Influence of Financial Social Agents and Attitude Toward Money on Financial Literacy: The Mediating Role of Financial Self-Efficacy and Moderating Role of Mindfulness

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Abstract
This study examines the relationship between the financial socialization agents, attitude toward money, and financial literacy with the mediating role of financial self-efficacy and the moderating role of mindfulness. The self-administered questionnaire was used for data collection from higher education institutions using the convenience sampling method because the sampling frame was not available. The data were tested using partial least square structural equation modeling (PLS-SEM) in smart PLS. The results indicated a positive relationship between financial self-efficacy, financial socialization agents, attitude toward money, mindfulness, and financial literacy. The finding of mediation analysis suggests the significant mediation effect of financial self-efficacy between attitude toward money and financial social agents with financial literacy. The mediation of financial self-efficacy between attitude toward money and financial literacy has the greatest impact which indicates that students with positive attitude and self-efficacy create high financial literacy. Whereas mindfulness positively moderates the relation of attitude toward money and financial literacy and negatively moderates the relation of financial self-efficacy and financial literacy while mindfulness does not moderate the relation of financial socialization agents and financial literacy. The findings of this research are of use to different stakeholders who are users or regulators of financial institutions because enhancing financial literacy has become a priority.

Keywords
financial literacy, financial self-efficacy, financial socialization agents, attitude toward money, mindfulness

Introduction
Academic literature suggests that there is an overwhelming indication that the financial world has converted into more multifaceted, as in course of everyday life financial decisions are made by the individuals. Investors can face challenges to take appropriate financial decisions due to a lack of knowledge and fundamental concepts of finance, which can affect economic and financial decision making (Arceo-Gómez & Villagómez, 2017). This phenomenon needs to make individuals equipped with concepts of finance and financial literacy (Arrondel et al., 2014). Lusardi and Mitchell (2017) describe financial literacy as the capacity to analyze financial data and make educated decisions regarding budgetary arranging, annuities, and obligations.

Atkinson and Messy (2012) stated that financial decision-making capabilities can be developed among individuals through enhancing financial literacy. As they have to involve in planning life events, household budgets, purchase of houses, and retirement. According to Grifoni and Messy (2012) the necessity of financial literacy is progressively becoming more worthy for the regulation of financial markets and the quick enhancement in economic and financial products. After the recognition of financial literacy
importance, many countries have focused on developing some strategies for improving financial literacy among younger generation and the population in general.

The consistent deficiency found in scholarly work in area of financial literacy from developed to developing countries although it is an issue with huge implications for economic health (Goyal & Kumar, 2021). A limited examinations around the world featuring the significance of financial literacy and money related proficiency. It was found that in a regularly developing complex money related setting, financial literacy has vital implications toward financial decisions. It has been also found that the ones who have a very less level of financial literacy are facing the music with managing debt (Lusardi & Tufano, 2009). Many countries around the world recognized financial literacy as a central part of the attention to focus on and develop skills among their nations by providing financial education (Bhushan & Medury, 2013). Meanwhile, developed nations are aware that in the current economic environment it is crucial to ensure. As financial knowledge, skills, and abilities are more important than ever for the economic growth of a country as well as a person’s own wellbeing (Sabitova & Mueller, 2016; Sucuah, 2013).

Researchers suggest that some factors need to be further analyzed and those determinants contribute to the lack of financial literacy among university students like financial self-efficacy, financial socialization agents, and attitude toward money (Grable & Joo, 1998; Isomidinova et al., 2017; Opletalová, 2015; Sundarasen et al., 2014; Thapa, 2015; Wagner, 2015). Socialization agents are with whom people interact in day to day life affairs (McLeod & O’Keefe, 1972). These agents are taken into account because it is important to specify their influence on financial decision making. Further, self-efficacy is considered a positive resistance resource factor as it is linked to behavior and motivation and thus, is relevant to behavior change and making effective financial decisions.

Another factor leading to a lack of financial preparation and financial literacy may be mindfulness, which is a state of mind in which an individual puts his/her complete attention to the practices that are happening for understanding in an easy-going or accepting manner. According to Baer et al. (2008), Mindfulness is giving complete attention to one doing, which permits a person to completely realize what is going on and how they are dealing with it. This study required to examine the idea that university students often lack mindfulness on the implications of their financial decisions and that they may lack financial literacy.

The individual having a better attitude toward money will have good financial literacy as found in the current study while those who have a poor attitude toward money lead to low financial literacy (Ameliawati & Setiyani, 2018). Money is a factor that strengthens the compulsive buying behavior of people (Hayes, 2006; Keller & Siegrist, 2006; Li-Ping Tang et al., 2000; Phau & Woo, 2008). So, it can be concluded that attitude toward money leads to self-direction and willingness to learn about managing money and to handle financial matters more effectively.

This study contributes to the literature review because it identifies rare studies that have examined the combination of financial literacy, financial socialization agents, and attitudes toward money, with financial self-efficacy acting as a mediator and mindfulness as a moderator. Moreover, this contributes to the field area selection, as this is undertaken among university students in Pakistan. This research paper is structured into five parts. Part 1 is introduction; Part 2 provides a brief literature review; Part 3 explains the methods used; Part 4 delivers results and discussion; and Part 5 concludes the discussion of empirical results and findings.

**Literature Review and Hypotheses Development**

A non-profit organization in the United States, the Jumpstart Coalition for Personal Financial Literacy, coined the term financial literacy (Lusardi et al., 2014). Chauhan and Dey (2020) applied the contingent valuation approach for testing the relationship between financial literacy and financial advice, while Rodrigues et al. (2019) assessed the literacy of consumers concerning financially complex products of firms. Textual analysis in finance domains was performed to test the financial literacy by Li (2020) and reviewed financial literacy measurements.

