchanges during family time and interactions. In fact, (Gudmunson & Danes, 2011b) suggest that most financial socialization in the family is non-purposeful and is a byproduct of the family's day-to-day interaction patterns. In all social situation, financial socialization is not necessarily a goal-oriented or planned process. Meaning, everybody is financially socialized, for better or worse; nevertheless, in the broader environment of financial and economic structures in which they live, some people's financial socialization may lead them to harmful ideas, attitudes, and actions (Gudmunson et al., 2016). Hence, it is important to understand the socialization mechanisms in place to promote the ones that translate into health financial literacy and transform the ones with less good impact.

Recent theoretical advances have extended the understanding of the mechanics and outcomes of financial socialization. Gudmunson and collaborators (2016) propose a comprehensive theoretical model that includes several groups of variables that are involved in the process of financial socialization (see Figure 2). This set of variables encompasses: 1) attachment/trust, 2) cognitive development, 3) communication, 4) internalizing, 5) modeling/observation, 6) experiential learning and 7) instruction/training. For example, Lusardi, Mitchell, and Curto (2010) argued that those who often have meals with their families generate more money throughout their lives. Additionally, the authors assert that time spent together fosters self-regulation, positive socialization, communication, and information sharing. This can be an example of the use of the mechanisms of observation and communication.

Figure 2

Integrated model of financial socialization process (Gudmunson et al., 2016)



Furthermore, a study conducted by Shim and collaborators (2010) showed that parents' financial behavior and teachings had an impact on children's financial behavior. Even though it could lead to the development of both financial information seeking or avoidance behavior in children, it is proof of the impact of instruction and modeling as socialization mechanisms. Moreover, research by Sohn and collaborators (2012) shows that parents' explicit talk about money concerns impacts children's financial views and behaviors. Adolescents' increased knowledge and responsibility about money is linked to their parents' budgetary experiences (Sohn et al., 2012). Thus, parents' actions, such as having open discussions about money with their children, directly affect their children's future financial behavior.

Overall, research has shown that parental socialization and family communication influence attitudes toward trust, saving habits, credit card usage and scoring, as well as investment behavior. In the current thesis, the focus will be on the use of communication as a financial socialization mechanism.

The literature on financial literacy and the role of the family is almost unanimous on the importance of family communication. According to Shim and collaborators (2010), the broad agreement is that parents should speak to their children about money and model healthy financial practices for them. Unfortunately, family members often avoid discussing money, which may negatively influence people's financial literacy and behavior. Children in families with poor communication augment financial behaviors that do not improve financial well-being (Deenanath et al., 2019; Zhu, 2018). In other words, it seems that open communication improves the productivity of financial communication and information transmission from parents to children and vice-versa. Nonetheless, as previously stated, financial socialization happens both in purposive and non-purposive ways (Gudmunson & Danes, 2011b). This suggests that intentional and non-intentional communication will have an active role in transmitting financial habits to children in both purposive and non-purposive situations.

Overall, good family relationships and communication provides an opportunity for parents to express financial knowledge to their children. This transmission of information is a communicative action that may be better understood and measured through family communication patterns and the instrument that measures them.

2.3.1 Family Communication Patterns

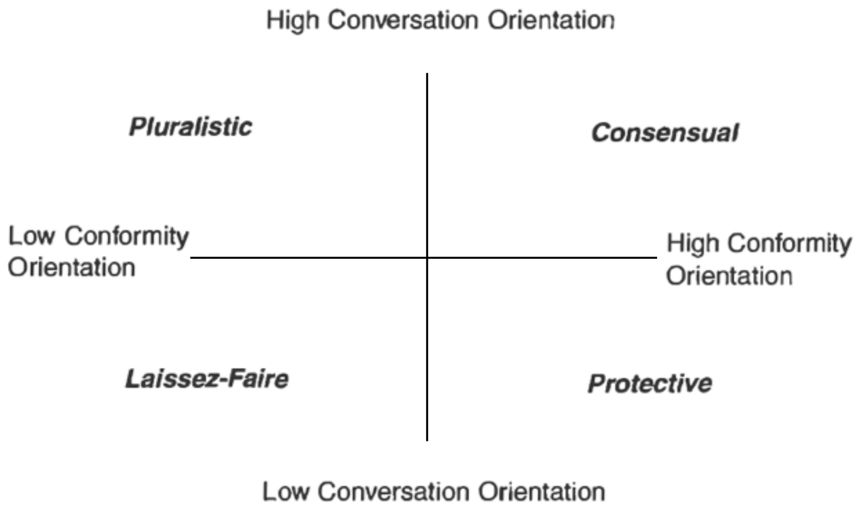
The concept of family communication patterns emerges alongside the study of family communication in mass media research. McLeod and Chaffee were forerunners in studying the family communication environment, describing it as a set of rules guiding the tradeoff between informative and relational goals of communication. In their analysis, they created a two-dimensional instrument to help categorize families according to their communication – the Family Communication Patterns (FCP) instrument (McLeod & Chaffee, 1973). This was the original instrument that came to be frequently used by both communication researchers in general and family communication researchers in particular (Koerner & Fitzpatrick, 2006).

The FCP instrument has suffered several alterations since its creation. In the late 1980s, Fitzpatrick and Ritchie improved and reconceptualized it to create an instrument to measure f family communication patterns more broadly (AKoerner & Fitzpatrick, 2006; Ritchie & Fitzpatrcik, 1990). The Revised Family Communication Patterns (RFCP) instrument translates into two dimensions: 1) conformity orientation, and 2) conversation orientation. Conversation orientation is defined as "the degree to which families create a climate in which all family members are encouraged to participate in unrestrained interaction about a wide array of topics" (Koerner and Fitzpatrick 2006, p.55). Family members in the high end of this dimension have interactions that can be described as free, regular, and intuitive, with little restrictions on the amount of time spent interacting and the topics addressed (Koerner & Fitzpatrick, 2002). In turn, conformity orientation denotes the "degree to which family communication stresses a climate of homogeneity of attitudes, values, and beliefs" (Koerner and Fitzpatrick 2006, p.55). In the high end of this dimension, interaction is focused on harmony, uniformity, and avoidance of conflict (Koerner & Fitzpatrick, 2002). These are the two core dimensions of family communication.

The two dimensions of family communication interact with each other. forming four family types: consensual, pluralistic, protective, and laissez-faire (Figure 3). Families with a high conversation orientation score but a low conformity orientation score are classified as pluralistic. Conversely, protective families have a low conversation orientation and a high conformity orientation. Families with high scores on both criteria are referred to as consensual and families with low scores on both scales are referred to be laissez-faire. According to Koerner & Fitzpatrick (2002), to be able to forecast the impact of family communication patterns on family outcomes by looking at only one dimension without also looking at the other would be insufficient.

