

Financial Knowledge is Power:  
Exploring the Protective Benefits of Financial Self-Efficacy Among Young Adults

by

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## ABSTRACT

Personal finances are an essential part of adulthood, yet we find that many Americans have low financial literacy (Financial Industry Regulatory Authority Investor Education Foundation, 2016). This phenomenon is especially true for young adults (18-25 years old) (Lusardi, 2019). Lusardi, Mitchell, and Curto (2009) found that fewer than one-third of young adults possess basic financial knowledge. The present study examined whether financial self-efficacy and financial hardship were moderators between financial literacy and financial anxiety among a young adult sample (18-25 years old; Arnett, 2000). The current study utilized moderated moderation analyses to explore the associations between financial literacy, financial anxiety (i.e., the concern and worry about finances), financial self-efficacy, and financial hardship for young adults ( $N = 549$ , 71.6% female,  $M_{age} = 20.49$ ). Based on survey data from the Financial and Social Stress Study (Tran & Mintert, n.d.), moderated moderation results show (a) an inverse association between financial literacy and financial anxiety (direct effects) and (b) financial self-efficacy and financial hardship moderate this relationship. Specifically, for young adults experiencing high financial hardship with high financial self-efficacy, there was a strong inverse association between financial literacy and financial anxiety. This study contributes to our knowledge of the vital role of financial literacy and its association with financial anxiety for young adults. Further, these findings highlight financial self-efficacy as a potential factor for mental health providers to consider when working with young adults experiencing high financial hardship.

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## CHAPTER 1

### PROBLEM IN PERSPECTIVE

The United States President's Advisory Council on Financial Literacy ("Executive Summary," 2008, p. 7) stated that:

“Financial illiteracy is not an issue unique to any one population. It affects everyone: men and women, young and old, across all racial and socioeconomic lines. No longer can we stand by and ignore this problem. The economic future of the United States depends on it.”

*Financial literacy* is defined as how well an individual can comprehend and utilize personal finance-related information (Huston, 2010). Adults with increased financial literacy often experience less social and psychological pressures, and as a result, can increase wealth for their families (Taft, Hosein, Mehrizi, & Roshan, 2013). Also, Taft et al. (2013) cited that high financial literacy reduces stress, physical illness, financial concerns, and tension among families. Fox, Bartholomae, and Lee (2005) discussed how adults raised in households with higher financial literacy and well-being were more confident as well as less depressed and aggressive. On the other hand, lower financial literacy is often correlated with financial mismanagement, such as excessive credit card debt, poor management of loans, paying the minimum due on credit cards, and utilizing high-cost borrowing methods (e.g. payday loans, auto title loans, and refund anticipation loans) (Mitchell & Lusardi, 2015). Statistics reveal that a substantial proportion of adults in the United States have relatively low financial literacy. Nearly 70% of U.S. adults have low financial literacy, and only 37% were able to pass a basic financial knowledge test

(Financial Industry Regulatory Authority Investor Education Foundation, 2016). Low financial literacy has been associated with worse financial outcomes such as spiraling debt, growing bankruptcies, low savings rates, and lack of preparation for retirement (Anthes, 2004; Kuehn, 2012). Low financial literacy can contribute to adverse implications, such as the cycle of borrowing more and saving less money (Stango & Zinman, 2009). Whereas, high financial literacy has been associated with positive psychological outcomes, such as higher self-esteem, increased productivity, and decreased stress (Joo & Grable, 2000). Albeit limited, research suggests that financial literacy is associated with positive financial and mental health outcomes. Hence, focusing on financial literacy concepts early (i.e., young adulthood) is important (Lusardi, 2019). Financial literacy has the potential to be either detrimental or beneficial for one's financial anxiety, depending on the level of financial literacy possessed.

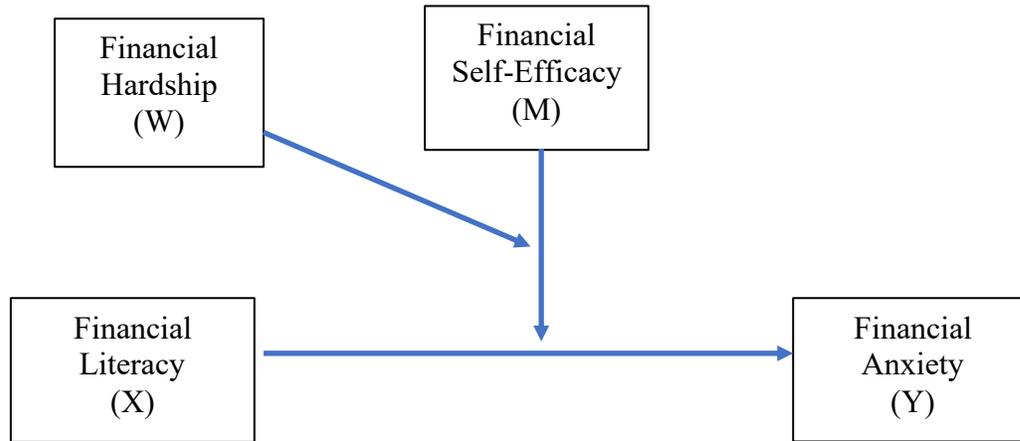
*Financial anxiety* refers to the constant worry or stress experienced when thinking about finances (Shapiro & Burchell, 2012). According to a 2016 study by financial services company Northwestern Mutual, most Americans (85%) reported feeling some level of anxiety around money. The survey revealed that financial anxiety was negatively associated with one's happiness, mood, ability to pursue dreams, health, home life, and social life. The present study posits that financial literacy is inversely associated with financial anxiety, such that higher financial literacy would predict lower financial anxiety. Additionally, this study examined whether the negative association between financial literacy and financial anxiety varies by level of financial self-efficacy. While often overlooked, *financial self-efficacy* (i.e., the belief and confidence in one's ability to handle financial situations; Lapp, 2010) is an essential aspect of the financial literacy

conversation. The current study applied the self-efficacy construct to examine the relationship between financial literacy and financial anxiety, with financial self-efficacy as a moderator.

Moreover, the present study examined whether the moderating role of self-efficacy varies across one's level of financial hardship. *Financial hardship* is one aspect of one's current financial situation that is often associated with "elevated levels of distress because of greater exposure to chronic and acute stressors, including family and relationship problems, trouble paying monthly bills, physical limitations, and poor neighborhood conditions" (Bradshaw & Ellison, 2010, p. 196). Individuals experiencing financial hardship face financial struggle and disparity (Raikes & Thompson, 2005), which is why financial hardship is important to be examined as it relates to financial self-efficacy. Thus, it was hypothesized that financial hardship would moderate the moderation relationship between financial literacy, financial self-efficacy, and financial anxiety, such that for young adults who experience financial hardship, high self-efficacy would strengthen the inverse relationship between financial literacy and financial anxiety.

In the present study, a moderated moderation analysis was used to demonstrate that the inverse association between financial literacy and financial anxiety differs based on financial self-efficacy and financial hardship (Figure 1). An inverse association between financial literacy and financial anxiety was hypothesized, such that high financial literacy would be associated with lower financial anxiety. Further, financial self-efficacy is predicted to be a moderator that strengthens the association between

financial literacy and financial anxiety for individuals experiencing high financial hardship, in contrast to individuals at low and moderate financial hardship.



*Figure 1: Conceptual, diagrammatic model of hypothesized three-way interaction (moderated moderation) relationship.*

## CHAPTER 2

### REVIEW OF THE LITERATURE

#### **Financial Literacy and Financial Anxiety**

*Financial literacy* is the "combination of awareness, knowledge, skill, attitude, and behavior necessary to make sound financial decisions and ultimately achieve individual financial well-being" (OECD INFE, 2011, p. 3). In other words, financial literacy is how well an individual can comprehend and utilize personal finance-related information (Huston, 2010). Financial literacy has traditionally been assessed by one's understanding of a variety of financial topics, including insurance, banking, interest rates, loans, credit cards, mortgages, retirement savings, budgeting, and investments (Huston, 2010; Knoll & Houts, 2012; Remud, 2010). Financial literacy is often used interchangeably with financial knowledge (Huston, 2010; Knoll & Houts, 2012). However, for the current study, the term financial literacy was used.

