

**Association between Financial Education, Affective and Cognitive Financial Knowledge,  
and Financial Behaviors**

**Lucy M. Delgadillo, Ph.D**

**Yoon Lee, Ph.D**

**Utah State University**

**2021**

## **Abstract**

Using data from the 2018 National Financial Capability Study, this paper examined the relationship between financial education participation and affective and cognitive financial knowledge. Involvement in financial education yielded statistically significant associations between affective and cognitive domains. The results showed that participation in financial education was associated with both cognitive and affective financial knowledge as well as long-term financial behaviors. The findings supported the case for life-long learning of financial education for young adults, Blacks and Hispanics, and women. One important implication was the need to include both the affective and cognitive domains when teaching or researching financial education.

*Keywords:* Affective Financial Knowledge, Cognitive Financial Knowledge, Financial Behavior, Financial Education

## **Introduction**

Despite many efforts, current research on the association between financial education (FE) and behavior still shows inconclusive results (CFPB, 2015). Some of the diverse results found in these studies were due to differences in sample size, methodologies, and loose definition of key concepts (CFPB, 2015; Delgadillo, 2014, Huston, 2010). The Consumer Financial Protection Bureau (CFPB, 2015) comprehensive meta-analysis report indicated that only a few studies in the field of household finance have used datasets with large samples, and even fewer have used longitudinal data or experimental studies with treatment and control variables. Furthermore, the CFPB revealed critical gaps in the literature regarding evidence-based measures to identify effective FE approaches. Furthermore, the panel of experts wrote on the report that most studies have focused on correlational analyses. Results have appeared inconsistent, with different studies reporting different conclusions.

It is arguable that studies of FE have also faced the problem of leaving relevant concepts loosely defined (Delgadillo, 2014; Huston, 2010). Delgadillo (2014) recognized that although there are no universally accepted definitions in the financial field, there are differences beyond semantics when it comes to financial literacy and FE. Huston (2010) claimed that financial literacy, financial knowledge, and FE often are used interchangeably in the literature and popular media. In her review of more than 70 studies and datasets, about 72% did not include a definition of the constructs. Huston concluded that few scholars have attempted to define or differentiate these terms.

To overcome the lack of consensus in defining FE, this study used the latest definition of FE given by United States Financial Literacy and Education Commission (USFLEC, 2020). This study has added an alternative measure of FE to what was typically used in previous studies.

Specifically, this study divided FE into affective and cognitive financial knowledge and explored how both domains were related to financial behaviors. Researchers have demonstrated that when both measures are used, they have provided more robust and nuanced insights into how FE was related to financial behaviors (Allgood & Walstad, 2013; Hadar et al., 2013; Hanager & Cude, 2016; Tang & Barker, 2016).

This study contributes to the literature by exploring the affective and cognitive domains of FE in the most recent National Financial Capability Study (NFCS) sponsored by FINRA, a government-authorized not-for-profit organization that oversees U.S. broker-dealers. The FINRA 2018 NFCS was chosen because it overcomes the shortcomings previously mentioned. In its latest wave, the NFCS surveyed over 25,000 American adults. Findings from the survey were weighted to be representative of Census distributions according to the American Community Survey. National figures were weighted to be representative of the national population in terms of age, gender, ethnicity, education and Census Division (FINRA, 2019). Specifically, this study aimed to answer the following two research questions: 1) How did participants exposed to FE respond to affective and cognitive financial knowledge questions compared to those who report not having any exposure? and 2) How was FE exposure associated with short- and long-term financial behaviors?

## **Literature and Conceptual Framework**

### **Financial Education**

Standard definitions have facilitated the operationalization of terms in any field. This study used the definition of FE as presented in the National Strategy for Financial Literacy report released by the (USFLEC) for 2020. This document defined FE as the process by which "people gain information, skills, confidence, and motivation to act through various means including

classroom education, one-on-one counseling and coaching, technology-based intervention, and self-study" (USFLEC, p. 2).

A partition of FE into two components offers useful guidance. The first part of the FE definition included the words information and skills, which corresponds to the cognitive domain (Delgadillo, 2014). The words confidence and motivation represented the affective domain. The last part of the USFLEC definition presented the modalities that facilitate FE (e.g., formal, informal, and non-formal classroom education, counseling, coaching, cyber interventions, and self-learning). Perhaps the claim that FE encompasses a cognitive and affective domain has always been there, but it has been overlooked.

In the last decade, behavioral finance (BF) has provided financial professionals with tenets to better understand financial behavior. Traditional theories of finances have assumed that people operate with perfect information, act rationally, and have self-control in financial decision-making (Thaler, 2015). If adult learners were rational agents, providing cognitive financial knowledge would be sufficient to achieve desirable financial results. Adult learners would be able to transfer this new knowledge into action. For example, they would be able to use credit cards wisely, buy homes within affordability ratios, follow a spending plan, allocate at least 10% of their income for retirement, etc. The assumption was amazingly simple; provide financial information and adult learners would be on their path to financial success.

Another principle of BF is that emotions (e.g., confidence and motivation) have played an important role in decision-making. BF has incorporated this important fact of life into its decision-making theory (Ariely, 2008, Thaler, 2015). Lastly, BF has acknowledged the human condition and respected framing, subjective appraisals of situations, biases, heuristics in financial decision-making, and feelings of being under or over-confident. Kahneman (2010) said that these

emotional states mediate decisions. Recognizing the human component in financial decision-making have led researchers to consider both the affective and cognitive components of FE.

### **Operationalization of Affective and Cognitive Domains in Financial Education**

Because FE has been about teaching and learning about finances, Bloom and Krathwohl (1956) provided a theory to operationalize the concept of FE, which we used in this study. In general, Bloom and Krathwohl claimed that any area of teacher and learning can be arranged in three parts: cognitive domain (knowledge), affective domain (attitudes and emotions), and psychomotor domain (skills). Bloom and Krathwohl (1956) conceptualized a system with different categories of learning behavior to assist in the design and assessment of learning.

#### ***Affective Financial Knowledge***

In FE, affective learning is made up of attitudes, motivation, and values. The measurement of these constructs has involved processes including self-reflection appraisals, statements of opinions, beliefs, or assessments of worth (Smith & Ragan, 1999). The affective domain of finance included how learners appraise their dealings with money effectively (Krathwohl et al., 1973). The identification of the affective measurements in the 2018 NFCS used in this study was guided by the definition of FE provided by USFLEC (2020), which included confidence and a subjective measurement of financial well-being.