Figure 3

Family types determined by conversation orientation and conformity orientation (Fitzpatrick & Ritchie, 1994)



I chose to use the family communication patterns theory and instrument because it differentiates from other family typologies used in communication research in several ways. Firstly, this theory does not distinguish based on well and poor functioning families and acknowledges that there is no universally idyllic family type (Koerner & Fitzpatrick, 2006). Classifying behaviors into functional and non-functional can vary within the context of different families. Thus, the family communication patterns overcome theories such as the circumplex model of family functioning by Olson's (1979) that have these underlying assumptions (Koerner & Fitzpatrick, 2006). Secondly, other theories assume that family functioning is unidimensional and that all behaviors correlate with each other, while the family communication patterns theory takes on a two-dimensional approach. Finally, the family communication theory is accompanied by a robust empirical measurement instrument of the two dimensions (i.e., conversation and conformity), with strong psychometric characteristics, the RFCP questionnaire. (Koerner & Fitzpatrick, 2006).

There is already evidence regarding the relationship of the family communication patterns and financial literacy. Hanson and Olson (2018) conducted research to determine whether strong conversation orientation in a family would result in higher financial literacy and vice-versa. The researchers hypothesized that families with high conversation and low conformity would outscore their counterparts from the low conversation and high conformity families. The results from the study showed a positive relationship between family communication and financial knowledge for college students, such that students benefitted from high conversation families as they developed higher financial literacy than students brought up in less conversational families (Hanson & Olson, 2018). The current thesis will contribute to accumulate more evidence in this regard.

2.4 Summary

Numerous studies have been carried out to investigate the relationship between financial socialization and family communication behaviors, with varying degrees of success in their findings. The current literature review shows that youth's childhood behaviors impact their decisions and knowledge regarding finances. Furthermore, family socialization plays a huge role in the financial socialization of children. Parents act as the main social agents, and youths often try to emulate their decisions, behaviors, and values regarding finances. In addition, parents who have conversations about finances are better placed to influence their children positively. From the research analyzed, communication plays a huge role in the level of financial literacy observed in children. Children brought up in protective families with high conformity are often associated with a low level of financial literacy. On the other hand, the children brought up in families with a strong conversation orientation are linked to high literacy levels. Therefore, this leads to the following hypotheses:

H1: Financial literacy will be higher, on average, among participants who come from a household with a strong conversation orientation.

H2: Financial literacy will be lower, on average, among participants who come from a home with a high conformity tendency.

H3: Financial literacy will be higher, on average, among participants who come from a household with a strong conversation and low conformity orientations.

H4: Financial literacy will be lower, on average, among participants who come from a household with a low conversation and high conformity orientations.

In other words, students from pluralistic homes (high dialogue and low conformity) are projected to outperform students from protective families (low conversation and high conformity) on the financial literacy assessment. Because they include either high or low scores on both dimensions at the same time, the effects of the remaining two categories (consensual and laissez-faire) are unknown a priori.

3. Methodology

3.1 Research strategy and design

I aimed to test the relationship between parental communication patterns and youth financial literacy. To do that I designed an observational study since it is the most common way to study the relationship between two variables, particularly when an experiment is not feasible (Rosenbaum, 2005), which was the case given it would be difficult to manipulate the variables under study. This, however, prevents the possibility to express causality between such variables.

The data was collected through an online survey using Qualtrics. Given the survey was being administered to a sample of Portuguese students, all questions were carefully written or translated to the Portuguese language.

Finally, regarding the main instruments used, the main concern was regarding the financial literacy test. Given the questions used are public it could happen that respondents had seen them before and that would influence the results, although unlikely. Additionally, we could not access the complete questions set (43) nor the exact score weight per question which could translate in an inaccurate financial literacy measurement. To overcome this, we attributed an equal score value to each question (1 point), and in the case of questions with several components the 1 point was divided by all components, as done by the PISA literacy test authors.

3.2 Participants

I collected a total of 147 responses. Participants were recruited through direct contact with two Portuguese schools that gave permission to implement the study in their schools to 9th grade classes. I only assessed students in the 9th grade because, in most OECD nations, that is the grade in which young people are reaching the conclusion of compulsory schooling, which is the criterion used by OECD PISA tests (OECD, 2019). The schools and kids were chosen to be as diverse as possible, so that the sample of pupils represents a diverse range of backgrounds and skills.

From the 147 responses, four were not complete and 13 did not correctly answer the attention check measured by an instructed response item among the questions of the RFMP instrument items ("Please respond with a 3 for this item") (Meade & Craig, 2012). At this point, 17 responses were eliminated. Sixty-one participants were males, 58 were females, and 11 preferred not to reveal their gender. To facilitate the analysis, these 11 cases were also eliminated. This adds up to a total of 119 participants between the ages of 14 and 15 (M =14.3) that correctly finished the survey. In terms of socioeconomic categorization, 14 participants were in the low, 47 in the medium, and 58 in the high category.

3.3 Materials/Measurements

3.3.1 Financial literacy measurement

Financial literacy was operationalized using eight questions about financial knowledge from previous OECD PISA tests. As OECD keeps most PISA test questions private, the questions used were public questions from previous assessments and the field trial questions of 2018 (OECD, 2020). Although this entails limitations, as previously discussed, this was the most comprehensive and complete available tool to measure youth financial literacy.

From the total 8 questions, 4 were multiple choice and the other 4 were open response. Moreover, 6 of the 8 questions were computer scored and 2 human-coded, based on the solution provided by OECD. The questions entailed different levels of difficulty coded by OECD according to their 5 levels proficiency scale (see the Appendix B). Given that the OECD does not disclose the scoring values each question was attributed the same value of 1 point, making the total maximum of attainable points to be 8. I believed this to be sufficient to assess the participants financial literacy in a simple and still accurate way. Finally, the questions were translated to Portuguese to mitigate the need of English literacy.

3.3.2 Family communication patterns

The family communication patterns were measured using the child version of the Revised Family Communication Pattern (RFCP) Instrument (Ritchie & Fitzpatrcik, 1990). The RFCP is made up of 26 Likert-type items that assess two underlying dimensions of family communication patterns: 1) conversation orientation (15 items), for example: "My parents often ask my opinion when the family is talking about something" and 2) conformity orientation (11 items), for example, "In our home, my parents usually have the last word" (Ritchie &

Fitzpatrcik, 1990). The Likert scale had 5 points, from 1 (*strongly disagree*) to 5 (*strongly agree*).