Financial literacy is the capability of a person to make well-informed financial decisions and skills to utilize financial resources effectively (Hastings et al., 2013). The term financial literacy is defined by various researchers in many ways. Huston (2010) referred to financial literacy as having knowledge, awareness, and the ability to apply financial knowledge in daily life. According to Atkinson and Messy (2012), financial literacy is an amalgamation of knowledge, skills, attitude, and behavior that leads to financial decision making. Finke and Huston (2014) discussed that financial literacy is a separate concept from the financial decision-making process and financial consequences it describes how people apply their financial abilities and skills effectively to get optimistic outcomes.

It is well documented that the social environment profoundly influences an individual’s behavior. Thapa (2015), for example, brought socialization agents like peer groups, family, media, and friends into a single category named the financial influence which is part of personality characteristics and then measures the relationship between financial influence and level of financial literacy. Researchers found that parents and peer groups have a significant impact on children’s financial behavior (Clarke et al., 2005; Peng et al., 2007; Shim et al., 2010; Wagner, 2015) and those peers are an important influencer on children’s financial decisions (Duflo & Saez, 2003; Isomidinova et al., 2017; Shim et al., 2010; Sohn et al., 2012) and social media is also one of the elements which greatly influence financial behavior of students.
In their study on peer and family, they found that the students get influenced by financial assistance from surroundings or socialization agents, especially family. They asked their parents and peer groups to help them make decisions regarding money matters and let them aware of the importance of appropriate management of finances (Cude et al., 2016). Moreover, it has been reported that parents play a crucial role in the direction of their children’s financial decision-making (Peng et al., 2007). Another research conducted by Sohn et al. (2012), reported that opportunities to talk on financial matters with parents drop with age whereas communication with peer groups rises with age. Parents’ socialization of children toward financial literacy is deteriorating compared with peer groups’ influence.

The findings of a study conducted in Ghana found that parental financial socialization strongly influences the youth in managing money (Chowa & Despard, 2014). The family is considered as a major foundation of children’s financial socialization because the interest of managing money develops by noticing their parents (Beutler et al., 2008; Pinto et al., 2005). It is found that students who usually have discussions on financial matters with their parents and peers take more interest in saving money and budgeting (Wagner, 2015).

Gaudecker (2015) examined how financial literacy and expert advice influence the decision making of households regarding portfolio diversification. After running OLS regression, the findings showed that households whose decisions are guided by experts made better investments than those whose decisions are based on their own judgment. Kadoya and Khan (2020) also reported that student financial literacy can be heavily influenced by social contact in Japan, as they examined various factors that can be derived from the social learning theory. Financial decision-making for the future significantly influences the social cycle in which students spend most of the type that in return can improve financial literacy.

According to Sundarasen et al. (2014), it has been universally renowned that money is a governing tool and a strong stimulus that shapes the behavior of making financial decisions. Isomidinova et al. (2017) further stated that because of the growing importance of money in everyone’s life, it is worth recognizing the perspective of people toward money. Albeerdy and Gharleghi (2015) highlight that money is renowned not only as an influential persuader of behavior but also shape the knowledge of people. Subsequently, having an optimistic perspective toward money would encourage others to get aware of financial concepts and to be more financially literate. While a pessimistic attitude would discourage being financially literate.

Further perspective toward money describes the behavior of others in money matters. According to Taneja (2012) attitude not only incorporates the protection of societal prestige but also an individual’s contentment.

Attitude toward money is anticipated to serve as signs of healthy financial behavior (Shim et al., 2010). In exact, many studies have found that attitude toward money is significantly associated with the financial literacy of students (Albeerdy & Gharleghi, 2015; Isomidinova et al., 2017; Sorooshian & Seng Teck, 2014; Sundarasen et al., 2014; Thapa, 2015). Grounded by the above literature, it can be established that their perspective toward money has a strong impact on financial literacy. According to Zaimah et al. (2013), education on finance means instructing the concepts of finance that educate students and strengthen financial literacy. On the other hand, Cameron et al. (2014), claimed that education providers must realize how much worth being to strengthen financial literacy by rising better-quality educational programs for students. Moreover, Finke and Huston (2014) stated that the enhancement in financial literacy is possible through educating youth on financial matters. Further, it is found that the people who were more educated on finance are more likely to take interest in financial matters and therefore have high financial literacy (Grohmann, 2018; Hsiao & Tsai, 2018). There is a rational debate that the management of finances must be part of the elementary education of youth (Mandell, 2006).

Financial education has turned out to be a progressively significant prerequisite to work in the network and slants in the business procedures and administrations. In any case, there is impressive enthusiasm for the field of financial education for people. Money related training is significant on numerous levels (Widdowson & Hailwood, 2007). Opletalová (2015) reported that the insertion of education on finance in primary and secondary schools has been a better massive step onward to increase financial literacy before-hand they take the wrong step on financial matters.

Remund (2010) further included that being monetarily educated ought not to be simply centered around understanding money related ideas yet, also, incorporate the capacity to oversee personal finances. According to Wagner (2015), the concept of financial education can be considered from three different perspectives. The primary way evaluates how money related training influences the budgetary education scores of people. The subsequent way contemplates the impacts of budgetary training on various momentary money-related practices. The third way appraises the impacts of monetary instruction on various long-haul money-related practices. Studying students in Tashkent, Jimenez et al. (2010) found that financial literacy and financial education are closely related. Also, Thapa (2015) surveyed college students to check the financial literacy between management vs. non-management students and the results indicated that management students who are being financially educated score high on financial literacy.

The Mediating Role of Financial Self-efficacy

The role of a psychological factor in financial decisions has increased and is widely acknowledged too. Educators agree that providing financial education may not be sufficient for the improvement of financial capability (Fan & Chatterjee, 2018; Mudzingiri et al., 2018), while behavioral economists
believe that education and information alone are not enough to bring behavioral change (Mudzingiri et al., 2019; Noor et al., 2020). Self-efficacy provides facilitation in effort investment, goal setting, persistence in the face of barriers as well as recovery from a setback. Self-efficacy can be considered a positive resistance resource factor. Self-efficacy is similar and linked to behavior and motivation and thus, is relevant to behavior change and making effective financial decisions. An individual’s financial self-efficacy can be described as her ability to make sound financial decisions in various aspects of their life (Bandura, 1999).