In financial literature, financial confidence has been linked with financial capability (Sherraden, 2013). In studies using financial confidence as a scale, Assad (2015) found that participants' perceived confidence levels impacted their financial well-being and involvement in the learning process. In addition to confidence, researchers have measured the affective domain of finances by using a subjective assessment of financial well-being. Sorgente and Lanz (2017),

for example, used items that looked at individuals' perception and emotional evaluation as direct predictors of financial well-being.

The CFPB has also done extensive research into how financial well-being is defined and measured. This research culminated in a report and a financial well-being scale released in 2015. The financial well-being scale was developed from in-depth interviews, research from a variety of academic disciplines, and consultations with financial experts. The 2018 NFCS contained an abbreviated version of the CFPB's financial well-being scale that included items such as perceived financial capability to achieve financial goals, and perceived financial satisfaction. Both items were used in this study to measure affective financial knowledge.

### *Cognitive Financial Knowledge*

Many FE programs offered in the United States allocate most of their time and effort in teaching to the cognitive domain of finances (Asaad, 2015; Fox et al., 2005, Tang & Baker, 2016). The cognitive domain involved knowledge and numerical skills that can be assessed in six different domains: remember, understand, apply, analyze, evaluate, and create (Krathwohl et al., 1973).

The cognitive domain has used numerical and conceptual financial knowledge. The Global Financial Literacy Excellence Center (GFLEC) developed a measure of cognitive financial knowledge, namely the financial literacy index. The GFLEC index, also known as the Standard & Poor's Ratings Services Global Financial Literacy Survey, is the world's largest, most comprehensive global measurement of financial literacy. It probed knowledge of four basic financial concepts: risk diversification, inflation, numeracy, and interest compounding (GFLEC, n.d.). Some example items that relate to the cognitive domain in finances included: How much more in interest will one pay with a 30-year mortgage as opposed to 15 years? What is the

relationship between interest rates and bond prices? What are the differences between simple and compound interest rates? Would buying a single company's stock provide a safer return than a stock mutual fund? Those same items were available in the 2018 NFCS and were used in this study.

### **Financial Education (or lack of) and Financial Behaviors**

The evidence of the impact of FE on specific short- and long-term financial behaviors has had mixed results. One of the most cited qualitative meta-analyses of FE and financial behaviors argued against FE by claiming that the correlation between cognitive knowledge and financial practices was too small (Fernandes et al., 2014). Fernandes et al. (2014) found only small (but statistically significant) correlations between FE and subsequent adaptive short-term (e.g., saving, and avoiding high debt levels) and long-term financial behaviors (e.g., planning for retirement) across 13 studies from eight different countries. Fernandes et. al. (2014) claimed that FE "explains only 0.10% of the variance in financial behaviors" (p. 1861), and FE, they added, "may decay over time" (p. 1866).

In contrast to Fernandes et al.'s (2014) study, a newly released quantitative meta-analysis study by Kaiser et al. (2020) refuted the previous findings presented by Fernandes and colleagues. This recent meta-analysis included 76 randomized control trials and experiments (as opposed to just 13 in 2014), and 33 countries (as opposed to eight) with a total sample of over 166,000 individuals (Kaiser et al., 2020). Kaiser et al. (2020) found that FE had positive *causal effects* on financial knowledge and financial behaviors and that the estimated effect of FE was at least three times as large as the effect documented in Fernandes et al. (2014). Further, accounting for differences in programs, effects of FE were more than five times as large as the effects reported by Fernandes, et al. Treatment effects found by Kaiser et al. (2020) were meaningful in



size, like those seen in educational interventions in other domains. Contrary to Fernandes et al.'s findings, Kaiser, et al. (2020) did not find evidence of a dramatic decay of the effects of FE overtime.

Even though not a lot of research has documented causal relationships between FE programs and positive financial behaviors, many studies have documented strong correlations between the lack of FE and financial behaviors (Collins, 2013; Gale & Levine, 2011; Lusardi, 2008; Lusardi & Mitchell, 2014). Americans who did not participate in FE were more likely to make expensive "mistakes" in their financial decisions (Fish et al., 2019; Gun, 2017; Lusardi & Mitchell, 2010).

Empirical studies have shown that not participating in FE had devastating effects on financial well-being (Bell et al., 2009; Mitchell & Lusardi, 2015). Lacking FE was correlated with failing to save for emergencies, overspending, investing on overly risky or overly safe assets, failing to pay credit card bills, retaining costly mortgages and credit cards, failing to do estate planning, or remaining in the fringe economy (Brunnermeir & Schnabel, 2016; Hastings & Mitchell, 2018; Hastings & Tejada-Ashton, 2008; Hastings et al., 2013; Jacobson, 2020).

According to research by FINRA, the lack of participation in FE has been associated with a host of negative credit behaviors, including higher borrowing rates, delinquency, and home foreclosure (FINRA, 2019). These negative behaviors were particularly evident among young people. Individuals in the age range of 18 to 34 paid more in interest to credit card debt and penalty fees than older adults. Other predominant financial concerns were student loan repayments and over-indebtedness, which were more common among Millennials than older working-age adults. Furthermore, Millennials were commonly engaged in expensive money management behaviors than older working-age adults. They also demonstrated lower basic

financial math skills while at the same time being more likely to overestimate their own financial knowledge (Board of Governors of the Federal Reserve System, 2019).

The research on the lack of FE and financial behaviors has yielded consistent findings. The lack of exposure to FE has been associated with financial problems such as low asset accumulation or net worth, households underinvesting for retirement, consumers taking on too much debt or using higher cost sources of debt, e.g., using the alternative financial sector (Hastin et al., 2013; Hastings & Mitchell, 2018; Lusardi & Mitchell, 2010; Mandell, 2009).

While FE may not be the panacea, a growing body of research has pointed to the directional, significant, and economic importance of relationships between financial knowledge and positive financial behaviors (Hastings et al. 2013; Lusardi & Mitchell 2014). According to these studies, higher financial literacy—measured with cognitive financial-knowledge questions—correlated with empowering consumers, helping them to make better informed financial decisions, lessening the likelihood of consumers engaging in high-cost credit, helping in the understanding and management of risk, and providing consumers with greater control over their financial future, among other benefits.