The instrument was originally written in English but was prudently translated to Portuguese. To do so, the method of back-translation was used (Brislin, 1970). Hence, I translated the 26 English items from the RFCP instrument (Koerner and Fitzpatrick 2002) to Portuguese. Afterwards the questions were translated to English by a literature and English college graduate, without having seen the original version. Using the version translated form Portuguese to English, the questions were translated again back to Portuguese by me, taking into consideration the discrepancies between the original instrument, the first Portuguese translation and the back translation to English aiming to ensure the closest authenticity to the original instrument and best understanding of the participants. Even though this method is iterative and may require several rounds of back-translation, only one round was performed.

Moreover, as recommended by the authors of this instrument, we mixed the items of the two scales and randomized the presentation order when conducting the questionnaire. Furthermore, the scale averages were used to calculate the individual scores for each dimension, with each item contributing equally to each dimension's average. These average scores were both used as independent variables and to compute family types by categorizing families into low and high conformity and conversation orientation based on median splits.

3.3.2 Socioeconomic Status

To measure the socioeconomic status, I used the family affluence scale (FAS). This scale was developed by the World Health Organization and is a commonly used scale to measure the socioeconomic status of adolescents. (Svedberg et al., 2016). The measurement consists of 4 items: owning vehicles ("Does your family own a car, van, or a truck?", answer options: 0, 1, 2), bedroom sharing ("Do you have your own room?", answer options: yes = 1, no = 0), quantity of holidays per year ("During the past 12 months, how many times did you travel away on holiday with your family?", answer options: 0, 1, 2, 3), and number of computers of the household ("How many computers does your family own?", answer options: 0, 1, 2, 3). Then the FAS score is calculated by summing the four items' responses with a range of 0 to 9 and it is then categorized into low (0–5), medium (6–7) and high (8–9) (Svedberg et al., 2016).

3.3.2 Careless responses

Finally, to identify careless responses an attention test was included via an instructed response item (Meade & Craig, 2012) among the questions of the RFMP instrument items. Participants were asked to select the answer 3 ("Please respond with a 3 for this item"). These type of control items have shown to be powerful in detecting respondents not paying attention in reading the items. (Meade & Craig, 2012). With this question I could detect careless responses that might contaminate the results.

3.4 Procedure

Students were solicited by directly contacting the schools' teachers and asking for permission to deploy the study among their students. To avoid students from copying answers from each other or using resources that could assist in their responses and influence the results, the survey was deployed during a class to all the students roughly at the same time with professor supervision. For each class, before the students started the survey, I briefly explained the purpose of the study and the survey composition to make it as clear as possible for students. Students accessed the survey in their personal mobile phones by scanning a QR code that was projected in each room. The QR code directed them to the survey on Qualtrics platform. The survey had the same composition for all participants, starting with the informed consent, then demographic questions, then the financial literacy questions and finally the RFCP instrument questions. Lastly, all items had associated a request response pop-up so that if a student did not answer it would flag out that they had not answer and would incentive to do so.

4. Results

4.1 Data Preparation and cleaning

Prior to beginning the analysis, several actions were made to prepare the data.
Firstly, using Excel, I coded the financial literacy questions into correct (1) vs. incorrect (0). Then the data was introduced into SPSS. A financial literacy score was calculated by adding up the points of each question up to 8 points. Following this, for each dimension of the RFCP instrument (conversation and conformity), the scores were calculated by doing the average of the Likert-scale values responses., as no item had to be reverse-coded. Furthermore, to allow a classification of the four family types contemplated by the family communication patterns theory (Ritchie & Fitzpatrcik, 1990), each participant was coded based on the value of the

median for each dimension, as high or low if higher or lower than the median, respectively. Participants were, thus, categorized as pluralistic (high conversation, low conformity), protective (low conversation, high conformity), consensual (high conversation, high conformity), and laissez-faire (low conversation, low conformity). Finally, regarding socioeconomic status, the FAS score was calculated by adding up the values of the four questions and then categorizing participants into low, medium or high as indicated by the instrument authors and described in the measurements section.

4.2 Scale reliability

In order to guarantee the trustworthiness of the RFCP instrument, which is measured using a Likert-type scale, I performed a reliability test measuring the Cronbach a. The RFCP exhibited high reliability both for conformity (Cronbach's α =.82) and conversation (Cronbach's α =.90) scales. These values are aligned with previous research using this instrument (Hanson & Olson, 2018; Koesten, 2004).

4.3 Summary statistics

Before proceeding to the hypothesis testing, descriptive statistics were calculated for the relevant variables. Table 1 provides descriptive information for financial literacy score, total and by gender, the conformity and conversation dimensions of the RFCP (Ritchie, 1990), and the FAS-score for all participants (N = 119). As expected from previous literature on young adults' financial literacy (e.g., Lusardi, 2010), the average literacy score for boys (M = 5.11, SD = 1.51) was descriptively but non-significantly higher than the average score for girls (M = 4.99, SD = 1.43), $t(177) = 0.45$, p = .656.

Table 1

Descriptive Statistics

Variable	*M*	*SD*	*Min*	*Max*	*N*
Financial literacy	5.05	1.47	1.00	7.50	119
RFCP					
Conformity	3.06	0.63	1.82	4.82	119
Conversation	3.59	0.69	1.67	4.87	119
FAS-Score	7.33	1.35	4.00	9.00	119

Table 2 displays the relationships among the primary variables of interest through Pearson's correlation coefficients. Contrary to what could be expected from previous studies (e.g., OECD, 2018), socioeconomic status did not correlate significantly with financial literacy when it was analysed as a raw score or even with low, medium, high categories. Finally, financial literacy is not significantly associated with conversation and conformity orientation.

Table 2

Pearson correlation coefficients for the primary variables of interest

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Financial literacy	1							
(2) Conversation	.08	1						
(3) Conformity	.02	-.43**	1					
(4) Conv * Conf	.04	.53**	.51**	1				
(5) High FAS	-.07	.10	.04	.15	1			
(6) Medium FAS	.06	-.07	-.10	-.16	-.79**	1		
(7) Low FAS	.02	-.05	.09	.01	-.36**	.29**	1	
(8) Female	-.04	.07	.03	.04	.03	-.10	.11	1

4.4 Hypothesis testing

4.4.1 Relationship of conversation and conformity orientation with youth financial literacy

To test Hypotheses 1 and 2, firstly I analysed the financial literacy score as dependent variable plus conformity and conversation scores as predictors (see Table 3) of a multiple linear regression. The result of this analysis revealed a non-significant impact of both conversation and conformity, all *p*s > .30. I then did a second analysis, adding gender and FAS-score as controls (see again Table 3). The results from the previous analysis were replicated: there was a non-significant impact of both conversation and conformity, both *ps* > .24. None of the control variables had a significant impact, all *ps* > .38.