While financial literacy is essential for all individuals, young adults, in particular, could benefit from possessing knowledge of various financial topics as they begin making independent financial decisions (Jorgensen & Savla, 2010; Lusardi, 2019). Young adults are increasingly burdened by debt, often as a result of credit card and student loan debt (Scheresberg, 2013). Young adults who display high financial literacy tend to have better financial outcomes, such as increased savings for emergencies and retirement (Scheresberg, 2013). Scheresberg (2013) provided implications for improving financial literacy to help "young people" minimize the costs incurred in managing their debt and improve their financial future. Arnett (2000) emphasized emerging young adulthood (ages 18-25), a distinct developmental period that can be characterized by

transitions from financial dependence to independence. While financial literacy research has traditionally focused on adults more broadly, it seems crucial to explore financial literacy as it pertains to emerging young adults, as many are in the beginning phases of making independent financial decisions. The current study used the term young adults to capture the emerging young adult population (18-25 years old).

For young adults, financial literacy has been negatively associated with physical and mental health, as well as overall life satisfaction (Shim, Xiao, Barber, & Lyons, 2009). Further, higher financial literacy has been linked to less psychological stress (APA, 2013; Doehring, 2018; Joo & Grable, 2000; Shapiro & Burchell, 2012), higher self-esteem (Doehring, 2018; Joo & Grable, 2000; Shapiro & Burchell, 2012), and less anxiety (Archuleta, Dale, & Spann, 2013; Shapiro & Burchell, 2012). Overall, high levels of financial capability and financial literacy are associated with better psychological well-being (Bennett, Boyle, James, & Bennett, 2012; Christelis, Jappelli, & Padula, 2010). For instance, financially literate older adults can reduce anxiety about life in their stage of life by accumulating more assets and earning more income (Kadoya & Khan, 2017). On the other hand, a study in the UK following 450 undergraduates found that students who reported struggling to pay bills also reported more signs of poor mental health, stress, anxiety, depression, and alcohol dependence (Pain, 2016). While the literature supports the association between financial literacy and general mental health, the association may also translate to domain-specific financial anxiety. Therefore, the current study anticipated an inverse association between financial literacy and financial anxiety.

*Financial anxiety* refers to distress, and the constant worry experienced as it relates to one's finances (Burchell, 2003; Shapiro & Burchell, 2012). Financial concerns

are often the top source of stress for most adults in the United States. For instance, three out of four people experience financial anxiety in any one month, and one out of four are stressed about money most or all of the time (Bethune, 2015, p. 38). According to Shapiro and Burchell (2012), “financial anxiety is distinct from depression and general anxiety and functions much like a phobia with involuntary avoidant coping (e.g., not reading bank statements, not tracking debt levels or future debt repayments) (p. 92).” This financial phobia due to low financial literacy is a detrimental outcome and mental health concern (Shapiro & Burchell, 2012). Ultimately, knowledge is power, and having financial knowledge can be beneficial against aversive financially-based mental health effects. Young adults with less financial knowledge often have negative thoughts about finances and make incorrect financial decisions (Chen & Volpe, 1998), which can worsen financial anxiety. This research reveals that low financial literacy can play a role in perpetuating financial anxiety.

The existing literature suggests young adults’ financial literacy is linked to financial anxiety. Further, the current study proposed a potential moderation effect, such that high financial self-efficacy would strengthen the inverse association between financial literacy and financial anxiety. Thus, it is expected that the link between financial literacy and financial anxiety varied in strength depending on the level of self-efficacy possessed.

### **Moderating Role of Financial Self-Efficacy**

Self-efficacy has been a predictor of successful performance and goal outcomes in various domains; as self-efficacy increases, so does an individual’s confidence to perform a behavior or task (Bandura, 1986). Self-efficacy is a focal aspect of Albert Bandura's

Social Cognitive Theory (Bandura, 1986). Bandura argued individuals have control over their thoughts, feelings, and actions and are agents of change, which can result in favorable outcomes. Human behavior and motivation are both affected by individuals' self-beliefs about their abilities (Bandura, 1986). While perceived ability and actual ability are distinct concepts, self-efficacy beliefs are theorized to be essential pre-requisites for effective action, which may serve as a proxy for desired outcomes (Bandura, 1997; Caprara, Alessandri, Giunta, Panerai, & Eisenberg, 2009). Locke and Baum (2007) found that individuals with high-self-efficacy tend to focus on opportunities and ignore obstacles in anticipation of a positive outcome. Self-efficacy theory suggests that efficacy beliefs influence one's decision on the type of activities engaged in, level of effort expended, perseverance in difficult times, and thought patterns and emotional reactions experienced (Bandura, 1986; Bandura, 1988).

*Financial self-efficacy* is rooted in the original theoretical conceptualization of self-efficacy (Bandura, 1977). Financial self-efficacy refers to individuals' perceived ability to manage their finances and their confidence to carry out financial tasks (Lapp, 2010). Self-efficacy theory would suggest that the strength of the inverse association between financial literacy and financial anxiety would be significantly stronger for those who exhibit high levels of financial self-efficacy compared to those who show low levels of financial self-efficacy. Efficacious individuals would feel more confident (Luszczynska, Schwarzer, Lippke, & Mazurkiewicz, 2011), thus strengthening the inverse association between financial literacy and financial anxiety. Specifically, for young adults with high self-efficacy, high financial literacy would be associated with lower financial anxiety.

The National Endowment for Financial Education (NEFE) conducted a study of approximately 5,550 millennials and found that only 24% of millennial respondents showed basic financial literacy in its study, with just 8% showing a high level of knowledge. This finding highlights the importance of financial literacy for young adults. Further, of the millennial participants, nearly 70% gave themselves a high self-assessment on a measure of financial knowledge (Golden, 2017). This gap between actual and perceived financial knowledge suggests that despite the lack of financial knowledge, self-efficacy boosts an individual's confidence in their financial ability. This study revealed that the belief in their financial skills was high, despite the participants' low financial knowledge. In the context of self-efficacy theory, perceived efficacy purportedly matters more than actual ability (Bandura, 1993), such that someone can have the skills but lack self-efficacy to use the skills.

Further, self-efficacy was shown to contribute to skill utilization in math students, and results indicated that positive beliefs toward math were better predicted by perceived self-efficacy than actual ability (Collins, 1982). Moreover, individuals with a greater sense of financial self-efficacy are more likely to approach the lack of financial literacy or financial difficulties with the mindset that the lack of financial literacy as an obstacle to tackle, rather than a threat to be avoided (Bandura, 1994). Therefore, financial self-efficacy matters as a person's self-assuredness or self-belief in financial capabilities will moderate the inverse association of financial literacy on financial anxiety, making the association stronger. If this were the case, then the influence of financial self-efficacy on the relationship between financial literacy and financial anxiety might be stronger at different levels. For example, it may be that financial self-efficacy beliefs have primarily

compensatory effects, strengthening the inverse association between financial literacy and financial anxiety at high levels of financial self-efficacy, compared to low and moderate levels of financial self-efficacy.

### **Moderated Moderation: Financial Hardship**

There is evidence that self-efficacy processes operate differently for individuals of different demographic backgrounds. Demographic factors including age, income, ethnicity, and education are suggested to be determinants of one's financial situation and the dynamics therein (Braveman, Cubbin, Egerter, Chideya, Marchi, Metzler, & Posner, 2005). One particularly relevant psychosocial factor with financial literacy and anxiety is financial hardship. *Financial hardship* refers to an individual's experience with a shortage of resources and deprivation from one's way of life (Whelan, Layte, Matre, & Nolan, 2001). While financial hardship is associated, it is not interchangeable with standard socioeconomic status (SES) indicators, such as income (Braveman et al., 2005). Extant literature suggests that subjective measures of financial hardship are a better representation of individuals' experiences with deprivation in comparison to objective measures (Bradshaw & Ellison, 2010; Whelan, Layte, Matre, & Nolan, 2001; Western & Tomaszewski, 2016). The current study used a self-assessed measure of perceived financial hardship. Individuals at all income levels can experience financial hardship (Baek, Eunyoung, & DeVaney, 2010); therefore, it is crucial to consider the impact that hardship has on the relationship between financial literacy, financial self-efficacy, and financial anxiety.