### **Affective and Cognitive Knowledge and Short and Long-term Behaviors**

Both early and more recent studies have found a positive association between financial education and financial outcomes (Kim & Yuh, 2018; Lusardi & Mitchell 2007, 2008, 2014; Moore, 2003). Most of these studies have investigated the effect of cognitive knowledge with either short or long-behaviors. Only a few studies have investigated both the affective and cognitive domains. However, when researchers included both, they found that their results were more robust in understanding the effect of FE on short- and long-term behaviors. Moreover, some studies have revealed that affective financial knowledge was more influential than

cognitive financial knowledge in determining financial behavior (Allgood & Walstad, 2013; Assad, 2015, Hadar et al., 2013; Henager & Cude, 2016; Tang & Baker, 2016).

Tang and Barker (2016) demonstrated that two individuals with the same level of affective financial knowledge had different responses on their cognitive knowledge levels, which led to different financial behaviors. Similarly, research by Asaad (2015) showed that when participants reported under-confidence or lack of confidence, they were self-critical and doubtful of their financial abilities, more anxious, nervous, tense, uncomfortable, and insecure. Interestingly, when confidence was high (overconfidence), but actual cognitive knowledge was low, individuals were more likely to take financial risks by engaging in costly behaviors.

Allgood and Walstad (2013) developed a measure that accounted for both an individual's actual financial knowledge, and self-rating of perceived financial knowledge, to investigate five short-term credit card behaviors. The authors argued that looking at actual financial knowledge and perceived financial knowledge provided "more robust and nuanced insights" about how FE affected short-term financial behaviors. Not surprisingly, individuals with both high knowledge and high perceived knowledge were more likely to make "good" financial decisions than individuals with both low knowledge and low perceived knowledge. Somewhat surprising, however, was how influential perceived (as opposed to actual) financial knowledge was on positive short-term credit card behaviors, such as paying credit cards bills in full, avoiding fees, decreasing the odds of paying interest, or exceeding the card limit.

Hadar et al. (2013) conducted four studies to understand the relationship between subjective knowledge and objective knowledge. Although Hadar, et al. (2013) did not call their variables *affective* or *cognitive knowledge*, their definition of subjective knowledge looked like affective knowledge, and their definition of objective knowledge resembled cognitive

knowledge. As indicated by Hadar, et al. (2013) cognitive knowledge was more strongly related to one's financial expertise. In contrast, affective knowledge was more strongly associated with consumers' confidence in making effective financial decisions. Hadar et al. (2013) used different affective knowledge manipulations related to long-term behaviors, such as investing, to show that affective knowledge, independent of cognitive knowledge, influenced investment decisions. The authors concluded that effective FE for long-term behaviors must include both cognitive knowledge and affective knowledge.

Lusardi (2012) reported on the link between financial numeracy and financial decisions. She found that a large group of the adult population were overconfident in their math skills—having high levels of confidence—but the same subjects performed poorly in the actual calculations. She concluded that the combination of high financial confidence with low numeracy levels was associated with riskier financial behaviors. Lusardi noted that these were significant findings because calculations about compound interest serve as the basis of most short and long-term financial decisions, including using credit cards, savings, engaging in mortgage contracts, or fully appreciating the benefits of investing early.

Henager and Cude (2016) examined the relationship between financial literacy and financial behaviors among various age groups. Their financial literacy construct included objective financial knowledge, subjective financial knowledge or confidence, and subjective financial management ability. Both objective and subjective financial literacy variables were positively associated with long- and short-term financial behaviors in the full sample. In the age subsamples, subjective financial knowledge, or confidence, was more strongly related to long- and short-term financial behaviors than either objective financial knowledge or subjective financial management ability in the younger age groups. In the older age groups, objective

financial knowledge was more strongly related to long-term financial behavior than either of the other two measures of financial literacy. Henager and Cude concluded that perceived financial knowledge (affective knowledge) had a stronger relationship than objective knowledge with short-term financial behaviors related to spending and saving.

The current study focused on the additional evidence from the 2018 NFCS on affective and cognitive measures of financial knowledge. We also examined how exposure to FE is related to short- and long-term financial behaviors. Based on the literature review, this study assumed that individuals with exposure to FE would score higher on the affective and cognitive financial knowledge assessment. The study also investigated if affective and cognitive financial knowledge translate into positive short- and long-term financial behaviors. Based on review of empirical studies, the following hypotheses were proposed:

H1: Individuals who participated in FE will report higher levels of affective and cognitive financial knowledge than those who did not participate in FE.

H2: Individuals who participated in FE will be more likely to engage in short- and long-term positive financial behaviors as compared to those who did not participate in FE.

## **Methods**

### **Data and Sample**

This study employed data from the 2018 National Financial Capability Study (NFCS). The NFCS includes questions related to an individual's perceptions, attitudes, experiences, and behaviors on a wide variety of financial topics. A total of 27,091 adults were recruited for the 2018 survey. Out of the 27,091 respondents, a higher proportion of them ( $N = 27,091$ ) were women (55.9%), baby boomers (34.7%), married (53.4%), White (74.2%), had some college

education (37.4%), employed/self-employed (56.1%), and those with income of \$100,000 or greater (19.5%).

In this study, we focused on FE and its association with financial knowledge—divided into affective and cognitive domains—and financial behaviors. If respondents reported either “prefer not to say” or “don’t know” on key financial variables (i.e., FE participation, financial knowledge, and financial behavior), they were excluded from the study sample. Following this procedure, the final sample size used for data analysis in the current study was 7,920 individuals. Sub-samples consisted of 2,415 individuals who participated in FE and 5,505 who did not participate in FE. A higher proportion of the study sample ( $N = 7,920$ ) were men (61.9%), baby boomers (40.5%), married (61.6%), White (76.8%), some college education (34.1%), employed/self-employed (61.8%), and those with income of \$100,000 or greater (29.6%).

## **Variable Measures**

### ***Dependent Variables***

In the empirical models, the dependent variables were financial knowledge and financial behavior. Financial knowledge was measured by affective and cognitive financial knowledge. The variable of affective financial knowledge was measured using the sum of the five affective knowledge questions—perceived financial knowledge, daily financial management skills, math skills, confidence in goal achievement, and financial satisfaction. The total for responses ranged from 5 = lowest level to 35 = highest level. The variable of cognitive financial knowledge was measured using the sum of six questions—numeracy, inflation, bonds, mortgage, investment, and compound interest. The total for responses to these questions ranged from 1 = zero correct to 7 = all correct.