According to Forbes and Kara (2010), financial self-efficacy refers to “one’s belief about their capability of organizing and executing courses of action to achieve one’s ultimate financial goals.” Latest research studies have found that financial self-efficacy assumes a significant function in making better financial decisions, like retirement planning (Topa et al., 2018), financial inclusion (Mindra et al., 2017), saving behavior (Magendans et al., 2017; Xiao & O’Neill, 2016) and financial satisfaction (Asebedo & Payne, 2019). Moreover, Mudzingiri et al. (2019) highlighted that there is a need to discover reasons why some people manage personal finances very well while others not with parallel economic characteristics. Based on the literature it is found that very few studies took financial self-efficacy as a mediating variable.

**Moderating Role of Mindfulness**

Dhammananda (1987) stated that mindfulness was devised from the conception of the Dharma, instructions by Buddha inside Buddhism. Furthermore, mindfulness is a method to the culmination of distress, because it allows individuals to be aware of their surroundings and their knowledge imperative to make progressive decisions. Mindfulness is a state of mind in which an individual puts his/her complete attention to the practices that are happening for understanding in an easy-going or accepting manner (Baer et al., 2008). Siegel (2007) has underlined that “awareness (a part of mindfulness) involves how we think, feel, and attend to stimuli.”

Greene et al. (2015) paid attention to decreasing stress and increasing self-awareness. On the other hand, Monshat et al. (2013) examined how young people having age between 16 and 24, applied mindfulness. In a qualitative study, they wanted to measure the effects of altering the perception of mindfulness from a “stress management technique” to a “mindset.” Most of the studies investigated what is the impact of mindfulness on student’s behavior (Grinnell et al., 2011; Jimenez et al., 2010; Mapel, 2012; Monshat et al., 2013). Besides these studies, Monshat et al. (2013) compared mindfulness perspectives between Western and Eastern. Zhang and Emory (2015) offer meaningful contributions by studying how mindfulness sessions can lead to shrinkage in stress levels. Shao and Skarlicki (2009) noticed that research on the construct mindfulness at the individual behavior level has been more commonly done in clinical research studies. Baer et al. (2008) defined mindfulness as non-reactivity to inner experience, observation, acting with awareness, describing, and non-judgment of inner experience.

Limited studies have begun to look at the link of Buddhist practices of mindfulness to personal finances and money (Kasser, 2008). Kinder (2012) reported that how money or financial changes incorporate mindfulness practices into money-related matters and described the conversion of money maturity is worth examining to understand the link between mindfulness and financial literacy. On the other side, Langer (1989) has taken the study of mindfulness beyond the Buddhist concepts. Moreover, he sheds light on the fact that being in a state of mindfulness can upturn productivity, flexibility, leadership ability, innovation, and satisfaction. Moreover, the researcher argued that the rise of innovation could lead to very affirmative financial decision making through thinking of people responsively while concentrating on what they learned. Houlder and Houlder (2007) discussed how not understanding money leads to human distress and it is not well-explored generally.

Based on the literature, we argued that a few studies were conducted to examine the connection between mindfulness and financial literacy. Stone (2011) recommended generating a dual Process theory for financial mindfulness. Furthermore, the reflexive system produces selfish, materialistic behavior in excess, even though it is energizing, passionate, impulsive, and automatic within the dual-process model. It is deliberate and thoughtful; over time, it produces inaction and indecision in the financial world. The high mindfulness level triggers better financial decision making and has a significant effect on money matters. Jimenez et al. (2010) recommended that there must be a continuation in the research between mindfulness and financial literacy.

**H1:** There is a significant relationship between financial socialization agents and the financial literacy of university students.

**H2:** There is a significant relationship between attitude toward money and the financial literacy of university students.

**H3:** There is a significant relationship between financial self-efficacy and financial literacy of university students.

**H4:** There is a significant relationship between attitude toward money and the financial self-efficacy of university students.

**H5:** There is a significant relationship between financial socialization agents and the financial self-efficacy of university students.

**H6:** Self-efficacy plays a role in mediating the relationship between attitude toward money and financial literacy.
**H₈:** Self-efficacy plays a role in mediating the relationship between financial socialization agent and financial literacy.

**H₉:** Financial self-efficacy is positively related to financial literacy, and mindfulness influences the strength of that positive relationship in students.

**H₁₀:** Financial Socialization Agents are positively related to financial literacy, and mindfulness influences the strength of that positive relationship in students.

**H₁₁:** Attitude toward money is positively related to financial literacy, and mindfulness influences the strength of that positive relationship in students.

### Method

The data were collected using a self-administered questionnaire from 466 respondents in Pakistan using convenience sampling technique. The role of financial expertise in students with specialization in finance and promotion in influencing investment decisions of students becoming investors in selecting investments as an investment instrument for the future. Along with several parties, especially the university through the gallery of investments mediated by students’ perceptions on the risk of investments which is considered as having the highest risk.

The selected sample is more than the minimum sample size of 150 respondents calculated from G-power, a power analysis program used in social and behavioral research for statistical tests (Erdfelder et al., 1996). This investigation’s minimal sample size was derived using the effect size ($f^2$) by $0.1$, the chance of type-I ($\alpha$) error by 0.05, and the power by 0.99, yielding a sample size of 160 for the Model. Pilot testing (Cronbach Alpha) and pre-testing approaches were used with expert options of professors.

The sample shows that 52.5% respondents were male, and 47.5% respondents were female. The age group and qualification variable show the respondents are young and approximately 79% respondents belong to age group less than 35 years and 59.1% were having master level degree and 28.1% were having bachelor level degree.

The latent constructs were adopted and for estimating the validity and reliability of higher-order constructs two-stage approach is used. The disjoint two-stage approach is recommended (Sarstedt et al., 2019). In stage-one, the model focuses on lower-order components for assessing the validity reliability criteria. In stage-two the model used the latent scores of lower-order components, which was obtained in the first stage. The scale of attitude toward money was adopted by Beutler and Gudmunson (2012); the financial social agent’s scale was adopted from the study of Pinto et al. (2005); the financial self-efficacy scale was adopted by Loke et al. (2015); mindfulness scale was used from the study of Feldman et al. (2006); and financial literacy scale was adopted from the study of Potrich et al. (2018), see Appendix A.