The results of these two initial analyses would seem to go against Hypotheses 1 and 2. But, according to Koerner and Fitzpatrick (2002), looking at the combination of the two dimensions of family communication patterns is important understand communication patterns fully. Thus, in the next section, I analyse the impact of these variables using the various combinations of these dimensions.

Table 3

Linear regression of conversation and conformity dimensions on financial literacy

Dependent Variable: Financial literacy		
	OLS	
	(1)	(2)
Intercept	3.80 (1.29)***	3.77 (1.30)***
Conversation	0.22 (0.22)	0.26 (0.97)
Conformity	0.15 (0.24)	0.18 (0.46)
FAS-Score High	--	-0.26 (0.39)
FAS-Score Low	--	-0.04 (0.93)
Female Gender	--	-0.14 (0.28)
Control Variables	No	Yes
Observations	119	119
Adjusted R^2	-.01	.03

Note 2. (1) Without controls; (2) With controls.
[a] Robust standard errors in parentheses
** = $p < 0.1$, ** = $p < 0.05$, *** = $p < 0.01$*

4.4.2 Relationship of conversation and conformity orientation interaction on youth financial literacy

To further explore Hypothesis 1 and 2 along with 3 and 4, the conversation and conformity score variables were categorized into the four family types of family communication patterns (Fitzpatrick & Ritchie, 1994) as outlined in the data preparation section. This categorization entails the interaction of conversation and conformity while aggregating respondents into groups. Table 4 displays the means, standard deviations and sample size for participants from pluralistic families (high conversation, low conformity), protective (low conversation, high conformity), consensual (high conversation, high conformity), and laissez-faire (low conversation, low conformity).

Table 4

Financial literacy comparison by FMC family type

Type	Financial literacy		
	M	*SD*	*N*
Pluralistic	5.23	1.35	39
Protective	5.22	1.57	31
Consensual	4.88	1.40	21
Laissez-faire	4.74	1.56	28

Then, I performed a linear regression with this categorization (see Table 5). The results of this analysis revealed no difference between the baseline group (which was set as the Laissez-Faire group, i.e., the low conversation low conformity group) and any of the other categories, all *p*s > .18, despite a promising order of categories with children from pluralistic families having higher financial literacy, followed by protective, consensual and finally laissez-faire.

I then did a second analysis, adding gender and FAS-score as controls (see again Table 5). The results from the previous analysis were replicated: there was no significant difference between the financial literacy of the Laissez-Faire group and all other communication groups, all *p*s > .16. None of the control variables had a significant impact, all *p*s > .49.

The results of these two analyses with the family communication pattern categories also found no support for Hypotheses 1 to 4. Because there is some debate in the statistical literature about whether median splits are an adequate procedure (McClelland et al., 2015), I decided to take another approach to the analysis of the interaction between the two dimensions of family communication patterns that does not involve median splits: moderation analysis.

Table 5

Linear regression of FMC family types on financial literacy

	Dependent Variable: Financial literacy	
	OLS	
	(1)	(2)
Intercept (Conv/Conf)	4.74 (0.29)***	4.89 (0.33)***
Pluralistic (H/L)	0.48 (0.36)	0.52 (0.371)
Protective (L/H)	0.48 (0.39)	0.49 (0.39)
Consensual (H/H)	0.14 (0.42)	0.21 (0.44)
FAS-Score High	--	-0.20 (0.29)
FAS-Score Low	--	-0.05 (0.46)
Gender	--	-0.15 (0.28)
Control Variables	No	Yes
Observations	119	119
Adjusted R^2	.01	.02

Note 2. (1) Without controls; (2) With controls.
[a] Robust standard errors in parentheses
** = $p < 0.1$, ** = $p < 0.05$, *** = $p < 0.01$*

4.3.3 Interaction effect of conformity and conversation

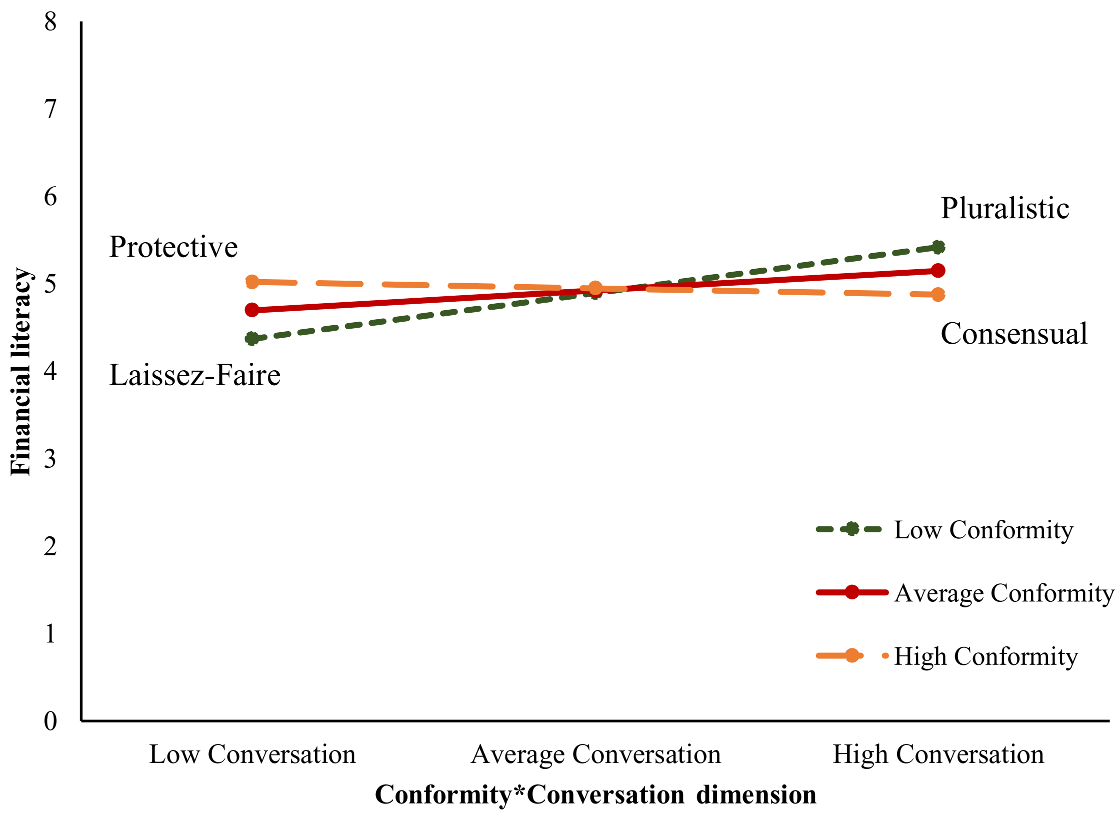
As a final test of Hypotheses 1 to 4, a hierarchical multiple regression analysis was conducted with the assistance of Model 1 of the PROCESS Macro of Hayes (2022) in SPSS. This was done with the conversation and conformity raw scores and not the family type categorization.