The short-term financial behavior variable was measured by summing four positive financial behaviors: spending less than or equal to their budget, having liquid savings, paying credit card debt in full each month, and setting aside rainy-day funds. The responses included 1 = none of these behaviors, 2 = one occurrence, 3 = two occurrences, 4 = three occurrences, 5 = all four behaviors with the total sum ranging from 1 to 5. The long-term financial behavior variable was measured in a similar way by summing four positive financial behaviors: having investment accounts, having 401ks, having IRAs, and having a will. The responses were scored as 1 = none of these behaviors, 2 = one occurrence, 3 = two occurrences, 4 = three occurrences, 5 = all four behaviors, with the total sum ranging from 1 to 5.

### ***Independent Variables***

To examine the effect of FE participation on financial knowledge and behaviors, we created a dummy categorical variable for FE participation and coded 1 if they received FE, and 0 if otherwise. The question for FE participation was the following: “Was FE offered by a school or college you attended, or a workplace where you were employed?” Responses include: 1) being offered FE, but did not participate in FE; 2) being offered and did participate in FE; and 3) not offered and did not participate in FE.

Key socio-demographic variables (i.e., age, gender, marital status, race/ethnicity, education, employment status, and income level) were included as independent variables of financial knowledge and behaviors in the multivariate analysis. Age was divided by generation consistent with previous research from this data set (Mottola, 2014): Millennials aged 18-37, Generation X aged 38-53, silent generation aged 73+, and baby boomers aged 54-72 (reference group). The measurements of the other socio-demographic variables were as follows: gender (female, [male, reference group]), marital status (never-married single, unmarried single,

[married, reference group]), race/ethnicity (Black, Hispanic, Asian/others, [White, reference group]), education level [less than high school/high school graduate, some college education, college graduate, [post-college, reference group]), employment status (self-employed, full/part time work, retired, [not-work, reference group]), and household income level (less than \$25,000, \$25,000-\$49,999, \$50,000-\$74,999, \$75,000-\$99,999, [more than \$100,000, reference group]).

### **Statistical Analyses**

First, means, medians, and percentages of all variables included in the multivariate analyses were calculated. Second, to compare the differences in socio-demographic variables between those who participated in FE and those who did not, chi-square tests were accomplished. Third, to examine the effects of FE participation on affective and cognitive financial knowledge, and on short- and long-term financial behaviors, ordinary least square (OLS) regression analyses were conducted (Hypotheses 1 and 2). To adjust the current statistics to be more representative of the entire population, the weight variable (wgt\_n2) from the 2018 NFCS data was used in the OLS regression analyses.

## **Results**

### **Descriptive Results**

Table 1 shows the socio-demographic characteristics of the study sample by FE participation status. The descriptive results show that among age groups, 35.8% of those who participated in FE were Millennials, while 24.7%, 35.2%, and 4.3% participated in FE of Generation X, baby boomers, and silent generation, respectively. More men (65.5%) had participated in FE than women (34.5%). Among single, never married individuals, 28.1% participated in FE than did not participate in FE (22.0%), while among married individuals, a higher proportion (62.3%) did not participate in FE than did participate (59.9%).



(Table 1 about here)

For race/ethnicity, White individuals had a greater proportion (79.0%) that did not participate in FE, while minority groups had a greater proportion of participation in FE with 12.9% Black, 7.0% Hispanic, and 8.4% Asian/Other. A smaller portion of those who had a high school or lesser education participated in FE (9.9%) than did not (22.0%); whereas a greater proportion with some college, college degree, and post-degree education (35.8%, 31.8%, 22.5%, respectively) participated in FE than did not (33.3%, 25.5%, 19.2%, respectively). A larger proportion of those working (self-employed 9.8%, full/part-time work 57.9%) participated in FE, whereas a greater proportion of those not working (retired 28.5%, unemployed/others 12.1%) did not participate in FE. More than half of those who did not participate in FE had an income of less than \$75,000 (53.6%). However, a greater proportion of those participated in FE had an income of \$75,000+ (52.9%).

Table 2 compares the difference in affective and cognitive financial knowledge, and short- and long-term financial behaviors between those who participated in FE and those who did not participate in FE. As for the affective financial knowledge, the descriptive results show that those who participated in FE reported significantly higher levels of perceived financial knowledge (5.9), perceived financial capability (6.3), confidence in math skills (6.2), confidence in financial goals (3.4), and perceived financial satisfaction (6.9) as compared to the averages of those who did not participate in FE. For cognitive financial knowledge items, the inflation, portfolio, and compounded interest rate questions showed a significant difference between those with and without FE. In regard to inflation and portfolio questions, a greater percentage of individuals who answered the question correctly did not participate in FE, 76.7% and 83.2%

respectively. As individuals participated in FE, a higher proportion (52.5%) answered the compounded interest question correctly.

(Table 2 about here)

In this study, we measured financial behaviors through short and long-term financial behaviors. Short-term financial behaviors were budgeting, paying credit cards in full, and setting aside an emergency fund. When individuals participated in FE, a higher proportion were found in the category of having liquid savings (87.5%), paying credit cards always in full (62.2%), and setting aside an emergency fund (73.0%). On the other hand, even though they did not participate in FE, a high proportion of respondents budgeted (83.0%). Further, as for the long-term financial behaviors, higher proportions were found in the participated group for all four categories (having investment in stock accounts, 61.1%; having a 401k, 77.3%; having an IRA account(s), 79.6%; and having a will, 54.9%) than the non-participated group.

### **Multivariate Results**

In this study, we proposed a hypothesis that individuals who participated in FE will have higher affective and cognitive financial knowledge than those who did not (Hypothesis 1). We also proposed a hypothesis that individuals who participated in FE will be more likely to engage in positive short- and long-term financial behaviors than those who did not (Hypothesis 2). Table 3 shows that all else being equal, the coefficients associated with FE participation were statistically significant and positive for affective financial knowledge and cognitive financial knowledge. Thus, Hypothesis 1 was supported. The OLS results also showed that as individuals had FE, they engaged in long-term financial planning such as having investment accounts, retirement accounts, and a will. However, the effect of FE on short-term financial behavior was not significant; thus, Hypothesis 2 was partially supported.

(Table 3 about here)

Table 3 also shows how affective and cognitive knowledge are associated with short and long-term financial behaviors. The OLS results indicated that as levels of affective financial knowledge increased, short and long-term financial behaviors increased. However, as cognitive financial knowledge increased, while short-term behaviors also increased, long-term behaviors decreased. Table 3 also showed socio-demographic factors influencing individuals' affective and cognitive financial knowledge as well as short and long-term financial behaviors. Generation was a significant predictor of financial knowledge and financial behaviors. The OLS results showed that younger individuals (Millennials, Generation X) reported lower levels of cognitive financial knowledge than baby boomers. Generation Xers also reported lower levels of affective financial knowledge than baby boomers. Gender was significant across three of the four regression models (i.e., affective knowledge, cognitive knowledge, and long-term behaviors), indicating that women reported lower levels of affective and cognitive financial knowledge, and lower levels of long-term financial behaviors compared to men. Compared to married individuals, unmarried single individuals had significantly lower levels of affective financial knowledge and lower short and long-term financial behaviors. However, never-married single individuals only had significantly lower levels of long-term financial behaviors than married individuals.