### Analytical Techniques

The study used PLS-SEM (Partial least square structural equation modeling). The reasons for choosing PLS-SEM for the present study; First, PLS-SEM has widespread use in management disciplines (Hair et al., 2019). Second, PLS path modeling is a suitable analytical approach for the present study as the purpose of the study is to predict and explain the dependent variable (Sarwar et al., 2020). Finally, PLS-SEM is known to be “most fully developed and general system” (Sarstedt et al., 2019) of the variance-based SEM technique. PLS-SEM is a two-step approach.

### Results

**Measurement Model Assessment**

In order to assess the validity of the measurement model, the researcher must look at internal consistency, individual item reliability, convergent validity, discriminant validity, and content validity (Hair et al., 2020). For researchers conducting measurement models, it is important to understand that reflective measurement models are composite latent constructs. The underlying latent variable is assumed to influence, affect, or cause the measured variables (Sarstedt et al., 2016). All its indicators will change if the latent construct changes. As empirical surrogates (proxy variables), indicators are thought of as manifestations of latent variables (Rehman et al., 2020).

Table 1 reports the first order measurement model assessment of the adopted variables. Financial agent’s variable having four sub-dimensions such as media (three questions) with code of FSA_M, role of parent (three questions) with code of FSA_Per, peers of experts (three questions) with code of FSA_P, and schooling (two questions) with code of FSA_S. The attitude toward money has two dimensions, attitude to money entitlement (six questions) with code of ATM_E and attitude to money conciseness (4 questions) with code of ATM_C. The financial literacy having 3 dimensions, saving with three questions, and having code of FLS, attitude with seven questions and having code of FLA, and finally control with five questions and having code of FLC. The final higher order construct which used in the study was mindfulness with four dimensions acceptance, attention, awareness and present. Each dimension having three questions items with the code of MAC for acceptance, MAT or attention, MAW for awareness, and MP for present. The final construct was financial self-efficacy, which was measured five item scale with the code of FSE (see Table 1 and Appendix A).

**Indicator reliability.** Items with loadings less than 0.5 were excluded. According to Hair et al. (2020) factor loading estimates should be higher than 0.5 and idyllically 0.7 above. The two items are removed from the sub-dimension of financial literacy saving. Overall, the minimum criteria of 0.7
Table 1. Measurement Model (First-Order).

| Variables                  | Loadings | CA    | CR    | AVE   |
|----------------------------|----------|-------|-------|-------|
| **Attitude Toward Money**  |          |       |       |       |
| Conciseness                |          |       |       |       |
| ATM_C1                     | 0.901    |       |       |       |
| ATM_C2                     | 0.949    |       |       |       |
| ATM_C3                     | 0.849    |       |       |       |
| ATM_C4                     | 0.732    |       |       |       |
| **Attitude Toward Money**  | 0.919    | 0.934 | 0.703 |       |
| Entitlement                |          |       |       |       |
| ATM_E1                     | 0.838    |       |       |       |
| ATM_E2                     | 0.873    |       |       |       |
| ATM_E3                     | 0.916    |       |       |       |
| ATM_E4                     | 0.821    |       |       |       |
| ATM_E5                     | 0.813    |       |       |       |
| ATM_E6                     | 0.788    |       |       |       |
| **Financial Self Efficacy**| 0.845    | 0.882 | 0.653 |       |
| FSE1                       | 0.775    |       |       |       |
| FSE2                       | 0.864    |       |       |       |
| FSE3                       | 0.769    |       |       |       |
| FSE5                       | 0.789    |       |       |       |
| **Financial Literacy Attitude**| 0.954   | 0.962 | 0.784 |       |
| FLA1                      | 0.865    |       |       |       |
| FLA2                      | 0.940    |       |       |       |
| FLA3                      | 0.931    |       |       |       |
| FLA4                      | 0.925    |       |       |       |
| FLA5                      | 0.884    |       |       |       |
| FLA6                      | 0.820    |       |       |       |
| FL_FA7                    | 0.849    |       |       |       |
| **Financial Literacy Control**| 0.887   | 0.918 | 0.691 |       |
| FLC1                      | 0.761    |       |       |       |
| FLC2                      | 0.880    |       |       |       |
| FLC3                      | 0.821    |       |       |       |
| FLC4                      | 0.897    |       |       |       |
| FLC5                      | 0.829    |       |       |       |
| **Financial Literacy Saving**| 0.821   | 0.893 | 0.737 |       |
| FLS1                      | 0.825    |       |       |       |
| FLS2                      | 0.870    |       |       |       |
| FLS3                      | 0.871    |       |       |       |
| **Financial social Agents Media**| 0.953  | 0.969 | 0.920 |       |
| FSA_M1                    | 0.966    |       |       |       |
| FSA_M2                    | 0.964    |       |       |       |
| FSA_M3                    | 0.938    |       |       |       |
| **Financial social Agents Peers**| 0.909  | 0.929 | 0.815 |       |
| FSA_P1                    | 0.967    |       |       |       |
| FSA_P2                    | 0.924    |       |       |       |
| FSA_P3                    | 0.713    |       |       |       |
| **Financial social Agents School**| 0.752  | 0.855 | 0.751 |       |
| FSA_S1                    | 0.804    |       |       |       |
| FSA_S2                    | 0.943    |       |       |       |
| **Mindfulness Acceptance**| 0.846    | 0.875 | 0.703 |       |
| MAC1                      | 0.936    |       |       |       |
| MAC2                      | 0.726    |       |       |       |
| MAC3                      | 0.883    |       |       |       |

Table 2. Measurement Model (Second Order).