In the first step, the two variables were included: conversation score and conformity score. In line with the results of section 4.3.1, these variables did not account for a significant amount of variance in child's financial literacy, $F(2, 116) = 0.54$, $p = .588$.

Next, the interaction term between conversation and conformity was added to the regression model. This second model did show marginal significance, $F(3,115) = 2.34$, $p < .073$, explaining more variance than the first model, $\Delta R^2 = .05$, $p = .016$. Supporting Hypothesis 1, conversation was a significant positive predictor of financial literacy, $b = 2.42$, $SE = 0.92$, $p = .010$. In contrast to Hypothesis 2, conformity was a significant positive, not negative, predictor of financial literacy, $b = 2.51$, $SE = 0.99$, $p = .013$. The interaction term was also significant, $b = -0.69$, $SE = 0.28$, $p = .016$. Finally, I plotted the interaction (Figure 4) to interpret it (see the Appendix C).

Figure 4

Moderation effect of conformity on conversation's impact on financial literacy

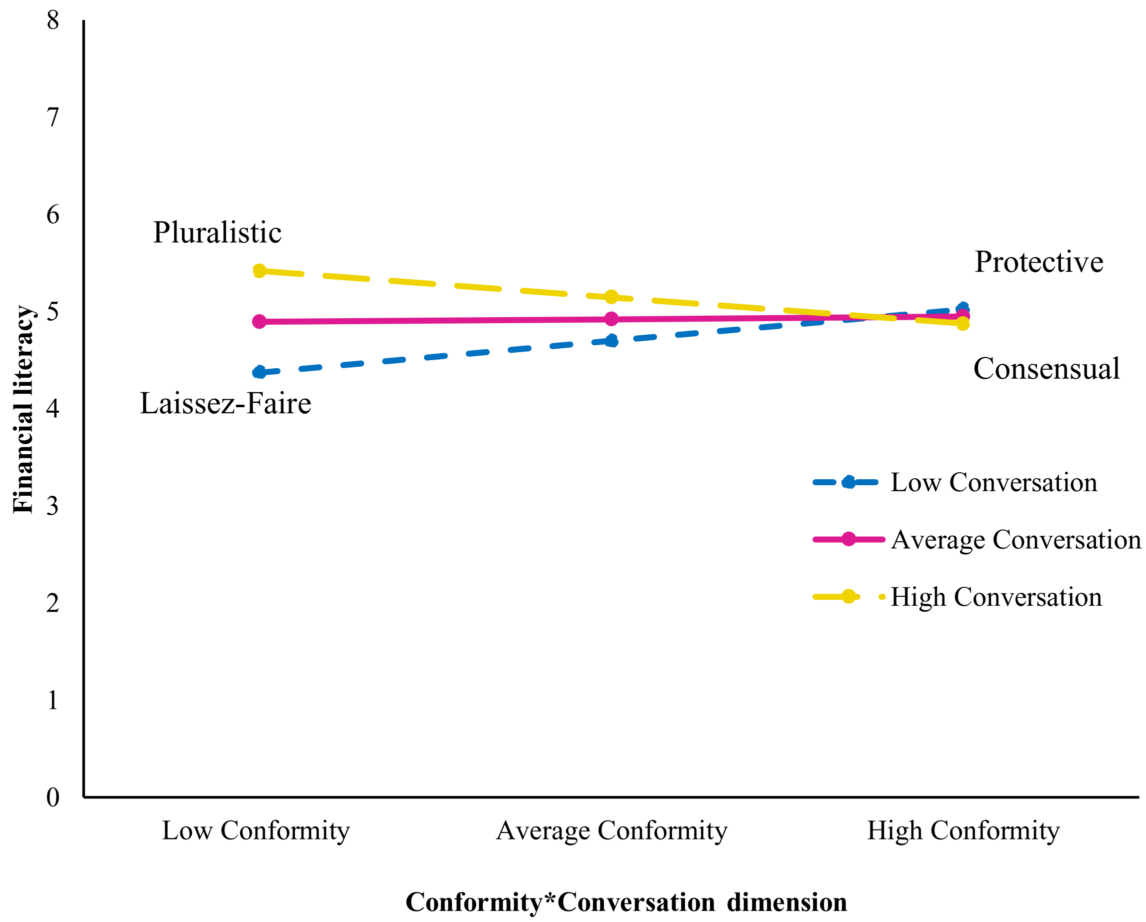


The examination of the interaction plot exhibited a diminishing effect of the positive impact of conversation on financial literacy as conformity increases. In other words, the results show that the impact of conversation in financial literacy is significant only when conformity is low, $b = 0.76$, $SE = 0.31$, $p = .015$, and not significant in average values of conformity, $b = 0.33$, $SE = 0.22$, $p = .135$ and higher values of conformity, $b = -0.11$, $SE = 0.25$, $p = .678$. Thus, high conversation, low conformity (i.e., pluralistic) families had better financial literacy than low conversation, low conformity (i.e., laissez-faire) families and there was no difference between the other two types (consensual vs. protective).

This result thus supports Hypothesis 3 with financial literacy being the highest at high levels of conversation and low levels of conformity (i.e., in pluralistic families). Following this moderation analysis, I repeated the process with conversation as the moderator variable. Hence, I ran PROCESS Macro of Hayes (2022) with conversation as the moderator and conformity as predictor and plotted the interaction points (Figure 5).

Figure 5

Moderation effect of conversation on conformity's impact on financial literacy



The examination of the interaction plot exhibited a weakening effect of conversation on financial literacy as conformity increases. In other words, the results show that the impact of conformity in financial literacy is significant only when conversation is low, b = 0.51, SE = 0.24, p = .065, and not significant with average values of conversation, b = 0.43, SE = 0.24, p = .856, and higher values of conversation, b = -0.43, SE = 0.33, p = .197. Thus, low conversation, high conformity families (i.e., protective) had better financial literacy than low conversation, low conformity families (i.e., laissez-faire) and there was no difference between the other two types (consensual vs. pluralistic).

This result does not support Hypothesis 4, with financial literacy not being the lowest at low levels of conversation and high levels of conformity (i.e., in protective families). As such, this final analysis showed support for Hypothesis 1 and 3, with no support for Hypothesis 2 and 4.