Research has shown that individuals facing financial hardship often report lower self-efficacy, yet self-efficacy retains importance for these vulnerable populations

(Raikes & Thompson, 2005). Similar to self-efficacy, growth mindset (i.e., the belief that abilities can develop through hard work and dedication) has been a vital predictor of success for low-income students (Claro, Paunesku, & Dweck, 2016). Low-income students are twice as likely to have a fixed mindset compared to their counterparts. Growth mindset is more protective for individuals as they overcome barriers to success. Students with a growth mindset characteristically tend to have higher levels of self-efficacy than students with more of a fixed mindset (Dweck & Master, 2009). Similarly, self-efficacy plays a vital role for those facing financial hardship (Bandura, 1995).

Self-efficacy has been examined in the context of financial hardship. The inability to purchase necessities is a critical and unfortunate aspect of financial hardship as it is often a source of psychological and physical suffering for families experiencing financial difficulty (Smith, 2013). Maslow's hierarchy of needs theory (1943) postulates that basic physiological needs (i.e., food, water, shelter) must be met before one can obtain higher needs such as safety, belongingness, esteem, and self-actualization. In a longitudinal study examining chronic role strains, self-efficacy was beneficial for parents with limited resources to overcome feelings of inadequacy or failure (Pearlin, Lieberman, Menaghan, & Mullan, 1981). Also, the findings support understanding self-efficacy in the context of one's financial situation (Pearlin et al., 1981). Likewise, the current study proposed that financial self-efficacy behaves differently at different levels of financial status. Due to the lack of information regarding self-efficacy in the context of financial hardship, the current study proposed a moderated moderation model hypothesis. The following research question was evaluated: does financial self-efficacy vary based on one's level of

financial hardship and does one's financial hardship matter more than self-efficacy when examining financial literacy and financial anxiety?

### **The Present Study**

The present study enhances the current literature on the mechanisms behind financial literacy and financial anxiety amongst young adults (ages 18-25). Moreover, it highlights the benefit of financial knowledge and how mental health outcomes vary depending on the level of self-efficacy and financial hardship. This study utilized a three-way interaction (moderated moderation) to examine whether the association between financial literacy and financial anxiety is moderated by financial self-efficacy and whether the moderation was conditional based on financial hardship.

Based on the literature, it was hypothesized that financial literacy would be inversely associated with financial anxiety (H1). In addition, it was hypothesized that both financial self-efficacy and financial hardship operated as moderators (H2). Specifically, it is expected that, for young adults reporting financial hardship and high financial self-efficacy, in particular, high financial literacy may be linked to lower financial anxiety.

## CHAPTER 3

### METHOD

#### **Sample and Procedures**

The current study was based on existing data from the Financial and Social Stress Study (Tran & Mintert, n.d.), which focused on the financial and social experiences among adults. The study recruited adults (18-years-old and older) to take an online Qualtrics survey. Participants were recruited across multiple forums, including universities nationwide (e.g., instructors, campus registrars, and email distribution to student groups), listservs, and social media outlets (e.g., Reddit). Recruitment materials, including emails and flyer advertisements, provided a link to the survey. The participants gave consent before participating in the study and were given an opportunity to enter a raffle for one of five \$50 Amazon gift cards. Additionally, college students in courses in which faculty offered extra credit for completing the survey received extra credit for eligible coursework.

In the Financial and Social Stress Study, six validation questions were placed throughout the survey to ensure participants were responding to questions in an appropriate manner. Respondents who successfully answered all six validation questions (e.g., write in the number 3 or select a specific Likert rating) were included in the current study for data analysis. However, participants who did not answer all six validity questions correctly were excluded from the present study. In total, 190 (16.5%) out of 1339 participants were excluded from the study for failure to answer all six validation

items accurately. Also, given the current study's interest in young adults, the data were filtered to include only young adults (age 18-25, Arnett, 2000) which excluded an additional 600 participants over the age of 25 years. Gender was made a dichotomous variable (male and female) by excluding nonbinary participants ( $n = 11$ ) from the study.

Within the final sample of young adults ( $n = 549$ ), a majority (71.6%) self-identified as female ( $n = 393$ ) and 28.4% self-identified as male ( $n = 156$ ). The participants' ages ranged from 18-25 years old, with the mean age being 20.49 ( $SD = 2.26$ ; Table 1). The self-identified racial/ ethnic breakdown of the sample was 54.3% ( $n = 298$ ) Non-Hispanic European American/White, 13.5% ( $n = 74$ ) Asian/Asian American, 17.5% ( $n = 96$ ) Hispanic/Latina/o, 8.9% ( $n = 49$ ) Multiracial, 1.8% ( $n = 10$ ) African American/Black, 1.8% ( $n = 10$ ) Other, 1.3% ( $n = 7$ ) Native American/American Indian, and 0.9% ( $n = 5$ ) Middle Eastern/Arab American. The majority of the sample identified as being currently in college (97.8%). More than half of the sample (56.8%) described their level of financial hardship by selecting the statement "It's tight, but I'm doing fine," whereas 27.5% of the sample described "Finances aren't really a problem" and 15.7% characterized their financial situation as "It's a financial struggle."

## Measures

**Financial Literacy.** Financial literacy was measured by a financial knowledge scale developed by Knoll and Houts (2012). This measure has been validated with adults who identified as being 18 years and older and living in the United States. Twenty items (Appendix A) assess several areas commonly seen across different financial literacy surveys, such as retirement planning, general investing, and debt management (e.g., True or False: "*The cash value of a life insurance policy is the amount available if you surrender*

*your life insurance policy while you're still alive*", "*If the interest rate rises, what should happen to bond prices? Rise, fall, stay the same, or is there no relationship?*"). The response format on this measure included both multiple-choice items and true/false questions. The participant responses were recoded as either incorrect (including "Don't Know" responses) or correct; then items were summed together to create a total correct score (incorrect response = 0 and correct response = 1, total scores could range from 0 to 20). Higher sum scores indicated more financial knowledge compared to lower scores. In the Knoll and Houts (2012) study, the reliability of the financial literacy scale was .850. In the current study, the Cronbach's alpha was .837.

**Financial Self-Efficacy.** Financial self-efficacy was measured using a 7-item perceived financial knowledge scale (Hershey & Mowen, 2000; Appendix B). The items on this measure reflect one's perceived financial preparedness, especially in terms of financial planning ("*I am very knowledgeable about personal finances and financial planning,*" "*I am very confident in my ability to do financial planning*"). Participants recorded their answers using a 7-point Likert-type response scale (1 = "*strongly disagree*" to 7 = "*strongly agree*"). The items were averaged to get a mean score. The total scores on this measure ranged from 1 to 7, with higher total scores indicating higher levels of financial self-efficacy, whereas lower scores indicated lower levels of financial self-efficacy. This measure has been validated using a sample ( $n = 230$ ) of adults (37-88 years old) who are members of the Arkansas Household Research Panel ( $\alpha = .910$ ). The majority of validation sample participants were married, employed either full- or part-time, and possessed a modal income of \$40,000-\$50,000. The Cronbach's alpha for the

perceived financial knowledge scale in the current study of young adults ages 18-25 was .867.

**Financial Anxiety.** Financial anxiety was measured using the Financial Anxiety Scale (FAS; Archuleta et al., 2013; Appendix D). The FAS was developed by adapting the generalized anxiety disorder diagnostic criteria established in the DSM-IV-TR (APA, 2000) to one's finances (e.g., “*I feel anxious about my financial situation,*” “*I have difficulty sleeping because of my financial situation*”). The FAS asks participants to rate their reaction to seven items on a 7-point Likert-type scale (*1 = never to 7 = always*; see Appendix A). The items on this measure were averaged to get a mean score. In the study, participants scores ranged from 1 to 7; higher total scores indicated higher levels of financial anxiety, whereas lower scores indicated lower levels of financial anxiety. The FAS has been validated and shown to be reliable ( $\alpha = .940$ ) in a sample of college students (i.e., young adults,  $M_{age} = 23.77$ ) at a Midwestern university's peer financial counseling center. The Cronbach's alpha for the financial anxiety scale in the current study of young adults is .946.