| Variables                  | Loadings | CA    | CR    | AVE   |
|----------------------------|----------|-------|-------|-------|
| **Mindfulness Attention**  |          |       |       |       |
| MAT1                      | 0.683    |       |       |       |
| MAT2                      | 0.894    |       |       |       |
| MAT3                      | 0.852    |       |       |       |
| **Mindfulness Awareness** |          |       |       |       |
| MAW1                      | 0.902    |       |       |       |
| MAW2                      | 0.945    |       |       |       |
| MAW3                      | 0.925    |       |       |       |
| **Mindfulness Present**   |          |       |       |       |
| MP1                       | 0.930    |       |       |       |
| MP2                       | 0.909    |       |       |       |
| MP3                       | 0.907    |       |       |       |

Internal reliability. Table 1 describes the item loading along with composite reliability (CR) and (Cronbach alpha) CA values. This method of finding reliability is a more sophisticated approach to test reliability (Hair et al., 2020). All the latent construct fulfilled the minimum level 0.7 and above first order and second order (Tables 1 and 2; Figure 1).

Convergent validity. Fornell and Larcker (1981) recommended a construct’s average variance extracted (AVE) score be greater than 0.50, which indicates good convergent
validity. The AVE value (Table 1 as first order and Table 2 as second-order construct) provided evidence that there is no issue of convergent validity. There should be an outer loading that exceeds 0.708 because the square of this number indicates the construct score contains at least 50% of the variance in the variable (Henseler et al., 2015).

**Discriminant validity.** Hair et al. (2017) recommended the assessment of discriminant validity by different approaches, that is, HTMT (hetero trait-mono trait ratio) and Fornell and Larcker (1981) criterion. The HTMT-ratio value closer to 1 or above 0.90 shows that there is a lack of discriminant validity (Henseler et al., 2015). According to Hair et al. (2017), discriminant validity refers to a construct that is empirically distinct from all other constructs in the SEM. When discrimination validity is established, each construct captures a unique phenomenon not reflected anywhere else in the model.

The results of HTMT-ratio are presented in Tables 3 and 4 and all the values are below the cutoff values Fornell and Larcker (1981) criterion (Ab Hamid et al., 2017; Atta et al., 2021; Hair et al., 2020).

**Structural Model Assessment**

Structural model evaluation involves the statistical test and estimation of the hypothesized model. This study has applied the bootstrapping technique of 5,000 samples to test the hypothesized relationship between latent constructs (Hair et al., 2020). In Table 5 the value of the path coefficient presented and the hypotheses H1, H2, H3, H4, H5, and H6 are significant as the standardized coefficients for structural paths. Results of the study indicate that there is positive relationship between Attitude toward money and Financial Literacy ($\beta = .068, p < .044$), financial socialization agent and financial literacy ($\beta = .119, p < .004$), financial self-efficacy and financial literacy ($\beta = .546, p < .000$), mindfulness and financial literacy ($\beta = .127, p < .001$), financial socialization agent and financial self-efficacy ($\beta = .116, p < .003$), and attitude toward money and financial self-efficacy ($\beta = .319, p < .000$), therefore, provided empirical support for H1 to H6, respectively.

Analyzing the significance of indirect relationships, the present study follows (Preacher & Hayes, 2004; Preacher et al., 2007; Preacher & Hayes, 2008), using bootstrapping technique. Table 5 indicated that financial self-efficacy mediates the relation between attitude toward money and financial social agents with financial literacy. The path coefficients between ATM and FL ($\beta = 0.174; p < .000$) and FSA and FL are ($\beta = 0.063; p < .005$).
Thus, empirically supported H7 and H8. Results concerning hypothesis H9, H10, H11 revealed in Table 5 that the interaction term (attitude toward money × mindfulness) was significant, implying moderation effect ($\beta = .035, p < .031$), which indicates

Table 3. Discriminant Validity (First-Order).

|            | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|
| ATMC       | 0.85|     |     |     |     |     |     |     |     |      |      |      |      |
| ATME       | 0.51| 0.83|     |     |     |     |     |     |     |      |      |      |      |
| FLA        | 0.10| 0.12| 0.88|     |     |     |     |     |     |      |      |      |      |
| FLC        | 0.11| 0.15| 0.56| 0.81|     |     |     |     |     |      |      |      |      |
| FLS        | 0.22| 0.15| 0.42| 0.66| 0.82|     |     |     |     |      |      |      |      |
| FSAM       | -0.12| 0.14| 0.15| 0.18| 0.12| 0.90|     |     |     |      |      |      |      |
| FSAP       | -0.15| 0.17| 0.10| 0.19| 0.12| 0.76| 0.85|     |     |      |      |      |      |
| FSAS       | 0.17| 0.19| 0.19| -0.14| 0.13| 0.13| -0.19| 0.83|     |      |      |      |      |
| FSE        | 0.48| 0.23| 0.27| 0.13| 0.14| 0.18| 0.12| 0.16| 0.86|     |      |      |      |
| MAC        | -0.13| 0.12| 0.18| 0.12| 0.14| 0.17| 0.16| -0.14| -0.24| 0.87|     |      |      |
| MAT        | -0.12| 0.13| 0.12| -0.15| -0.15| -0.18| -0.14| -0.27| 0.27| 0.1| 0.82|     |      |
| MAW        | 0.12| 0.16| 0.13| 0.13| 0.16| 0.19| 0.16| -0.14| 0.16| 0.51| 0.12| 0.92|     |
| MP         | 0.13| 0.16| 0.14| 0.12| 0.12| 0.33| 0.19| -0.18| 0.15| 0.6| 0.12| 0.72| 0.93|