5. Discussion

5.1 Research findings and main conclusions

The results of this thesis' analysis suggest that there is no effect of conformity and conversation on financial literacy when their impact is assessed individually or, when they are together, using median splits to categorize participants into family communication patterns family types. Yet, when conformity and conversation orientation scores are taken as dimension that may interact, results supported Hypothesis 1 and 3, such that conversation was a significant predictor of financial literacy and, at high levels of conversation and low levels of conformity (i.e., in pluralistic families), financial literacy was significantly higher than low conversation, low conformity families (i.e., laissez-faire). Results did not support Hypothesis 2 and 4, as conformity was also a significant positive predictor of financial literacy and at high levels of conformity and low levels of conversation (i.e., protective) differences in financial literacy to the other groups were not statistically significant. Hence, the results suggest that families should try to be pluralistic or at least not be laissez-faire.

5.2 Academic and managerial relevance

While previous research suggests that families with high conformity, where harmony is valued above conflict, would disadvantage children's financial literacy results (Hanson and Olson 2018), this study's results may bring a new perspective on the topic. The results from the current thesis present a significant contribution to the academic and managerial knowledge, which I will list next.

First, the results from this thesis analysis are aligned with previous research regarding the impact of conversation orientation but against the expected impact of conformity orientation (Hanson & Olson, 2018). Nevertheless, the family communication theory is built on the assumption that there is no ideal family type and that behaviors are subjective to each family context, so a behavior that can be dysfunctional in the context of one family might not be in another one. Overall, communication shows to be an important dimension, as it protects from high conformity and people should aim to foster pluralistic communication patterns, - while pluralistic was not better than the other two, it was significantly better than laissez-faire, while the others were not.

From a more practical and managerial side, these results suggest that parents' involvement in children's financial knowledge is critical. Government, policy makers and banks' efforts to increase the financial literacy of their citizens could be supported with solutions that tackle communication patterns and parent-child interaction, both on purposive and non-purposive financial communication and socialization. For example, the European Central Bank has increased their efforts to communicate more effectively and reach out to a larger audience regarding financial topics (Gardt et al., 2021). These efforts could be paired up with tackling inter-personal communication given this aspect influences the financial socialization process, also with respect to children. Talking about money can be a hard topic, especially in a child/teenager-parent relation, so helping foster the communication between these two agents could help improve the financial literacy knowledge of future generations in a sustained way, with information and applicability coming hand in hand through people's lifecycle, and that begins in childhood (Fernandes et al., 2014).

Finally, from an entrepreneurial view, there is potential to create new solutions and products that help tackle child financial literacy through parent-child relationships. For example, a French startup called Kard has created a specific card for 12 to 18 year-old teenagers that is connected to parents' bank accounts. In their product, they provide an overview of children finances' for parents, as well as a highly seamless way for parents to share money with their children and several educational videos and data on how to talk with children about money, allowances, shopping, and other relevant topics to financial behavior and decision making. This is just one of many examples that exist and may be created to leverage parent-children relations to foster financial literacy.

5.3 Limitations & future studies

The current analysis did not take into account other variables that can have a strong impact on financial literacy and relate with the variables analyzed, thus there might be some omitted variable bias. For example, this study does not take into consideration personality traits or soft skills which can have a great impact on behavior. It has been reported that behavior fueled by emotion or habit will prevail over information, thus adding such variables to our analysis could have been valuable (Lynch and Wood, 2006 as cited by Fernandes et al. 2014). Even though the measurement we used is designed to take behavior into consideration, it can be hard to capture that component of financial literacy thorough a survey. Hence, including other variables related with behavior could unveil more accurate information regarding financial literacy.

Furthermore, the RFCP instrument was only applied to the children. Even though the authors predict this type of use, there is also the parents' version which can also be used and matched with the children's responses to get more accurate scores, given individual perceptions regarding communication patterns are different and thus, this could mean children's reports only present an incomplete picture (Fitzpatrick & Ritchie, 1994).

There were also some limitations regarding the representativeness of the sample, given that, due to convenience, the recruitment of participant was made within only two schools from one Portuguese city. Furthermore, regarding socioeconomic background, I believe there might have been some underrepresentation of a lower socioeconomic status, with respondents from this background accounting for only 12% of the respondents. Moreover, participants were exclusively from the 9th grade, which may entail some limitations. Future research could attempt to approach a broader target of children or from a different age.

Finally, during the data collection, there is the possibility that some students may have cheated. Even though a situation to minimize this was created, with respondents being supervised either by me or a professor, I cannot guarantee that the moments in which I was not present it did not happen. Furthermore, given that they were using their personal phones they could have communicated between each other or searched for information online, something out of the control of this study's procedure.

6. Conclusion

In the current economy, financial literacy will continue to grow in relevance and importance. Understanding the impacts and causes of young people's financial literacy is critical to identifying how to enhance their financial literacy and behavior. The analysis was done using a sample of 119 9^{th} graders from two different schools. This thesis results demonstrate a connection between family communication patterns and youth financial literacy. The results show a main positive effect of both conformity and conversation on financial literacy when considered individually. Regarding the interaction of these two dimensions (i.e., conversation and conformity), the only significant difference was between children from high conversation and low conformity orientation families (i.e., pluralistic), and those from low conversation and low conformity families (i.e., laisser-faire). In other words, the results suggest that children from pluralistic families will outperform those from laissez-faire. These results support the promotion of interventions to help families communicate about financial topics and others, to assist families at low levels of conversation foster open and frequent communication. Future studies should study the impact of such interventions to prove a causal relationship between financial literacy and family communication patterns. This study is an initial contribution to support the development of additional interventions to formal education that may allow an improvement in the levels of financial literacy.

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8. Appendix

Appendix A: Full survey

Consentimento informado

Este questionário está a ser realizado no âmbito de uma tese de mestrado da Católica Lisbon School of Business and Economics.

O objetivo deste estudo é perceber o conhecimento dos jovens portugueses sobre assuntos relacionados com dinheiro.
O estudo está dividido em duas categorias relacionadas com:

- Literacia financeira
- Padrões de comunicação das famílias

Toda a informação recolhida neste questionário será totalmente confidencial, não sendo sequer possível identificar os teus dados pessoais.
Podes pedir ajuda se não entenderes ou não tiveres certeza de como responder a uma questão.
Todas as tuas respostas serão mantidas em sigilo.

Clica em concordo para demonstrar o teu consentimento e iniciar o questionário.

○ Concordo em participar neste estudo

Part 1: Demographics

Género

○ Feminino

○ Masculino

○ Prefiro não dizer

Ano de escolaridade

○ 9º ano

○ Outro

Idade

- 14
- 15
- 16
- Outra __________

A tua família possui um carro ou carrinha?