**Financial Hardship.** Prawitz, Garman, Sorhaindo, O'Neill, Kim, and Drentea (2006) developed the InCharge Financial Distress/Financial Well-being (IFDFW) Scale, which measures a continuum of financial states. The IFDFW is an eight-item scale, with two questions focused on one's satisfaction and feelings about one's current financial situation. The scale was validated using an adult sample from the general population ( $N = 1,097$ ). The Cronbach's alpha for the scale was .956. Researchers have adapted the IFDFW scale to a single self-assessment question to assess the respondent's current financial situation, “*How would you rate your financial situation currently?*” (Appendix

E; Archuleta, Britt, Tonn, & Grable, 2011). Participants could respond on a scale from 1 to 3 (1 = “Finances aren't really a problem,” 2 = “It's tight, but I'm doing fine,” and 3 = “It's a financial struggle”). The current study used this subjective single-item to measure financial hardship.

**Generalized Anxiety.** In the current study, generalized anxiety was used as a covariate. Generalized anxiety was measured using the GAD-7 (Spitzer, Kroenke, Williams, & Löwe, 2006), a widely used measure that assesses the frequency of general anxiety symptoms. Seven items (see Appendix C) assessed general anxiety symptoms during the last two weeks on a four-point Likert scale from “*not at all*” to “*nearly every day*” (e.g., “*Not being able to stop or control worrying*”, “*Feeling nervous, anxious or on edge*”, or “*Becoming easily annoyed or irritable*”). Higher total scores indicated higher anxiety, compared to lower scores. The GAD-7 has been previously validated using a sample of adult primary care patients and shown to have high internal consistency ( $\alpha = .920$ ; Spitzer, Kroenke, Williams, & Lowe, 2006). In the current study, the generalized anxiety responses demonstrated a high internal consistency ( $\alpha = .939$ ).

### **Analytic Plan**

A three-way interaction [financial literacy\*financial self-efficacy\*financial hardship] was examined with a moderated moderation model ( $X*W*Z$ ) using the PROCESS macro (Hayes, 2018) for SPSS (v. 25). In addition to providing the multiple regression model and coefficient output for the three-way interaction model, PROCESS macro provided the conditional effect of  $X*W$  (financial literacy\*financial self-efficacy) at levels of  $Z$  (financial hardship). It also provided the conditional effect of  $X$  (financial literacy) on  $Y$  (financial anxiety) at levels of  $W$  (financial self-efficacy). Simple slope

analysis was conducted at low (16th percentile), median (50th percentile), and high (84th percentile) values of financial self-efficacy to interpret significant interaction terms. A follow-up three-way interaction analysis was included to assess generalized anxiety and gender as possible covariates.

## CHAPTER 4

### RESULTS

#### **Descriptive Statistics and Correlations**

Table 1 presents the demographic characteristics of the young adult sample. Whereas, Table 2 presents the correlations, mean scores, and standard deviations for the primary variables used in the current study. Correlations examined whether the primary study variables (i.e., financial literacy, financial self-efficacy, financial anxiety, generalized anxiety, and financial hardship) were associated with age and gender as covariates. The correlations were analyzed at a 5% alpha level of significance and were interpreted using Cohen's effect size conventions (small = .10, moderate = .30, and large = .50; Cohen, 1988). There was a small, negative correlation between age financial literacy ( $r = -.094, p < .05$ ) as well as age and financial hardship ( $r = .215, p < .01$ ), such that older young adults were less financially literate yet were more financially stable. Gender was found to correlate significantly with financial anxiety ( $r = .155, p < .01$ ), general anxiety ( $r = .170, p < .01$ ), financial self-efficacy ( $r = -.215, p < .01$ ), and financial literacy ( $r = -.220, p < .01$ ), representing small effect sizes. Females were more likely to have increased financial and generalized anxiety compared to their male counterparts. Females were also more likely to have low financial literacy in comparison to males. In addition, while examining the primary variables, financial literacy ( $r = -.165, p < .01$ ) and perceived financial knowledge ( $r = -.134, p < .01$ ) were negatively correlated with financial anxiety, representing small effect sizes. Therefore, the greater one's financial literacy or perceived financial knowledge, the lower their financial anxiety.

Furthermore, participants' financial hardship was correlated with financial literacy ( $r = -.126, p < .01$ ), financial self-efficacy ( $r = -.150, p < .01$ ), and financial anxiety ( $r = .502, p < .01$ ). Young adults who are currently experiencing high financial hardship are more likely to have lower financial literacy, lower financial self-efficacy, and higher financial anxiety. All significant correlations corresponded to small effect sizes except the relationships between financial hardship and financial anxiety and financial anxiety and generalized anxiety, which demonstrated large correlational effects (Cohen, 1988).

Table 2

*Correlations and Descriptive Statistics*

	1.	2.	3.	4.	5.	6.	<i>M</i>	<i>SD</i>	Sample range
1. Financial Literacy	-						8.83	3.84	0 - 19
2. Financial Self-Efficacy	.26**	-					3.85	1.18	1 - 7
3. Financial Hardship	-.13**	-.15**	-				2.12	.647	1 - 3
4. Financial Anxiety	-.17**	-.13**	-.50**	-			2.78	1.35	1 - 7
5. Generalized Anxiety	-.19**	-.13**	-.21**	.55**	-		2.08	.773	1 - 4
6. Gender	-.22**	-.22**	.07	.16**	.17**	-	-	-	-
7. Age	.22**	.04	.09*	-.02	-.08	-.05	20.49	2.26	18-25

Note. \*\*  $p < .01$ , \*  $p < .05$

## Main Effects and Interaction Effects

The moderated moderation (three-way interaction) model consisted of three predictor variables: financial literacy, perceived financial knowledge, and financial hardship with financial anxiety as the criterion variable. The overall model was significant [ $R^2 = .271$ ,  $F(7, 541) = 28.662$ ,  $p < .001$ ] indicating that the predictor variables accounted for 27.1% of the variance in financial anxiety. The main effects of financial self-efficacy ( $B = .675$ ,  $SE = .366$ ,  $p > .05$ ) and financial hardship ( $B = .209$ ,  $SE = .644$ ,  $p > .05$ ) on financial anxiety were not statistically significant predictors of the criterion variable, financial anxiety.

The following interactions were shown to be significantly related to the outcome of financial anxiety (Table 3): financial literacy\*financial self-efficacy, financial literacy\*financial hardship, and financial literacy\*financial self-efficacy\*financial hardship. The interaction between financial self-efficacy\* financial hardship was not statistically significant. The *R square-change* due to the addition of the three-way interaction was statistically significant ( $\Delta R^2 = .005$ ,  $\Delta F[1, 541] = 4.01$ ,  $p < .05$ ). Results from the three-way interaction model show that for young adults the interaction between financial literacy\*financial self-efficacy on financial anxiety varies across different levels of financial hardship.

Table 3

*Moderated moderation model showing three-way interactions among financial literacy, financial self-efficacy, and financial hardship on financial anxiety.*

	<i>B</i>	<i>SE</i>	<i>95% CI</i>	
Intercept	2.475	1.395	-.265	5.215
Financial Self-Efficacy	.675	.366	-.044	1.394
Financial Literacy	.300*	.149	.008	.592
Financial Hardship	.209	.644	-1.055	1.474
Financial literacy * Financial Self-Efficacy	-.080*	.037	-.152	-.007
Financial literacy * Financial Hardship	-.139*	.070	-.272	-.006
Financial self-efficacy * Financial Hardship	-.294	.164	-.615	.027
Financial literacy * Financial Self-Efficacy * Financial Hardship	.033*	.016	.001	.064

*Note:* Analyses performed using the PROCESS macro for SPSS (Model 3; Hayes, 2013).

\*Denotes statistically significant relationships where  $p < .05$ .