Heterotrait-Monotrait Ratio (HTMT)

|            | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|
| ATMC       | 0.52|     |     |     |     |     |     |     |     |      |      |      |      |
| ATME       | 0.13| 0.13|     |     |     |     |     |     |     |      |      |      |      |
| FLA        | 0.17| 0.10| 0.63|     |     |     |     |     |     |      |      |      |      |
| FLC        | 0.16| 0.19| 0.52| 0.72|     |     |     |     |     |      |      |      |      |
| FLS        | 0.16| 0.18| 0.11| 0.13| 0.15|     |     |     |     |      |      |      |      |
| FSAM       | 0.17| 0.17| 0.11| 0.15| 0.16| 0.74|     |     |     |      |      |      |      |
| FSAP       | 0.29| 0.27| 0.16| 0.12| 0.17| 0.14| 0.11|     |     |      |      |      |      |
| FSAS       | 0.54| 0.26| 0.27| 0.23| 0.38| 0.14| 0.15| 0.19|     |      |      |      |      |
| FSE        | 0.16| 0.14| 0.18| 0.14| 0.24| 0.25| 0.18| 0.17| 0.12|     |      |      |      |
| MAC        | 0.15| 0.13| 0.13| 0.11| 0.13| 0.15| 0.10| 0.14| 0.33| 0.23|     |      |      |
| MAT        | 0.12| 0.14| 0.14| 0.11| 0.22| 0.26| 0.29| 0.13| 0.11| 0.65| 0.18|     |      |
| MAW        | 0.13| 0.12| 0.12| 0.13| 0.25| 0.17| 0.17| 0.12| 0.63| 0.17| 0.81|     |      |

Table 4. Discriminant Validity (Second Order).

|            | (1) | (2) | (3) | (4) | (5) |
|------------|-----|-----|-----|-----|-----|
| ATM        | 0.831|     |     |     |     |
| FSA        | -0.068| 0.887|     |     |     |
| FSE        | 0.348| 0.071| 0.823|     |     |
| FL         | 0.332| 0.165| 0.663| 0.835|     |
| MD         | 0.056| 0.204| 0.260| 0.281| 0.795|

Heterotrait-Monotrait Ratio (HTMT)

|            | (1) | (2) | (3) | (4) | (5) |
|------------|-----|-----|-----|-----|-----|
| ATM        | 0.093|     |     |     |     |
| FSA        | 0.386| 0.098|     |     |     |
| FL         | 0.369| 0.240| 0.688|     |     |
| MD         | 0.113| 0.259| 0.283| 0.352|     |

Table 5. Structural Model.

| Hypotheses | $\beta$ (STDEV) | t-value | p-Value | Decision |
|------------|-----------------|---------|---------|----------|
| ATM $\rightarrow$ FLS | 0.068 0.040 | 1.702 | .044 | Supported |
| FSA $\rightarrow$ FLS | 0.119 0.044 | 2.642 | .004 | Supported |
| FSE $\rightarrow$ FLS | 0.546 0.047 | 11.624 | .000 | Supported |
| MD $\rightarrow$ FLS | 0.127 0.051 | 2.972 | .001 | Supported |
| FSA $\rightarrow$ FSE | 0.116 0.043 | 2.687 | .003 | Supported |
| ATM $\rightarrow$ FSE | 0.319 0.045 | 7.063 | .000 | Supported |
| ATM $\rightarrow$ FSE $\rightarrow$ FL | 0.174 0.028 | 6.260 | .000 | Supported |
| FSA $\rightarrow$ FSE $\rightarrow$ FL | 0.063 0.025 | 2.555 | .005 | Supported |
| MD $\times$ FSE $\rightarrow$ FL | -0.129 0.055 | 2.875 | .001 | Supported |
| MD $\times$ FSA $\rightarrow$ FL | -0.061 0.060 | 0.751 | .226 | Not Supported |
| MD $\times$ ATM $\rightarrow$ FL | 0.035 0.019 | 1.842 | .031 | Supported |

Thus, empirically supported H7 and H8. Results concerning hypothesis H9, H10, H11 revealed in Table 5 that the interaction term (attitude toward money × mindfulness) was significant, implying moderation effect ($\beta = .035, p < .031$), which indicates
that mindfulness moderates the relationship between attitude toward money and financial literacy positively.

The interaction term (financial self-efficacy × mindfulness) was significant at 10%, implying moderation effect (β = -.129; p < .001), which indicates that mindfulness negatively moderates the relationship between financial self-efficacy and financial literacy. Finally, the interaction term (financial social agents × mindfulness) was insignificant, (β = -.061; p > .226), which indicates that mindfulness does not moderate the relationship.

**In-Sample prediction**

Henseler et al. (2009) define $R^2$ for weak, moderate, and substantial as 0.25, 0.50, and 0.75, respectively. The variability in financial literacy by all latent constructs in the model explains 43% and 11% for financial self-efficacy. The second approach for assessing the in-the-sample prediction (Hair et al., 2019) suggested that $Q^2$ indicates about the predictive relevance of the model in Smart-PLS. The $Q^2$ statistic value is 0.277 for financial literacy and 0.101 for financial self-efficacy, indicating that the exogenous construct has predictive power for the endogenous construct (Table 6).

**PLS-predict (Out-of-Sample Prediction)**

The explanation of $R^2$ and $Q^2$ as predictive power is not adequate due to in-sample explanatory power (Dolce et al., 2017; Shmueli, 2010). Shmueli et al. (2016) proposed out-of-sample prediction and assessment of predictive power through the root mean squared error (RMSE) and mean absolute error (MAE). Shmueli et al. (2019) defined that when most items of endogenous construct yield low error from the linear model (LM), so the results show that the model has medium predictive power (See Table 6).

**Robustness of Structural Model**

Sarstedt et al. (2020) discussed the fundamental concern related to PLS-SEM structural model estimation. They discussed three fundamental concerns related to structural, that is, nonlinear effect, endogeneity, and unobserved heterogeneity. Mostly researchers using, regression equation specification error test (RESET) which was introduced by Ramsey (1969). The results show that the regressions of ATM, FSE, FSA, and MD on FL (reset = 1.58, $p = .258$), and FSA and ATM on FSE (reset = 1.34, $p = .284$). We conclude that the linearity effect in the structural model is robust (See Table B1 Appendix B).