Black individuals reported higher levels of affective financial knowledge, but lower levels of cognitive financial knowledge than White individuals. There were also significant differences in short and long-term financial behaviors between Black and White individuals, suggesting that Black individuals engaged in lower levels of short-term behaviors whereas they practiced higher levels of long-term behaviors than White individuals. As compared to White

individuals, Hispanic individuals reported lower levels of both affective and cognitive financial knowledge, as well as long-term financial behaviors. Asian/Other reported lower levels of affective financial knowledge than White individuals, but there were no significant differences in cognitive financial knowledge between Asian/Other and White individuals. It is noted that Asian/Other individuals reported higher levels of short-term financial behaviors as compared to White individuals.

Compared to individuals with a post-college degree, those with less than high school or some college education reported lower levels of cognitive financial knowledge as well as lower levels of short and long-term financial behaviors. Individuals with a college degree also had lower levels of affective financial knowledge and long-term financial behaviors than those with post-college degree. Income levels were statistically significant in predicting financial knowledge and financial behaviors. When individuals made less than \$75,000, they consistently reported lower levels of affective and cognitive financial knowledge and short and long-term financial behaviors than those made more than \$100,000. Table 3 showed that those in the \$75,000-\$99,999 category reported significantly lower levels of cognitive financial knowledge and short-term financial behaviors than those made \$100,000 plus.

### **Discussion**

The main purpose of this study was to understand how FE participation influenced financial knowledge and financial behaviors. Financial knowledge was divided into affective and the cognitive domains. As individuals participated in FE, they showed both higher levels of affective financial knowledge (i.e., perceived financial knowledge, perceived financial capability, math skill confidence, confidence in goal achievement, and perceived financial satisfaction), and cognitive financial knowledge (i.e., six items of financial literacy quiz).

According to the multivariate results, Hypothesis 1 (Individuals who participated in FE will report higher affective and cognitive financial knowledge than those who did not) was supported. While FE in the U.S. mainly focuses on cognitive financial knowledge (Fox et al., 2005), it is crucial to recognize affective financial knowledge as an important domain in FE. Research has shown that affective knowledge can be more influential in financial behaviors than cognitive financial knowledge (Allgood & Walstad, 2013; Hanager & Cude, 2016; Tang & Barker, 2016). Thus, it is critical that FE includes both affective and cognitive financial knowledge.

Hypothesis 2 (Individuals who participated in FE are more likely to engage in positive short- and long-term financial behaviors than those who did not) was partially supported, as only long-term financial behavior was significantly influenced by FE participation. Short-term financial behavior scale was not significantly different between those who participated in FE and those who did not participate in FE. This result could be because of experiential learning of daily financial management activities, such as budgeting, spending, and paying credit card and other bills in full. Thus, when an adult participates in FE, most of the gains in learning in the short-term can be reflected in sound long-term financial behaviors.

Long-term financial behavior was significantly different between those who participated in FE and those who did not. This study showed that when individuals participated in FE, they learned more sophisticated strategies such as diversification and estate planning, and might be more motivated to own an investment account, retirement plan, or even have a will. Even though short-term financial behavior was not statistically significant, the results of long-term financial behavior supported previous research about how financial knowledge, FE, and financial behaviors are related (Allgood & Walstad, 2013; Lusardi & Mitchell 2014; Hastings et al. 2013).

## **Implications**

The findings of this study provide practical implications for financial educators and counselors. The first implication for educators, practitioners, and researchers is to consider affective and cognitive knowledge as two important constructs of FE. The definition of FE proposed by the 2020 United States Financial Literacy and Education Commission (USFLEC) includes both domains. Therefore, that definition should be an anchor that guides the development, design, and implementation of FE programs and research.

This study provides evidence that those who participated in FE had higher affective and cognitive financial knowledge levels. Moreover, based on the OLS model, as both levels of affective and cognitive financial knowledge increased, so did short-term financial behaviors. This finding is consistent with previous research. However, while affective financial knowledge was associated with increased levels of long-term financial behaviors, cognitive knowledge was associated with decreased long-term behaviors. When other studies, informed by behavioral finance, included both domains, they found that this balance yields more robust results in understanding the effect of FE in short- and long-term behaviors (Allgood & Walstad, 2013; Hadar et al., 2013; Hanager & Cude, 2016).

As presented in this study, the two constructs of financial knowledge supplement and reinforce each other. The affective domain of finances—the construct that captures our feelings, perceptions, and self-appraisals of our cognitive knowledge—might be even more critical in determining financial behaviors (Allgood & Walstad, 2016, Tang & Barker, 2016). Sorgente and Lanz (2017) found that participants' perceived confidence impacts their financial well-being and involvement in the learning process. Lack of confidence may make individuals self-critical and

doubtful of their financial abilities; feeling anxious, nervous, tense, and insecure might lead them to make unsound financial decisions.

Financial counselors and educators can use this information and include teaching strategies that tap into the affective knowledge domain. When teaching finances, professionals should assume they are teaching humans who will make mistakes, make irrational financial choices, have cognitive limitations, deal with self-control problems, and feel over or under-confidence in pursuing their financial goals. Biases ingrained in adult learners can be overridden, but not overwritten, by affective teaching processes that invite self-reflection, self-assessment, and increased awareness.

Financial counselors can also use the findings of this study to provide more programs, or customize their current programs, to specific populations (e.g., young adults without a high school diploma, women in general, the unemployed, Hispanic and Black, and individuals who made less than \$25,000 per year). These demographic groups showed lower levels in both domains of financial knowledge and lower levels of positive financial behaviors.

One of the main purposes of this study was to provide additional evidence that there is indeed an association between FE and financial behaviors. Therefore, researchers, practitioners, and teachers are responsible for promoting FE as a lifelong learning activity. As such, FE programs should capture individuals at all stages of development, from high school students, young adults, and college students to older adults, pre-retirees, and retirees. Academics in professional financial associations such as the American Association of Family and Consumer Sciences (AAFCS) and the Association of Financial Counseling and Planning (AFCPE) can use their advocacy venues to educate significant stakeholders. The latest 2018 NFCS provides additional evidence that there are statistically significant associations between FE,

operationalized as affective and cognitive knowledge, and positive short- and long-term financial practices. This study is our contribution to the cause.