It was hypothesized that financial literacy would be inversely associated with financial anxiety. While the moderated moderation analyses (Table 3) revealed a significant positive main effect between financial literacy and financial anxiety, the correlation between financial literacy and financial anxiety was negative and statistically significant (Table 2;  $r = -.165$ ,  $p < .01$ ). Therefore, the finding supports the inverse association initially predicted between financial literacy and financial anxiety.

Further, the study asked how young adults' financial hardship might be associated with financial anxiety when they possess high financial literacy and high financial self-efficacy. The interaction between financial literacy and financial self-efficacy on financial anxiety was negative and statistically significant ( $B = -.080$ ,  $SE = .037$ ,  $p < .05$ ). The effect of financial literacy on financial anxiety varies by financial self-efficacy.

Therefore, among young adult respondents who possess higher levels of financial self-efficacy, the inverse relationship between financial literacy and financial anxiety was significantly stronger.

Also, evidence from the moderated moderation model supported H2, as there was a statistically significant and positive three-way interaction between financial literacy\*financial self-efficacy\* financial hardship (Table 3;  $B = 0.33$ ,  $SE = 0.016$ ,  $p < .05$ ). Simple slopes were tested at low, moderate, and high levels of financial self-efficacy at each level of financial hardship (Figure 2). For young adults experiencing financial hardship who have high levels of financial self-efficacy, there was an inverse association between financial literacy and financial anxiety, such that high literacy was associated with low financial anxiety (Figure 2;  $B = -0.065$ ,  $SE = 0.027$ ,  $p < .05$ ).

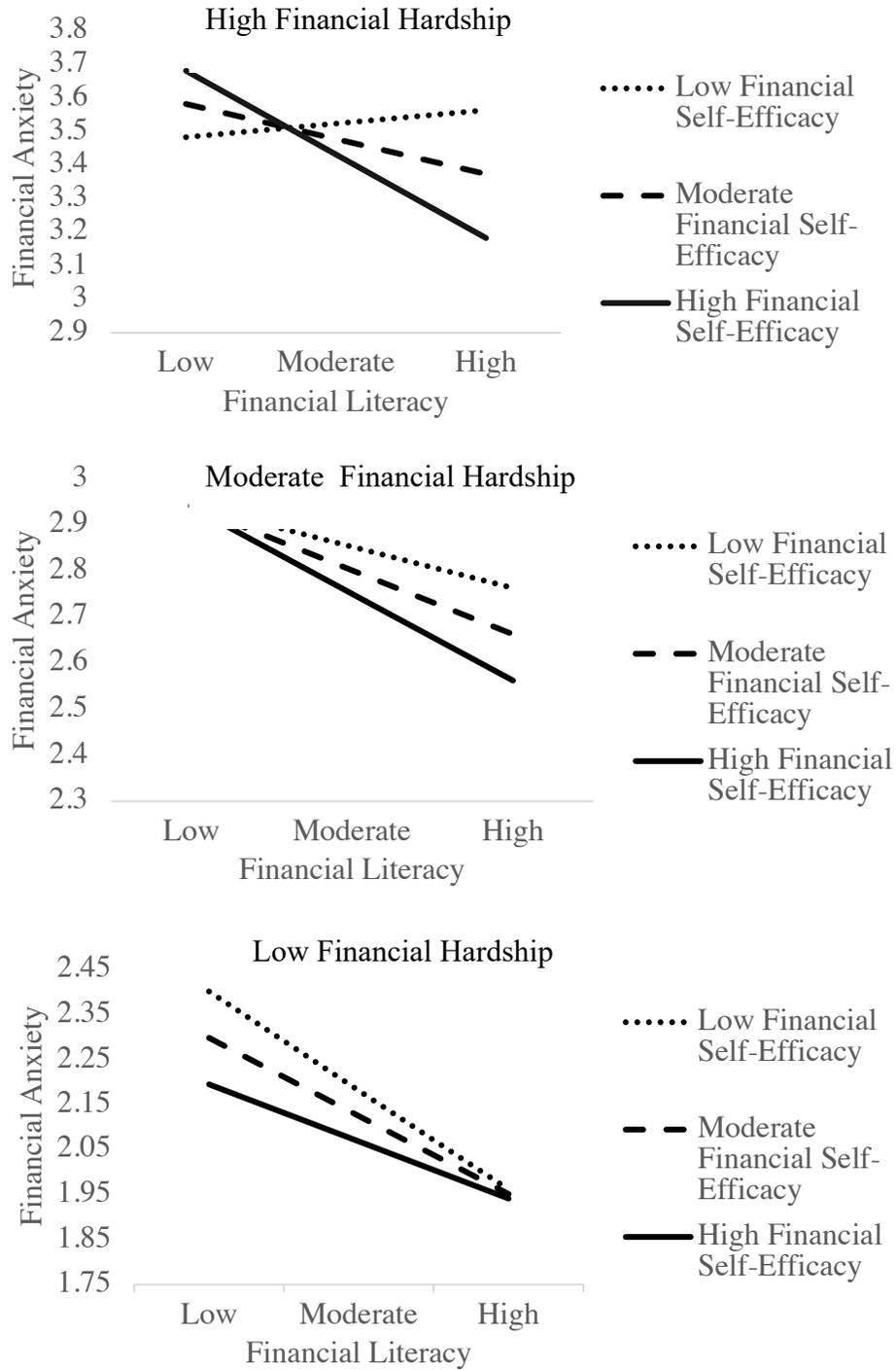
Therefore, high financial self-efficacy was important for those young adults experiencing hardship, as high financial literacy was associated with low financial anxiety, which supports the current study's hypothesis. This finding revealed that for young adults experiencing hardship with high financial self-efficacy, the inverse association between financial literacy and financial anxiety was supported. Moderate financial self-efficacy ( $B = -0.027$ ,  $SE = 0.019$ ,  $p > .05$ ) and low financial self-efficacy ( $B = 0.011$ ,  $SE = 0.105$ ,  $p > .05$ ) were not statistically significant.

For participants who denoted moderate financial hardship (Figure 2), the association between financial literacy and financial anxiety was not statistically significant for those low on financial self-efficacy ( $B = -0.023$ ,  $SE = 0.020$ ,  $p > .05$ ). However, in instances where young adults with moderate financial hardship possessed high levels of financial self-efficacy ( $B = -0.049$ ,  $SE = 0.018$ ,  $p < .01$ ), the inverse

association between financial literacy and financial anxiety was statistically significant. This finding shows that for young adults at moderate financial hardship with high financial self-efficacy, the inverse association between financial literacy and financial anxiety was supported. A similar association was found for young adults with moderate levels of financial self-efficacy ( $B = -0.036, SE = 0.014, p < .01$ ). This finding shows that for young adults at moderate financial hardship with moderate financial self-efficacy, the inverse association between financial literacy and financial anxiety was observed. However, low financial self-efficacy ( $B = -.023, SE = .199, p > .05$ ) was not statistically significant for young adults with moderate financial hardship.

Lastly, for individuals who reported low financial hardship (Figure 2), the link between financial literacy and financial anxiety was not statistically significant for those low on financial self-efficacy ( $B = -0.023, SE = 0.020, p > .05$ ) or high on financial self-efficacy ( $B = -0.033, SE = 0.033, p > .05$ ). However, for individuals who reported moderate financial self-efficacy, there was a significant inverse association between financial literacy and financial anxiety ( $B = -0.045, SE = 0.020, p < .05$ ). Therefore, at moderate levels of financial self-efficacy, the inverse association of financial literacy on financial anxiety was supported for young adults with low financial hardship.

Figure 2. Three-way interaction plot of financial literacy, financial self-efficacy, and financial hardship on financial anxiety



## Post Hoc Analyses

In addition to the hypotheses mentioned above, the current study explored post hoc analyses of the moderated moderation model with gender and generalized anxiety as covariates. Existing literature has revealed gender differences in financial literacy, such that women tend to have lower financial literacy compared to men (Lusardi, 2019). Further, since financial anxiety is derived from generalized anxiety (Archuleta et al., 2013), the current study aimed to control for generalized anxiety in the model. In this sample of young adults, the overall model revealed gender was not a significant ( $B = 0.119, SE = 0.099, p > .05$ ) predictor of financial anxiety, whereas generalized anxiety was a significant predictor of financial anxiety ( $B = 0.800, SE = 0.058, p < .05$ ). The three-way interaction with the added control variables was non-significant  $F[10, 539] = 0.520, p > .05$ , indicating the moderated moderation model did not influence the association between financial literacy and financial anxiety when both covariates (gender and generalized anxiety) were included. The inclusion of the interaction terms did not result in significant variance accounted for in financial anxiety above and beyond predictor variables entered into the moderated moderation model [ $R^2 = .467, F(9, 539) = 52.412, p < .001$ ].