Secondly, endogeneity could create an issue and generates biased results in the regression analysis method (Hult et al., 2018). The application approach of endogeneity through the Gaussian copula (Park & Gupta, 2012). Followed by Hult et al. (2018) we applied the Kolmogorov-Smirnov test with Lilliefors correction for testing non-normally distribution for (ATM, FSE, FSA, and MD). The results of the Copula show insignificant $p$-values. Gaussian copulas for ATM_copula ($p = .389$), FSE_copula ($p = .617$), FSA_copula ($p = .731$), and MD_copula ($p = .582$). insignificant results show that the model is robust, and no endogeneity issue exists in the model (See Table B2 Appendix B).

**Discussion**

Past studies conducted and explored financial literacy and its determinants that affect the level of financial literacy (Bharucha, 2019; Bianchi, 2018; Calcagno & Monticone, 2015; Lusardi et al., 2010; Lyons et al., 2019). This study found a positive relationship between financial social agents and financial literacy. Interaction with family members on financial matters gives direction to college and university students to improve their financial decision making (Chowa & Despard, 2014; Grohmann et al., 2018; Shim et al., 2010). Moreover, the characteristics of parents may have an indirect impact on the money managing and risk-taking attitude of their children (Damian et al., 2020). Some researchers found that peers have a significant impact on making financial decisions (Duflo & Saez, 2003; Isomidinova et al., 2017; Sohn et al., 2012) and social media is also one of the elements which greatly influences the financial behavior of students (Ameliawati & Setiyani, 2018). Thus, this relationship was observed because an individual’s attitude toward money develops a stable and well-defined feature that is meant to foster a better perspective of money and financial attitude.

The influence of financial self-efficacy on financial literacy was positive, and the relationship between financial self-efficacy and the attitude toward money was partially mediated by the presence of financial self-efficacy. Earlier research confirmed that financial self-efficacy leads to an increase in financial literacy (Forbes & Kara, 2010). Some studies deliver supporting proof of the benefits of financial self-efficacy for youth entrepreneurs (Wilson et al., 2009). Whereas as individual level the outcome of financial self-efficacy led to better results due to forward-thinking and feel responsible which effects better financial outcome (Farrell et al., 2016; Perry & Morris, 2005). This confirmation of the developed hypothesis suggests that financial self-efficacy enhances the ability of the young generation to manage their money and make better financial decisions.

Participants who have a high level of confidence in their abilities to manage also exhibit favorable adaptive functioning, behaviors, and financial literacy (Meeus et al., 2011; Shim et al., 2013), increased self-control (Engelberg, 2007), and improved their financial literacy (Burgoyne,

| Table 6. Model Fitness (in-the Sample). |
|----------------------------------------|
| R square | R square adjusted | $Q^2$ |
|----------|------------------|------|
| FSE      | 0.110            | 0.106| 0.101 |
| FL       | 0.432            | 0.423| 0.277 |
As a result of these findings, increasing financial self-efficacy levels among students will benefit financial knowledge and control. Utkarsh et al. (2020), reported the same results in the context of Indian young adults. This association exists because financial socialization entails a higher knowledge of economics and results in a more capable controller when it comes to financial planning. Additionally, this relationship has formed because of the determination of financial literacy. The association of parents with young people at an early age deprives them financial knowledge and provides a better understanding of the financial control, behaviors and processes that contribute to well-structured financial literacy and attitude toward money.

Mindfulness moderates the relationship between attitude toward money, financial self-efficacy, and financial literacy, whilst it does not moderate the relationship between financial socialization agents and financial literacy. According to Brown et al. (2014) higher mindfulness led to lower amounts of financial frustrations and increases the decision making so the relationship between attitude toward money and financial literacy increases.

### Conclusion

The purpose of this study is to investigate the effect of financial social agents and attitude toward money with the mediating role of financial self-efficacy and moderating role of mindfulness. The study results using the PLS-SEM approach concluded that an individual’s attitude toward money (ATM), financial social agents (FSA), and financial self-efficacy (FSE) had a considerable favorable effect on one’s financial literacy (FL). However, financial self-efficacy (FSE) has a high impact while attitude toward money (ATM) has low effect among the variables.

Additionally, financial self-efficacy (FSE) is revealed to significantly and increases the link between ATM and FL. Furthermore, FSE also mediates the relationship between FSA and FL. Finally, when mindfulness (MD) introduces as moderator it has a negligible and insignificant moderating effect on the link between FSA and FL. Additionally, MD moderates the relationship between FSE and FL, and ATM and FL in a significant but negatively.

The theoretical contribution of this study is examining the determinants which have an impact on financial literacy in Pakistan. This study is valuable for academicians as it is bridging the gap in behavioral finance. Further Governments, regulators of the financial sector, and educators can take help from the findings for developing their policies to enhance or build financial literacy among our students. They can be more aware of the factors that can affect the financial literacy of students by integrating mindfulness and self-efficacy.

Future research can be done using all higher education institutes in Pakistan. The purpose of this study was to examine the effectiveness of financial self-efficacy, financial socialization agents, and attitude toward money on financial literacy. Further research can be done by taking other variables such as environmental, cultural, gender, and religious influences.

### Limitations and Recommendations

To begin, the current study is constrained by its data population; data were gathered from only one sample and at one time frame in Pakistan, so the study can extend to more than one time period as longitudinal study or more than sample frame of different countries. Furthermore, the study analyzed data only using the PLS-SEM technique and the statistically and theoretical significance is not enough to support the evidence. Additionally, the study considers just financial social agents and attitude toward money as exogenous factors, rather than other variables such as personal traits, or different groups according to education level. Similarly, the study utilizes FL as a dependent variable but might use another like, financial well-being. Finally, the study is lack of any strong theoretical support.