## References

- Allgood, S., & Walstad, W. (2013). Financial literacy and credit card behaviors: A cross-sectional analysis by age. *Numeracy*, 6, 1-26. <https://doi.org/10.5038/1936-4660.6.2.3>
- Allgood, S., & Walstad, W. (2016). The effects of perceived and actual financial literacy on financial behaviors. *Economic Inquiry*, 54(1), 675-697.  
<https://doi.org/10.1111/ecin.12255>
- Ariely, D. (2008). *Predictably irrational. The hidden forces that shape our decisions*. Harper Collins Publisher.
- Assad, C. (2015). Financial literacy and financial behavior: Assessing knowledge and confidence. *Academy of Financial Services*, 24(2), 101-117.
- Board of Governors of the Federal Reserve System. (2019). *Report on the economic well-being of U.S. households in 2019*. <https://www.federalreserve.gov/publications/files/2019-report-economic-well-being-us-households-202005.pdf>
- Consumer Financial Protection Bureau. (2015). *Financial well-being: The role of financial education*. (Publication). Retrieved December 14, 2020, from [https://files.consumerfinance.gov/f/201501\\_cfpb\\_report\\_financial-well-being.pdf](https://files.consumerfinance.gov/f/201501_cfpb_report_financial-well-being.pdf)
- Delgadillo, L. (2014). Financial clarity: Education, literacy, capability, counseling, planning and coaching. *Family and Consumer Sciences Research Journal*, 43(1), 18-28.  
<https://doi.org/10.1111/fcsr.12078>
- Fernandes, D., Lynch, J. Jr., & Netemeyer, R. (2014). Financial literacy, financial education, and downstream financial behaviors. *Management Science*, 60(8), 1861-1883. <https://psycnet.apa.org/doi/10.1287/mnsc.2013.1849>

- FINRA. (2019). *The state of U.S. financial capability: The 2018 national financial capability study*. [https://www.usfinancialcapability.org/downloads/NFCS\\_2018\\_Report\\_Natl\\_Findings.pdf](https://www.usfinancialcapability.org/downloads/NFCS_2018_Report_Natl_Findings.pdf)
- Fox, J., Bartholomae, S., & Lee, J. (2005). Building the case for financial education. *Journal of Consumer Affairs*, 39(1), 195-214. <https://doi.org/10.1111/j.1745-6606.2005.00009.x>
- Gale, W., & Levine, R. (2011). *Financial literacy: What works? How could it be more effective?* [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2316933](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2316933)
- Global Financial Literacy Excellence Center. (n.d.). S&P global financial literacy survey. <https://gflec.org/initiatives/sp-global-finlit-survey/>
- Gun, C. (2017). *The opportunity cost of ignorance* (Unpublished master's thesis). University of Texas.
- Hadar, L., Soot, S., & Fox, C. (2013). Subjective knowledge in consumer financial decisions. *Journal of Marketing Research*, 50(3), 303-316. <https://doi.org/10.1509%2Fjmr.10.0518>
- Hastin, J., Madrian, J., & Skimmyhorn, W. (2013). Financial Literacy, Financial Education, and Economic Outcomes, *Annual Review of Economics, Annual Reviews*, 5(1), 347-373. <https://doi.org/10.1146/annurev-economics-082312-125807>
- Hastings, J., & Mitchell, O. (2018). How financial literacy and impatience shapes retirement wealth and investment behaviors. Pension Research Council Working Paper (PRC WP2018-10).
- Henager, R., & Cude, B. (2016). Financial literacy and long-and short-term financial behavior in different age groups. *Journal of Financial Counseling and Planning*, 27 (1), 3-19. <http://doi.org/10.1891/1052-3073.27.1.3>
- Huston, S. (2010). Measuring financial literacy. *The Journal of Consumer Affairs*, 44(2),

296-316. <https://doi.org/10.1111/j.1745-6606.2010.01170.x>

Jacobson, L. (2020). *PISA results highlight US teens' limited financial knowledge*.

<https://www.educationdive.com/news/pisa-results-highlight-us-teens-limited-financial-knowledge/577450>

Kahneman, D. (2011). *Thinking, fast and slow*. Straus and Giroux.

Kaiser, T., Lusardi, A., Menkhoff, L., & Urban, C. (2020). Financial education affects financial knowledge and downstream behaviors. *GFLEC Working Paper Series* (WP 2000-3).

[https://www.nber.org/system/files/working\\_papers/w27057/w27057.pdf](https://www.nber.org/system/files/working_papers/w27057/w27057.pdf)

Kim, K., & Yun, Y. (2018). Financial knowledge and household saving: Evidence from the survey of consumer finances. *Family and Consumer Sciences Research Journal*, 47(1), 5-24. <https://doi.org/10.1111/fcsr.12270>

Krathwohl, D., Bloom, B., & Masia, B. (1973). *Taxonomy of educational objectives, the classification of educational goals. Handbook II: Affective domain*. David McKay Company Inc.

Lusardi, A. (2012). Numeracy, financial literacy, and financial decision-making. *Numeracy*, 5(1) <https://doi.org/10.5038/1936-4660.5.1.2>

Lusardi, A., & Mitchell, O. (2007). Financial literacy and retirement preparedness: Evidence and implications for financial education. *Business Economics*, 42(1), 35–44. <https://doi.org/10.2145/20070104>

Lusardi, A., & Mitchell, O. (2008). Planning and financial literacy: How do women fare? *American Economic Review*, 98(2), 413-417. <https://doi.org/10.1257/aer.98.2.413>

Lusardi, A., & Mitchell, O. (2014). The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature*, 52(1), 5-44.

<https://doi.org/10.1257/jel.52.1.5>

Mandell, L., & Klein, L. (2009). The impact of financial literacy education on subsequent financial behavior. *Journal of Financial Counseling and Planning*, 20(1), 15-24.

Mitchell, O., & Lusardi, A. (2015). Financial literacy and economic outcomes:

Evidence and policy implications. *The Journal of Retirement*, 3(1), 107-114.

Moore, D. (2003). *Survey of financial literacy in Washington State: Knowledge, behavior, attitudes, and experiences*. Washington State Department of Financial Institutions.