## CHAPTER 5

### DISCUSSION

Financial literacy is a beneficial tool that often leads to successful outcomes when managing personal finances (Hastings, Madrian, & Skimmyhorn, 2013). Financial literacy education should start at an early stage in one's life, such as young adulthood (Lusardi, 2019). During this phase of life, most young American adults are transitioning from financial dependence to independence (Arnett, 2000). Given the rising cost in education and student loan debt, financial education for young adults is paramount (Lusardi, 2019). Financial literacy is especially important for young adults experiencing financial hardship, as socioeconomic deprivation could potentially lead to psychological distress (Bradshaw & Ellis, 2010). The present study examined the link between financial literacy and financial anxiety. This study also examined financial self-efficacy and financial hardship as potential moderators. The results of this study show that the level of financial hardship and financial self-efficacy moderate the inverse association between financial literacy and financial anxiety for young adults.

First, through correlational analyses, the current study found an inverse association between financial literacy and financial anxiety. This correlation represented a small effect size ( $r = -.165, p < .01$ ). The main effect from the model analyses had to be interpreted with caution, as it was misleading given the model's significant three-way interaction. The study supports the hypothesis that financial literacy and financial anxiety are inversely related, such that young adults with high financial literacy are more likely to have lower financial anxiety and vice versa. These results are consistent with similar literature that cites the importance of financial knowledge for one's mental health

(Bennett et al., 2012; Fox et al., 2005; Taft et al., 2013). For instance, Taft et al. (2013) found that financial knowledge helps reduce psychological pressures, such as stress and depression. While similar to domain-specific financial anxiety, it is essential to distinguish that the studies mentioned above used general mental health outcomes--such as depression and general anxiety. Further, financial literacy can impact a person's daily life as well as their future because financial decisions made today can have long-term benefits or consequences. Therefore, financial literacy is a powerful resource for young adults, that can help curtail adverse economic and mental health outcomes (Lusardi, 2019).

Second, the current study was able to explore the context in which financial self-efficacy matters. Self-efficacy has been shown to benefit various areas--workplace productivity, academic achievement, exercise motivation, health outcomes, etc. (Artino, 2006; Betz & Hackett, 1981; Hackett & Betz, 1989; Tucker-Seeley, Mitchell, Shires, & Modlin, 2015). However, in what context and for whom does self-efficacy matter most? The literature shows that individuals in poverty often have lower levels of self-efficacy (Callander & Schofield, 2016a; Callander & Schofield, 2016b, Pearlin et al., 1981), which can limit one from reaching their full potential. Therefore, while most young adults lack financial knowledge, which in turn lowers their self-efficacy (Heckman & Grable, 2011), it appears that financial self-efficacy would benefit young adults with high financial hardship. The current study's proposed moderated moderation model was supported, which hypothesized that financial self-efficacy would be a moderator that strengthens the inverse association between financial literacy and financial anxiety for

young adults experiencing high financial hardship. Thus, the moderating role of financial self-efficacy depended on the level of financial hardship.

Third, in exploring gender and generalized anxiety as possible covariates for the model, the results indicated that gender was not a statistically significant predictor of financial anxiety, despite the significant correlations and prior research that suggests women know less about finances than men (Borden, Leem Serido, & Collins, 2008; Chen & Volpe, 1998; Chen & Volpe, 2002; Lusardi, 2019). Anthes and Most (2000) developed a financial portrait of women and determined several vital issues; they found that women are more intimidated about finances, less prepared for retirement, and earn less money compared to men. Also, men are more likely to have better financial behaviors compared to women (O'Neill & Xiao, 2003). When considering gender discrepancies as it relates to finances, it seems worthwhile to increase women's exposure to financial literacy education to bring awareness to the importance of effectively managing their finances. Further, in the post hoc model, generalized anxiety was a predictor of financial anxiety, which is reasonable given financial anxiety is a domain-specific version of generalized anxiety and interrelated constructs (Shapiro & Burchell, 2012). Barlow and DiNardo (1991) suggested that generalized anxiety and worry are characteristics of the various types of anxieties (e.g., financial anxiety). Thus, highlighting the distinction between financial anxiety and generalized anxiety. The results from the post hoc analyses of the moderated moderation model suggest that generalized anxiety accounts for the variance in the model, given all other predictor variables and interactions were not statistically significant. Despite the non-significant post hoc results, the simple slope trends were similar to the study's primary moderated moderation model without the covariates. Given

the prior research, it appears that gender and generalized anxiety should continue to be investigated in future research.

### **Limitations and Future Directions**

The current study has several limitations that should be acknowledged, along with potential considerations to expand future research. One limitation is that the present study's moderated moderation analyses cannot infer causal relationships, only correlational given the cross-sectional data utilized. The study is unable to prove or confirm the associations between the predictors (i.e., financial literacy, financial self-efficacy, and financial hardship) and the criterion variable (financial anxiety). Given this limitation, it may be worthwhile to conduct a longitudinal financial study to explore financial literacy across the lifespan and at different stages of life.

While this study was interested in young adults (ages 18-25), the age restriction in the study has its limitations given the majority of the sample identified as being 18 or 19 years old and currently in college. The sample of young adults may not be representative of the larger population of young adults (Hanel & Vione, 2016), especially their peers that did not attend college (Pew Research Center, 2014). Nonetheless, young adults are in the early phases of financial experiences and may find the financial literacy questions difficult or feel the questions are irrelevant given their stage in life. However, early awareness and financial preparedness are beneficial, as various financial experiences will occur at some point in one's lifetime (Lusardi, 2019).

Further, future studies can continue to explore financial literacy throughout adulthood, as literacy is not a static skill (Morton, 2005). One study supporting this idea found a positive association between age and financial literacy, with financial literacy

increasing among older adults (The US National Financial Capability Study (NFCS, 2015). For instance, of the young adult participants (ages 18-25) only 13% answered the financial literacy questions accurately, whereas, older adults (ages 70-74), 51% answered all of the financial literacy questions correctly (NFCS, 2015). It may be essential to consider financial literacy through the lens of individuals at different stages of life. For instance, at 25, individuals need to know about personal finances (e.g., loan repayment, basic knowledge of retirement accounts). Whereas at 45, individuals need to know about retirement planning (Lusardi, 2019; MacLeod, Musich, Hawkins, & Armstrong, 2017). Therefore, future research may explore financial literacy levels and well as the implications for financial literacy across the lifespan.

Additionally, the majority of the young adult sample identified as female (71.6%). The disproportion of females is a limitation in this study that may impact the interpretation of the analyses, as it is not representative of the population. An ideal sample would have a more balanced with 50% males and 50% females, representative of the general population (Howden & Meyer, 2011). A more balanced sample would allow researchers to test gender differences. At the same time, the gender imbalance is expected in the sample of young adults, as females are more likely to participate in survey research (Dickinson, Adelson, & Owen, 2012). Therefore, while the gender imbalance is a limitation of the current study, this disproportion could allow future researchers to think critically about how to engage women with financial knowledge. In exploring gender differences in financial literacy among college students, Chen and Volpe (2002) found that women tended to have less confidence and enthusiasm for personal finance information compared to men. Nonetheless, financial literacy holds importance for both

males and females, and thus, future research might consider ways to empower women to learn knowledge about personal finances.