### Appendix A

#### Questionnaire

**Section I: Demographics**

1. **Gender:**
   - Male
   - Female

2. **Age**
   - 20–25
   - 26–30
   - 31–35
   - 36–40
   - 41 above

3. **Educational**
   - Intermediate
   - Bachelors
   - Masters
   - PhD

**Section II: Basic Information**

Rate the following items on a scale of 1–5 (1, Strongly Disagree; 2, Disagree; 3, Neutral, 4, Agree; 5, strongly Agree)

Financial Literacy scale was adopted from the study of Potrich et al. (2018).
Financial Attitude: (Potrich et al., 2018).
“It is important for a family to develop a regular pattern of saving and stick to it.”
“Families should write financial goals that help them determine priorities in spending.”
“A written budget is absolutely essential for successful financial management.”
“It is essential to plan for the possible disability of a family wage earner.”
“Planning for spending money is essential to successfully managing one’s life.”
“Planning for the future is the best way of getting ahead”. “Thinking about where you will be financially in 5 or 10 years is essential to financial success”.

Control Financial Behavior: (Potrich et al., 2018).
“I take notes and control my personal expenses (e.g., expense and revenue spreadsheet).”
“I have a plan for expenses/budget.”
“I can identify how much I pay when using credit.”
“I pay my bills without delay.”
“I analyze my financial situation before a major purchase.”

Saving Financial Behavior: (Potrich et al., 2018).
“I save some of the money I get each month for a future need.”
“I save monthly.”
“I save regularly to achieve financial targets in the long term.”
“I save more when I get a pay rise.”
“I have a financial reserve at least three times my monthly earnings, which can be used in unexpected circumstances”. “In the last 12 months, I have been able to save money”.

Financial Socialization Agents scale was adopted from the study of Pinto et al. (2005).

Media: (Pinto et al., 2005).
“Talk shows related to financial issues.”
“News shows related to financial issues.”
“Newspapers/Magazines related to financial issues.”

Peers: (Pinto et al., 2005).
“Peers (Friends).”
“Coworkers.”
“Internet Sources.”

Schooling: (Pinto et al., 2005).
“College level schooling (Courses/Teachers).”
“University level schooling (Courses/Teachers).”

Parents: (Pinto et al., 2005).
“Parents role in financial matters.”

Perspective towards Money scale was adopted by Beutler and Gudmunson (2012).

Entitlement: (Beutler & Gudmunson, 2012).
“I feel it is my parents’ job to pay for my everyday needs.”
“My parents should provide me with spending money.”
“I feel my parents should pay for the ‘extras’.”
“I feel my parents should pay for my college education.”
“I deserve to get most of the things I want.”
“I feel my parents should help me get the things I want.”

Conscientiousness: (Beutler & Gudmunson, 2012).
“I help my parents save money by being thrifty and frugal.”
“When my parents buy me things, I try to ‘pay them back’ by helping them out.”
“I am cautious, even when spending my parents’ money.”
“I feel personal responsibility when spending my parents’ money.”

Financial Self-Efficacy scale was adopted by Loke et al. (2015).
“How sure are you that you can effectively do each of the following in a responsible manner during your lifetime?”
“Use credit.”
“Invest your money.”
“Budget your money.”
“Spend your money.”
“Save your money.”

Mindfulness scale was used from the study of Feldman et al. (2006).

Attention: (Feldman et al., 2006)
“It is easy for me to concentrate on what I am doing.”
“I am easily distracted.”
“I am able to pay close attention to one thing for a long period of time”.

Acceptance: (Feldman et al., 2006)
“I can tolerate emotional pain.”
“I can accept things I cannot change.”
“I am able to accept the thoughts and feelings I have.”

Awareness: (Feldman et al., 2006)
“I can usually describe how I feel at the moment in considerable details.”
“It’s easy for me to keep track of my thoughts and feelings.”
“I try to notice my thoughts without judging them.”

Present: (Feldman et al., 2006)
“I am preoccupied by the future.”
“I am preoccupied by the past.”
“I am able to focus on the present moment.”
Appendix B

Table B1. Prediction Out of Sample (PLS-Predict).

| Items | RMSE | MAE | RMSE | MAE | RMSE | MAE | RMSE | MAE |
|-------|------|-----|------|-----|------|-----|------|-----|
| FLA1  | 0.927| 0.713| 0.926| 0.710| -0.001| -0.003| -0.000776| -0.00413|
| FLA2  | 0.930| 0.744| 0.935| 0.747| 0.005 | 0.003 | 0.00206 |
| FLA3  | 0.985| 0.783| 0.984| 0.781| -0.001| -0.002| 0.000311|
| FLA4  | 0.900| 0.705| 0.906| 0.710| 0.006 | 0.006 | 0.000311|
| FLA5  | 0.969| 0.729| 0.975| 0.732| 0.007 | 0.003 | 0.000311|
| FLA6  | 0.935| 0.727| 0.943| 0.730| 0.008 | 0.003 | 0.000311|
| FLA7  | 0.902| 0.708| 0.905| 0.709| 0.004 | 0.001 | 0.000311|
| FLA8  | 0.901| 0.679| 0.909| 0.685| 0.008 | 0.006 | 0.000311|
| FLA9  | 0.879| 0.704| 0.882| 0.704| 0.004 | 0.000 | 0.000311|
| FLA10 | 0.904| 0.724| 0.910| 0.723| 0.006 | 0.000 | 0.000311|
| FLA11 | 0.924| 0.739| 0.922| 0.723| -0.002| -0.016| -0.002174|
| FLA12 | 0.967| 0.756| 0.975| 0.765| 0.009 | 0.009 | 0.0011751|

Note. RMSE = root mean squared error; MAE = mean absolute error of PLS-SEM estimation; LM = linear model estimations; LM-PLS = differences between two estimations, and the last two columns show differences in percentage.

Table B2. Robustness of Structural Model.

| Constructs relationships | Coefficients | p-Value | Gaussian copula | p-Value |
|--------------------------|--------------|---------|----------------|---------|
| ATM, FSE, and MD FL →    | 1.58         | .258    | FSE copula     | .617    |
| FSA, ATM → CCB           | 1.34         | .284    | ATM copula     | .389    |

Note. Coefficients = RESET estimator coefficients for nonlinearity assessment, and Gaussian copula show endogeneity effect, the p value should be insignificant for robustness.

Availability of Data and Materials

The datasets used and analyzed during the current study are available from the corresponding author on reasonable request.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

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