[https://www.researchgate.net/publication/265728242\\_Survey\\_of\\_Financial\\_Literacy\\_in\\_Washington\\_State\\_Knowledge\\_behavior\\_Attitudes\\_and\\_Experiences](https://www.researchgate.net/publication/265728242_Survey_of_Financial_Literacy_in_Washington_State_Knowledge_behavior_Attitudes_and_Experiences).

Mottola, G. (2014). The financial capability of young adults—A generational view. *FINRA*

*Foundation Financial Capability Insights*. <https://doi.org/10.13140/RG.2.1.3800.5281>

Sherraden, M. (2013). Building blocks of financial capability. In J. M. Birkenmaier, M. S.

Sherraden, & J. C. Curley, J. (Eds.) *Financial Capability and Asset Building: Research, Education, Policy, and Practice* (pp. 1–43). Oxford University Press.

Sorgente, A., & Lanz, M. (2017). Emerging adults' financial well-being: A scoping review.

*Adolescent Research Review*, 2(4), 255–292. <https://doi.org/10.1007/s40894-016-0052-x>

Tang, N., & Baker, A. (2016). Self-esteem, financial knowledge, and financial behavior. *Journal*

*of Economic Psychology*, 54, 164-176.

Urban, C., Schmeiser, M., Collins, M., & Brown, A. (2018). The effects of high school personal

financial education policies on financial behavior. *Economics of Education Review*, 78, 1-

12. <https://doi.org/10.1016/j.econedurev.2018.03.006>

U.S. Financial Literacy and Education Commission. (2020). *U.S. national strategy for financial literacy*. <https://home.treasury.gov/system/files/136/US-National-Strategy-Financial-Literacy-2020.pdf>

Table 1. Socio-Demographic Characteristics by Financial Education Participation ( $N = 7920$ )

|                        | Participated in<br>Financial Education<br>( $n = 2415$ ) | Did not Participate<br>in FE<br>( $n = 5505$ ) | Test statistics<br>Chi-square ( $\chi^2$ ) |
|------------------------|--|--|--|
| Age:                   |  |  |  |
| Millennials            | 35.8%  | 23.9%  | $\chi^2 = 144.12^{***}$                    |
| Generation X           | 24.7%  | 25.3%  |  |
| Baby boomers           | 35.2%  | 42.8%  |  |
| Silent generation      | 4.3%   | 8.0%   |  |
| Gender:                |  |  |  |
| Male                   | 65.5%  | 60.3%  | $\chi^2 = 19.81^{***}$                     |
| Female                 | 34.5%  | 39.7%  |  |
| Marital status:        |  |  |  |
| Married                | 59.9%  | 62.3%  | $\chi^2 = 43.79^{***}$                     |
| Never married single   | 28.1%  | 22.0%  |  |
| Unmarried single       | 12.0%  | 15.7%  |  |
| Race/Ethnicity:        |  |  |  |
| White                  | 72.7%  | 79.0%  | $\chi^2 = 76.89^{***}$                     |
| Black                  | 12.9%  | 7.2%   |  |
| Hispanic               | 7.0%   | 6.1%   |  |
| Asian/Other            | 8.4%   | 7.7%   |  |
| Education:             |  |  |  |
| High school            | 9.9%   | 22.0%  | $\chi^2 = 171.35^{***}$                    |
| Some college education | 35.8%  | 33.3%  |  |
| College graduate       | 31.8%  | 25.5%  |  |
| Post-college           | 22.5%  | 19.2%  |  |
| Employment status:     |  |  |  |
| Self-employed          | 9.8%   | 8.6%   | $\chi^2 = 53.92^{***}$                     |
| Full/Part-time work    | 57.9%  | 50.8%  |  |
| Retired                | 21.3%  | 28.5%  |  |
| Unemployed/other       | 11.0%  | 12.1%  |  |
| Income level:          |  |  |  |
| Less than \$25,000     | 12.5%  | 10.9%  | $\chi^2 = 27.97^{***}$                     |
| \$25,000-\$49,999      | 20.5%  | 17.7%  |  |
| \$50,000-\$74,999      | 20.6%  | 18.5%  |  |
| \$75,000-\$99,999      | 18.1%  | 20.4%  |  |
| Income of \$100,000+   | 28.3%  | 32.5%  |  |

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

Table 2. Financial Knowledge and Behavior Characteristics by Financial Education Participation (N=7920)

|  |      | Participated<br>in FE | Did not<br>Participate<br>in FE | Test statistics      |
|--|------|-----------------------|---------------------------------|----------------------|
|  |      | (n=2415)              | (n=5505)                        |                      |
| <b><i>Affective Knowledge:</i></b>           | 5-35 | 28.8                  | 27.6                            | t= -9.49***          |
| Perceived financial knowledge                | 1-7  | 5.9                   | 5.6                             | t=-13.19***          |
| Perceived financial capability               | 1-7  | 6.3                   | 6.1                             | t=- 4.18***          |
| Confidence in math skills                    | 1-7  | 6.2                   | 6.0                             | t= -6.57***          |
| Confidence in goal achievement               | 1-4  | 3.4                   | 3.2                             | t= -8.06***          |
| Perceived financial satisfaction             | 1-10 | 6.9                   | 6.6                             | t= -5.12***          |
| <b><i>Cognitive Knowledge:</i></b>           | 1-7  | 5.3                   | 5.3                             | t= -0.53             |
| Interest question correct                    | 1    | 86.3%                 | 87.6%                           | $\chi^2 = 2.54$      |
|  | 0    | 13.7%                 | 12.4%                           |                      |
| Inflation question correct                   | 1    | 73.4%                 | 76.7%                           | $\chi^2 = 10.03$ *** |
|  | 0    | 26.6%                 | 23.3%                           |                      |
| Bond question correct                        | 1    | 50.5%                 | 49.1%                           | $\chi^2 = 1.35$      |
|  | 0    | 49.5%                 | 50.9%                           |                      |
| Mortgage question correct                    | 1    | 91.8%                 | 91.2%                           | $\chi^2 = 0.81$      |
|  | 0    | 8.2%                  | 8.8%                            |                      |
| Portfolio question correct                   | 1    | 79.9%                 | 83.2%                           | $\chi^2 = 63.72$ *** |
|  | 0    | 20.1%                 | 16.8%                           |                      |
| Compounded <i>i</i> question correct         | 1    | 52.5%                 | 44.8%                           | $\chi^2 = 39.47$ *** |
|  | 0    | 47.5%                 | 55.2%                           |                      |
| <b><i>Short-term Positive Behaviors:</i></b> | 1-5  | 4.0                   | 3.9                             | t= -3.80***          |
| Spending less/equal                          | 1    | 79.0%                 | 83.0%                           | $\chi^2 = 18.13$ *** |
|  | 0    | 21.0%                 | 17.0%                           |                      |
| Having liquid savings                        | 1    | 87.5%                 | 83.7%                           | $\chi^2 = 18.88$ *** |
|  | 0    | 12.5%                 | 16.3%                           |                      |
| Paying credit card debt in full              | 1    | 62.2%                 | 58.7%                           | $\chi^2 = 8.39$ ***  |
|  | 0    | 37.8%                 | 41.3%                           |                      |
| Setting aside emergency funds                | 1    | 73.0%                 | 66.1%                           | $\chi^2 = 37.02$ *** |
|  | 0    | 27.0%                 | 33.9%                           |                      |
| <b><i>Long-term Positive Behaviors:</i></b>  | 1-5  | 3.5                   | 3.2                             | t= -9.13***          |
| Holding investment accounts                  | 1    | 61.1%                 | 51.4%                           | $\chi^2 = 63.72$ *** |
|  | 0    | 38.9%                 | 48.6%                           |                      |
| Having 401k plans                            | 1    | 77.3%                 | 29.7%                           | $\chi^2 = 42.41$ *** |
|  | 0    | 22.7%                 | 70.3%                           |                      |
| Having IRA plans                             | 1    | 61.1%                 | 53.4%                           | $\chi^2 = 40.22$ *** |
|  | 0    | 38.9%                 | 46.6%                           |                      |
| Having a will                                | 1    | 54.9%                 | 49.3%                           | $\chi^2 = 20.80$ **  |
|  | 0    | 45.1%                 | 50.7%                           |                      |