Another limitation is the study's use of a single item question to measure financial hardship. This item assessed for respondents current financial standing but could not evaluate respondents' perceptions about their financial well-being and financial stress. For example, a respondent could choose they are currently experiencing moderate financial hardship, but what does that look or feel like for a young adult? While subjective, this single item measure does not provide context to grasp a better picture of financial hardship (i.e., not being able to pay a bill or limited mobility)( Bradshaw & Ellison, 2010). In the literature, other measures have had several items to capture financial hardship (Shek, 2005; Weckstrom, 2011). For instance, in a study exploring the association between economic stress, quality of life, and problem behavior among adolescents (Shek, 2005), the researcher utilized the Current Economic Stress Scale (CESS). The CESS measure has four items that provide a more holistic view of the respondent's level of financial hardship, assessing for challenges such as inadequate funds for expenses and delayed payment on bills (Shek, 2005). It seems as though future studies may consider the development of a multidimensional measure to assess for financial hardship as well as further explore the role of financial hardship in the context of financial literacy.

Lastly, while the current study did not consider young adults' financial situation growing up or their parents' experiences with financial hardship, future research may explore the role of financial socialization in young adults' financial literacy development. Financial socialization is a learned process of acquiring knowledge about finances, proper

money management, and developing skills in various financial practices such as banking, budgeting, savings, insurance, and credit card use (Bowen, 2002). Parents are often the primary source for children's financial socialization, especially as children observe their parents handle financial matters and receive instruction on financial practices, such as budgeting and saving (Solheim, Zuiker, & Levchenko, 2011). Young adults reported their financial ability was a result of their parents, teaching them about financial management and financial education (Clarke, Heaton, Israelsen, & Eggett, 2005). Clarke et al. (2005) concluded that children's participation in family financial practices was associated with confidence in their preparedness to manage their finances. However, some parents may not be equipped with the necessary financial knowledge to educate their child(ren) about finances. For instance, low-income minorities, such as Blacks and Hispanics, often have lower levels of financial literacy and disproportionately face financial hardship relative to their peers (Sherraden, Johnson, Guo, & Elliott, 2011). Therefore, depending on one's upbringing and the wealth or lack of financial information that was instilled could vary. Thus, having adequate financial socialization as a child could aid in increasing financial literacy as well as financial self-efficacy as a young adult. Future research may explore the role of financial socialization as well as racial disparities and financial hardship as possible factors that impact financial socialization and financial literacy.

### **Implications**

The current study found that both financial self-efficacy and financial hardship moderate the inverse association between financial literacy and financial anxiety. The results of this study may hold value for clinicians. Clinicians working with young adults with financial hardship should acknowledge their client's financial challenges. Clinicians

may benefit from being knowledgeable of community financial resources as well as how financial variables, such as financial literacy and financial self-efficacy, can be linked to their client's financial anxiety (Willis, 2009). Clinicians could also provide clinical intervention through psychoeducation about financial literacy and financial self-efficacy (Klontz et al., 2008).

Further, there appears to be a need for more emphasis on financial literacy education for young adults in schools and communities (Lusardi & Mitchell, 2014). Increasing access to free financial literacy workshops may provide an opportunity to learn vital financial information (Meier & Sprenger, 2012; Solomon, Nhete, & Sithole, 2018). Financial education workshops are especially beneficial for socioeconomically disadvantaged youth and their families that tend to have lower financial literacy compared to their peers (Campenhout, 2015). Financial literacy is a process that occurs over a lifetime, and early awareness of responsible financial practices are essential for young adults, as it will likely translate into financial competence in adulthood (O'Neill & Brennan, 1997). Thus, by promoting the importance of increased financial literacy at an early age, fewer financial hardships may be experienced later in life (Grable & Joo, 1998).

## **Conclusions**

The findings from this study provide evidence that financial literacy may be inversely related to financial anxiety and that financial self-efficacy matters in the context of financial hardship for young adults. The results broaden the conceptualization of financial literacy outcomes and potential mechanisms that link financial literacy to financial anxiety for young adults experiencing financial hardship. This study highlights

the complexity of financial processes (i.e., financial literacy, financial self-efficacy, financial hardship, and financial anxiety). Thus, future research is still needed in the area of financial literacy to understand these processes further and to help guide young adults in the development of financial literacy and financial well-being.

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Table 1

*Demographic Characteristics of the Young Adult Sample*

Characteristic	Young Adults
Female, % ( <i>N</i> )	71.60 (393)
Mean age ( <i>SD</i> )	20.49 (2.26)
Non-Hispanic white, % ( <i>N</i> )	54.3 (298)
Education: Currently in college, % ( <i>N</i> )	50.6 (278)
Born in the United States, % ( <i>N</i> )	87.6 (481)

APPENDIX A  
FINANCIAL LITERACY QUIZ

The following are some multiple-choice questions. If you don't know the answer, just select "don't know."

1. Suppose you have \$100 in a savings account earning 2 percent interest a year. After five years, how much would you have?
  - a. More than \$102
  - b. Exactly \$102
  - c. Less than \$102
  - d. Don't know
  
2. Imagine that the interest rate on your savings account is 1% a year and inflation is 2% a year. After one year, would the money in the account buy more than it does today, exactly the same or less than today?
  - a. More
  - b. Same
  - c. Less
  - d. Don't know
  
3. If interest rates rise, what will typically happen to bond prices?
  - a. Rise
  - b. Fall
  - c. Stay the same
  - d. No relationship
  - e. Don't know
  
4. True or false: A 15-year mortgage typically requires higher monthly payments than a 30-year mortgage, but the total interest over the life of the loan will be less.

- a. True
- b. False
- c. Don't know

5. True or false: Buying a single company's stock usually provides a safer return than a stock mutual fund.

- a. True
- b. False
- c. Don't know

6. Assume a friend inherits \$10,000 today and his sibling inherits \$10,000 three years from now. Who is richer because of the inheritance?

- a. Friend
- b. Sibling
- c. They are equally rich
- d. Don't know

7. Considering a long time period (for example 10 or 20 years) which asset normally gives the highest return?

- a. Savings accounts
- b. Bonds
- c. Stocks
- d. Don't know

8. Normally, what asset displays the highest fluctuations over time?
- a. Savings account
  - b. Bonds
  - c. Stocks
  - d. Don't know
9. When an investor spreads his money among different assets, does the risk of losing money:
- a. Increase
  - b. Decrease
  - c. Stay the same
  - d. Don't know
10. True or false: Housing prices in the US can never go down.
- a. True
  - b. False
  - c. Don't know
11. Suppose you owe \$3,000 on your credit card. You pay a minimum payment of \$30 each month. At an Annual Percentage Rate of 12% (or 1% per month), how many years would it take to eliminate your credit card debt if you made no additional new charges?
- a. Less than 5 years
  - b. Between 5 and 10 years
  - c. Between 10 and 15 years

- d. Never, you will continue to be in debt
- e. Don't know

12. True or false: There are annual contribution limits on the amount you can save in a 401(k) plan or IRA that depend on your income.

- a. True
- b. False
- c. Don't know

13. True or false: After 70 1/2, you have to withdraw at least some money from your 401(k) plan or IRA.

- a. True
- b. False
- c. Don't know

14. True or false: If you were to invest \$1000 in a stock mutual fund, it would be possible to have less than \$1000 when you withdraw your money.

- a. True
- b. False
- c. Don't know

15. True or false: A mutual fund combines the money of many investors to buy a variety of stocks, not a single stock.

- a. True

- b. False
- c. Don't know

16. If you buy a company's stock...

- a. You own part of the company
- b. You have lent money to the company
- c. You are liable for the company's debt
- d. You can vote on the shareholder resolutions
- e. I don't know

17. True or false: "Whole life" insurance has a savings feature while "term" insurance does not.

- a. True
- b. False
- c. Don't know

18. True or false: The cash value of a life insurance policy is the amount available if you surrender your life insurance policy while you're still alive.

- a. True
- b. False
- c. Don't know

19. True or false: An annuity is a financial product that pays a lump sum when you die.

- a. True
- b. False
- c. Don't know

20. True or false: Bonds are usually riskier than stocks.

- a. True
- b. False
- c. Don't know

(Hershey & Mowen, 2012)

APPENDIX B

PERCEIVED FINANCIAL KNOWLEDGE SCALE

Please indicate your level of agreement for the following items.