- Não
- Sim, temos 1
- Sim, temos 2 (ou mais)

Tens o teu próprio quarto?

- Sim
- Não

Durante os últimos 12 meses, quantas vezes viajaste de férias com a tua família?

- 0
- 1
- 2
- 3, ou mais

Quantos computadores têm na tua família?

- 0
- 1
- 2
- 3, ou mais

Part 2: Financial behavior and RFCP questionnaire

Nesta secção as perguntas são relacionadas com conhecimento financeiro - são 10 questões. Algumas podem envolver alguns cálculos - podes utilizar calculadora e/ou uma folha de papel para te ajudar.

Podes pedir ajuda se não entenderes ou não tiveres certeza de como responder a uma questão.

Lê com atenção todas as questões.

No final irás ter acesso ao resultado destas perguntas.

1. CUSTOS DE GERIR UM CARRO

O Sr. David faz um empréstimo para comprar um carro para sua a família. A taxa de juros do empréstimo é fixa. Um custo que o Sr. David terá são os pagamentos mensais do empréstimo. Há também outras despesas na utilização de um carro, como custos de combustível, reparação e manutenção.

Questão

Alguns custos do carro vão aumentar se a família utilizar mais vezes o carro, mas outros permanecerão os mesmos.

Para cada custo na tabela, seleciona "Aumenta" ou "Permanece o mesmo" para mostrar o que provavelmente acontecerá se a família usar mais o carro.

	Aumenta	Permanece o mesmo
Pagamento mensal do empréstimo	○	○
Combustível	○	○
Custos de reparação e manutenção	○	○

2. SISTEMA DE SOM

A Kelly pede um empréstimo ao banco de 2.000 euros (€) para comprar um sistema de som. Ela tem a opção de pagar o empréstimo em 2 (dois) ou 3 (três) anos.

A taxa de juros anual do empréstimo é a mesma em ambos os casos. A tabela mostra os valores de pagamento para um empréstimo de 2.000 euros (€) em dois anos.

Questão

Como é que os valores de pagamento para um empréstimo de 2.000 euros (€) ao longo de 2 (dois) anos serão diferentes dos valores de pagamento ao longo de 3 (três) anos?

Seleciona “Verdadeiro” ou “Falso” para cada afirmação.

	Verdadeiro	Falso
Os pagamentos mensais serão maiores para um empréstimo de três anos.	○	○
O total de juros pagos será maior para um empréstimo de três anos.	○	○

3. EXTRATO BANCÁRIO

Todas as semanas, a Sra. Célia transfere 130 euros (€) para a conta bancária do seu filho. No país Euroland, os bancos cobram uma taxa por cada transferência. A Sra. Célia recebeu esta declaração do seu banco em novembro de 2015.

Questão 1

Qual foi o valor total de taxas cobradas pelo banco em novembro?

(Insere o valor em euros)

____

Os seguintes movimentos bancários ocorreram no dia 3 de dezembro:

• O salário de 575 euros (€) foi depositado na conta da Sra. Célia.

• A Sra. Célia transferiu 130 euros (€) para a conta do filho.

A Sra. Célia não fez mais nenhuma transação no dia 3 de dezembro.

Questão 2

Qual era o novo valor do seu saldo bancário no final do dia 3 de dezembro?

(Insere o valor em euros)

____

4. PLANO TELEFÓNICO

O João mora em Euroland e tem um telemóvel. Em Euroland, existem dois tipos de planos telefónicos disponíveis:

Plano 1

• Pagar a conta telefónica no final do mês.

• A conta é o custo das chamadas que se faz, mais uma mensalidade.

Plano 2

• Comprar antecipadamente crédito para o telemóvel.

• O crédito dura no máximo um mês ou até que todo o crédito seja utilizado.

Questão

Uma possível vantagem financeira de usar o Plano 2 é que...

(Indica apenas uma coisa)

____

5. PLANO TELEFÓNICO (continuação)

O João decide usar o Plano 1. Agora ele tem que escolher que operadora telefónica usar.

A tabela abaixo mostra os detalhes das quatro diferentes operadoras telefónicas que oferecem o Plano 1. (Todos os custos são mostrados em euros.)

Questão 2

Qual das empresas telefónicas oferece o melhor plano a nível financeiro para o João?

- ○ Empresa 1
- ○ Empresa 2
- ○ Empresa 3
- ○ Empresa 4

6. TOQUES DE TELEFONE

A Ana vê este anúncio numa revista para adolescentes. Ana tem 30 euros de crédito no seu telefone.

Ela envia uma mensagem com a palavra MONK para o 13 45 67. A Ana não utiliza o seu telefone novamente para fazer chamadas ou enviar mensagens. E não adiciona mais crédito ao telefone.

Questão

Quanto crédito é que a Ana terá no seu telefone exatamente uma semana depois?

____

7. COMPRAS ONLINE

O André está a usar um computador público num ciber-café. Através desse computador ele visita um site de compras online que vende equipamento desportivo. Ele insere os dados do seu cartão bancário para pagar uma bola de futebol. A segurança das informações financeiras é importante ao comprar bens online.

Questão

O que poderia o André ter feito para garantir a segurança dos dados do seu cartão bancário quando pagou pela bola de futebol online? (Indica apenas uma coisa)

____

8. COMPRA TELEMÓVEL

A Joana quer comprar um telemóvel, mas não tem idade suficiente para assinar o contrato. A sua mãe compra-lhe o telemóvel e assina um contrato de um ano. A Joana concorda em pagar a conta mensal do telemóvel. Após 6 semanas, a mãe de Joana descobre que a conta não foi paga.

Seleciona "Verdadeiro" ou "Falso" para cada afirmação.

	Verdadeiro	Falso
A mãe da Joana é legalmente responsável por pagar a conta.	○	○
A loja de telemóveis deve pagar a conta se a Joana e a mãe não pagarem.	○	○
A conta não precisa de ser paga se a Joana devolver o telemóvel à loja	○	○

Nesta secção vamos fazer algumas perguntas sobre a comunicação na tua família. Não há respostas certas ou erradas. As tuas respostas devem ser as que são "certas" para ti. Podes pedir ajuda se não entenderes alguma questão ou não tiveres certeza de como responder a uma pergunta.

Até que ponto concordas com as seguintes afirmações? Para cada uma das afirmações/frases deves escolher uma das opções na escala desde 1 – discordo totalmente até 5 - concordo totalmente. (Por favor seleciona uma resposta por linha)

	1 - Discordo totalmente	2 - Discordo	3 - Não concordo nem discordo	4 - Concordo	5 - Concordo totalmente
Eu gosto de falar sobre assuntos de dinheiro	○	○	○	○	○
Os jovens devem tomar as suas próprias decisões sobre como gastar seu dinheiro	○	○	○	○	○
Assuntos de dinheiro não são relevantes para mim agora	○	○	○	○	○
Eu gostava de ter o meu próprio negócio no futuro	○	○	○	○	○

Com que frequência falas sobre dinheiro com os teus pais?