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree nor Disagree	Somewhat Agree	Agree	Strongly Agree

1. I am very knowledgeable about personal finances and financial planning.
2. I know more than most people about personal finances and financial planning.
3. I am very confident in my ability to do financial planning.
4. When I have a need for financial services, I know exactly where to obtain information on what to do.
5. I am knowledgeable about how Social Security works.
6. I am knowledgeable about how private investment plans work.
7. I am very uninformed about personal finances and financial planning.

(Hershey & Mowen, 2000)

APPENDIX C  
GENERALIZED ANXIETY SYMPTOMS

Over the last 2 weeks, how often have you been bothered by the following problems?  
Not at all (0)    Several days (1)    More than half the days (2)    Nearly every day (3)

Feeling nervous, anxious or on edge

Not being able to stop or control worrying

Worrying too much about different things

Trouble relaxing

Being so restless that it is hard to sit still

Becoming easily annoyed or irritable

Feeling afraid as if something awful might happen

(GAD-7, Spitzer, Kroenke, Williams, & Löwe, 2006)

APPENDIX D  
FINANCIAL ANXIETY SCALE

Please rate your reaction to the following items.

Never Rarely Occasionally Sometimes Frequently Usually Always

1. I feel anxious about my financial situation.
2. I have difficulty sleeping because of my financial situation.
3. I have difficulty concentrating on my school/or work because of my financial situation.
4. I am irritable because of my financial situation.
5. I have difficulty controlling worrying about my financial situation.
6. My muscles feel tense because of worries about my financial situation.
7. I feel fatigued because I worry about my financial situation.

(Archuleta, Dale, & Spann, 2013)

APPENDIX E  
DEMOGRAPHIC QUESTIONNAIRE

For each of the following questions, please select or write-in the most accurate response.

**What is your age in years?**

**What gender do you identify with?**

Male

Female

Other

**Please indicate the highest level of education you have completed:**

Did not complete high school

High school diploma or equivalent (e.g., GED)

Postsecondary vocational certificate

Associate degree

Some college

Bachelor's degree

Master's degree

Doctoral degree

**IF "Some college" is selected above:**

**Some 4-year college: I am currently in my:**

1st Year

2nd Year

3rd Year

4th Year

Other (Please specify)

**Are you an international student?**

Yes

No

**What is your race/ethnicity?**

African American/Black

Asian/Asian American (incl. Indian, Filipino)

Hispanic/Latina(o) (incl. Mexican American)

European American/White (Non-Hispanic)

Middle/Eastern/Arab American

Native American/American Indian

Multiracial (Please specify)

Other (Please specify)

**Were your parents born in the US?**

Mother: Yes No

Father: Yes No

**What is your biological mother's race/ethnicity?**

African American/Black

Asian/Asian American (incl. Indian, Filipino)

Hispanic/Latina(o) (incl. Mexican American)

European American/White (Non-Hispanic)

Middle/Eastern/Arab American

Native American/American Indian

Multiracial (Please specify)

Other

**What is your biological father's race/ethnicity?**

African American/Black

Asian/Asian American (incl. Indian, Filipino)

Hispanic/Latina(o) (incl. Mexican American)

European American/White (Non-Hispanic)

Middle/Eastern/Arab American

Native American/American Indian

Multiracial (Please specify)

Other

**Were you born in the US?**

Yes

No

**What is your sexual orientation/identity?**

Bisexual

Heterosexual/Straight

Gay/Lesbian

Transgendered

Other

**What is your relationship status?**

Single

In a relationship/not married

Married

Other (Please specify)

**Do you live with your romantic partner?**

- Yes
- No

**What is the highest level of education that your biological father completed?**

- Did not complete high school
- High school diploma/GED
- Postsecondary vocational certificate
- Associate's degree
- Some college
- Bachelor's degree
- Master's degree
- Doctoral degree

**What is the highest level of education that your biological mother completed?**

- Did not complete high school
- High school diploma/GED
- Postsecondary vocational certificate
- Associate's degree
- Some college
- Bachelor's degree
- Master's degree
- Doctoral degree

**Please check the category that tells us your approximate total family income for the previous year's tax filing. Consider all sources of income, including earnings, welfare cash assistance, child support alimonies, support from other members of your household who regularly contribute to your household, etc.**

- Less than \$10,000
- \$10,001 to \$15,000
- \$15,001 to \$25,000
- \$25,001 to \$50,000
- \$50,001 to \$75,000
- \$75,001 to \$100,000
- \$100,001 to \$150,000
- More than \$150,000

**How would you describe YOUR FINANCIAL SITUATION CURRENTLY?**

- It's a financial struggle
- It's tight, but I'm doing fine
- Finances aren't really a problem

**How would you describe your FINANCIAL SITUATION GROWING UP?**

Poor, not enough to get by  
Enough, not many extras  
Comfortable  
Well-to-do

**Current employment status:**

Working full-time  
Working part-time  
Unemployed/not working

**Primary language spoken**

**If English is not your first language, what is your first language?**

**Please list other languages spoken here.**

APPENDIX F  
CONSENT FORMS

## GENERAL SURVEY

We are researchers from Arizona State University. We are surveying adults about financial and interpersonal stressors, attitudes, and experiences. The survey is expected to take approximately 20-30 minutes. Your honest responses are appreciated.

You must be at least 18-years-old to participate. You have the right to stop participation at any time. Your participation is voluntary.

At the end of the survey, participants who complete the survey will also have the option to provide their name and email address through a separate website to be entered in a raffle for one of five \$50 Amazon gift cards. Raffle entry restricted to once per person. This information will be collected in a separate form and will not be matched to your survey responses.

If you are participating in this survey for extra credit in a participating course, you will be prompted to take a screenshot of a confirmation page once you have completed the survey (please verify eligibility and additional requirements for extra credit with your specific course instructor). If you wish not to participate in this study verify alternative extra credit opportunities with your course instructor.

If you have any questions concerning the research study, please contact the primary researcher at: [alisia@asu.edu](mailto:alisia@asu.edu) (Alisia Giac-Thao Tran). If you have any questions about your rights as a subject/participant in this research, you can contact the Chair of the Human Subjects Institutional Review Board, through the ASU Office of Research Integrity and Assurance, at (480) 965-6788.

By completing this survey, you are indicating your consent to participate in the study.

Sincerely,

Alisia (Giac-Thao) Tran, Ph.D. (Assistant Professor) & Jeff Mintert, M.S. (Doctoral Student)

Counseling and Counseling Psychology  
School of Letters and Sciences  
Arizona State University  
[tempelab@gmail.com](mailto:tempelab@gmail.com)

ASU IRB ID: STUDY00001666

## MTURK SAMPLE

We are researchers from Arizona State University. This HIT involves completing an academic not-for-profit research study. We are surveying adults about financial and interpersonal stressors, attitudes, and experiences. The survey is expected to take approximately 20 minutes. Your honest responses are appreciated.

You must be at least 18-years-old and living in the United States to participate. You have the right not to answer any question and to stop participation at any time. Your participation is voluntary. Upon completing the survey, you will receive a random code. Please enter this code in the Amazon Mechanical Turk system to indicate your completion of the survey to receive compensation (compensation is restricted to once per person). You will be paid 25 cents for completion of the HIT. There are no foreseeable risks associated with your participation.

Your responses will be confidential. The results of this study may be used in reports, presentations, or publications but your name will not be known. We will store your MTurk worker ID separately from the other information you provide to us for the purpose of providing compensation. Your MTurk worker ID will not be shared with anyone outside of the research team and will be deleted once compensation is completed.

If you have any questions concerning the research study, please contact the primary researcher at: [alisia@asu.edu](mailto:alisia@asu.edu) (Alisia Giac-Thao Tran). If you have any questions about your rights as a subject/participant in this research, you can contact the Chair of the Human Subjects Institutional Review Board, through the ASU Office of Research Integrity and Assurance, at (480) 965-6788.

Your participation in the survey is your consent to participate.

Sincerely,

Alisia (Giac-Thao) Tran, Ph.D. (Assistant Professor) & Jeff Mintert, M.S. (Doctoral Student)  
Counseling and Counseling Psychology  
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