○ Nunca, ou quase nunca

○ Uma a duas vezes por mês

○ Uma a duas vezes por semana

○ Praticamente todos os dias

Até que ponto concordas com as seguintes afirmações?

Para cada uma das afirmações/frases deves escolher uma das opções na escala desde 1 - discordo totalmente até 5 - concordo totalmente (Por favor seleciona uma resposta por linha)

	1 - Discordo totalmente	2 - Discordo	3 - Não concordo nem discordo	4 - Concordo	5 - Concordo totalmente
Na nossa família falamos habitualmente sobre tópicos como política e religião sobre os quais alguns membros discordam de outros.	○	○	○	○	○
Os meus pais dizem frequentemente coisas como: "Cada membro da família deve ter alguma opinião nas decisões da família".	○	○	○	○	○
Os meus pais costumam pedir a minha opinião quando a família está a falar sobre algo.	○	○	○	○	○
Os meus pais encorajam-me a questionar as suas ideias e crenças.	○	○	○	○	○
Os meus pais costumam dizer coisas como “Deves sempre olhar para os dois lados de um problema”.	○	○	○	○	○
Costumo dizer aos meus pais o que penso sobre certas coisas e assuntos.	○	○	○	○	○
Posso contar quase tudo aos meus pais.	○	○	○	○	○
Na nossa família, falamos muitas vezes sobre os nossos sentimentos e emoções.	○	○	○	○	○

Muitas vezes, eu os meus pais temos conversas longas e descontraídas sobre nenhum assunto em especial	○	○	○	○	○
Gosto muito de conversar com os meus pais, mesmo quando discordamos.	○	○	○	○	○
Os meus pais incentivam-me a expressar os meus sentimentos.	○	○	○	○	○
Os meus pais tendem a ser muito abertos sobre as suas emoções.	○	○	○	○	○
Costumamos conversar em família sobre coisas que fizemos durante o dia.	○	○	○	○	○
Na nossa família, falamos muitas vezes sobre os nossos planos e esperanças para o futuro.	○	○	○	○	○
Os meus pais gostam de ouvir a minha opinião, mesmo quando eu não concordo com eles.	○	○	○	○	○
Seleciona a opção 3 - Não concordo nem Discordo	○	○	○	○	○
Quando algo realmente importante está a acontecer, os meus pais esperam que eu obedeça sem questionar.	○	○	○	○	○
Em nossa casa, os meus pais geralmente têm a última palavra.	○	○	○	○	○

Os meus pais acham que é importante serem eles os chefes.	○	○	○	○	○
Às vezes os meus pais ficam irritados se os meus pontos de vista forem diferentes dos deles.	○	○	○	○	○
Se os meus pais não aprovam algo, eles não querem saber do assunto.	○	○	○	○	○
Quando estou em casa, espera-se que eu obedeça às regras dos meus pais.	○	○	○	○	○
Os meus pais costumam dizer coisas como "Vais perceber melhor quando cresceres".	○	○	○	○	○
Os meus pais costumam dizer coisas como "As minhas ideias estão certas e não deves questioná-las".	○	○	○	○	○
Os meus pais costumam dizer coisas como "Uma criança não deve discutir com adultos".	○	○	○	○	○
Os meus pais costumam dizer coisas como "Existem algumas coisas que simplesmente não deveriam ser comentadas".	○	○	○	○	○
Os meus pais costumam dizer coisas como "Deves parar de discutir em vez de arriscar deixar as pessoas chateadas".	○	○	○	○	○

Appendix B:

Summary description of the financial literacy five proficiency levels (OECD, 2019a)

Level	Score range	% of students able to perform tasks at each level (OECD average 2015)	What students can typically do
1	326 to less than 400 points	21.1%	Students can identify common financial products and terms and interpret information relating to basic financial concepts. They can recognise the difference between needs and wants and can make simple decisions on everyday spending. They can recognise the purpose of everyday financial documents such as an invoice and apply single and basic numerical operations (addition, subtraction or multiplication) in financial contexts that they are likely to have experienced personally.
2 Baseline	300 to less than 475points	22.6%	Students begin to apply their knowledge of common financial products and commonly used financial terms and concepts. They can use given information to make financial decisions in contexts that are immediately relevant to them. They can recognise the value of a simple budget and can interpret prominent features of everyday financial documents. They canapply single basic numerical operations, including division, to answer financial questions. They show an understanding of the relationships between different financial elements, such as the amount of use and the costs incurred.
3	475 to less than 550points	26.0%	Students can apply their understanding of commonly used financial concepts, terms and products to situations that are relevant to them. They begin to consider the consequences of financial decisions and they can make simple financial plans in familiar contexts. They can make straightforward interpretations of a range of financial documents and can apply a range of basic numerical operations, including calculating percentages. They can choose the numerical operations needed to solve routine problems in relatively common financial literacy contexts, such as budget calculations.
4	550 to less than 625 points	19.6%	Students can apply their understanding of less common financial concepts and terms to contexts that will be relevant to them as they move towards adulthood, such as bank account management and compound interest in saving products. They can interpret and evaluate a range of detailed financial documents, such as bank statements, and explain the functions of less commonly used financial products. They can make financial decisions taking into account longer-term consequences, such as understanding the overall cost implication of paying back a loan over a

			longer period, and they can solve routine problems in less common financial contexts.
5	Equal to or higher than 625 points	10.7%	Students can apply their understanding of a wide range of financial terms and concepts to contexts that may only become relevant to their lives in the long term. They can analyse complex financial products and can take into account features of financial documents that are significant but unstated or not immediately evident, such as transaction costs. They can work with a high level of accuracy and solve non-routine financial problems, and they can describe the potential outcomes of financial decisions, showing an understanding of the wider financial landscape, such as income tax

Appendix C:

Linear regression with interaction terms for moderation analysis

	Dependent Variable: Financial literacy	
	OLS	
	(1)	(2)
Intercept	3.80 (1.29)***	-3.92 (3.39)
Conversation	0.22 (0.22)	2.43 (0.92)**
Conformity	0.15 (0.24)	2.51 (0.99)**
Conversation*Conformity	--	-0.69 (0.29)**
Control Variables	No	Yes
Observations	119	119
Adjusted R^2	-.01	.03

Note 2. (1) Without controls; (2) With controls.
[a] *Robust standard errors in parentheses*
** = $p < 0.1$, ** = $p < 0.05$, *** = $p < 0.01$*