\* p<.05, \*\* p<.01, \*\*\* p<.001

Table 3. OLS Results:  
The Effects of Financial Education Participation on Financial Knowledge and Behaviors ( $N = 7920$ )

|   | Affective Knowledge   |     | Cognitive Knowledge   |     | Short-term Behaviors  |     | Long-term Behaviors   |     |
|---|-----------------------|-----|-----------------------|-----|-----------------------|-----|-----------------------|-----|
|   | Est. Coefficient (SE) |     | Est. Coefficient (SE) |     | Est. Coefficient (SE) |     | Est. Coefficient (SE) |     |
| <b>Financial Education Participation:</b> |                       |     |                       |     |                       |     |                       |     |
| Participation (Not Participation)         | 1.05(0.12)            | *** | 0.07(0.03)            | **  | -0.02(0.02)           |     | 0.21(0.03)            | *** |
| <b>Financial Knowledge:</b>               |                       |     |                       |     |                       |     |                       |     |
| Affective knowledge                       | n/a                   |     | n/a                   |     | 0.10(0.002)           | *** | 0.08(0.003)           | *** |
| Cognitive knowledge                       | n/a                   |     | n/a                   |     | 0.05(0.001)           | *** | -0.03(0.01)           | **  |
| <b>Control Variables:</b>                 |                       |     |                       |     |                       |     |                       |     |
| Age: (Baby boomer)                        |                       |     |                       |     |                       |     |                       |     |
| Millennials                               | -0.05(0.16)           |     | -0.96(0.04)           | *** | -0.03(0.03)           |     | -0.19(0.04)           | *** |
| Generation X                              | -1.23(0.15)           | *** | -0.37(0.04)           | *** | -0.18(0.03)           | *** | -0.27(0.04)           | *** |
| Silent generation                         | 0.80(0.24)            | *** | 0.07(0.06)            |     | 0.04(0.05)            |     | 0.23(0.06)            | *** |
| Gender: (Male)                            |                       |     |                       |     |                       |     |                       |     |
| Female                                    | -0.86(0.11)           | *** | -0.11(0.03)           | *** | 0.05(0.02)            |     | -0.08(0.03)           | **  |
| Marital Status: (Married)                 |                       |     |                       |     |                       |     |                       |     |
| Never-married single                      | -0.06(0.14)           |     | -0.01(0.03)           |     | 0.04(0.03)            |     | -0.14(0.03)           | *** |
| Unmarried single                          | -0.38(0.17)           | *   | 0.04(0.04)            |     | -0.08(0.03)           | **  | -0.13(0.04)           | *** |
| Race/Ethnicity: (White)                   |                       |     |                       |     |                       |     |                       |     |
| Black                                     | 0.83(0.18)            | *** | -0.80(0.04)           | *** | -0.18(0.04)           | *** | 0.09(0.04)            | *   |
| Hispanic                                  | -0.67(0.17)           | *** | -0.25(0.04)           | *** | -0.003(0.03)          |     | -0.19(0.04)           | *** |
| Asian/other                               | -0.68(0.19)           | *** | 0.01(0.05)            |     | 0.18(0.04)            | *** | -0.01(0.04)           |     |
| Education: (Post-college)                 |                       |     |                       |     |                       |     |                       |     |
| High school                               | -0.25(0.18)           |     | -0.76(0.05)           | *** | -0.09(0.04)           | **  | -0.32(0.04)           | *** |
| Some college                              | -0.43(0.16)           | **  | -0.43(0.04)           | *** | -0.15(0.03)           | *** | -0.30(0.04)           | *** |
| College graduate                          | -0.34(0.17)           | *   | -0.02(0.04)           |     | -0.03(0.03)           |     | -0.09(0.04)           | **  |
| Employment: (Not-work)                    |                       |     |                       |     |                       |     |                       |     |
| Self-employed                             | 2.01(0.24)            | *** | -0.18(0.06)           | *** | 0.20(0.05)            | *** | 0.30(0.06)            | *** |
| Full/part time work                       | 1.29(0.18)            | *** | -0.15(0.05)           | *** | 0.13(0.04)            | *** | 0.25(0.04)            | *** |
| Retired                                   | 3.00(0.22)            | *** | 0.02(0.05)            |     | 0.31(0.04)            | *** | 0.43(0.05)            | *** |
| Income: (\$100,000+)                      |                       |     |                       |     |                       |     |                       |     |
| Less than \$25,000                        | -4.76(0.21)           | *** | -0.52(0.05)           | *** | -0.63(0.04)           | *** | -1.14(0.05)           | *** |
| \$25,000-\$49,999                         | -3.28(0.17)           | *** | -0.40(0.04)           | *** | -0.40(0.03)           | *** | -0.70(0.04)           | *** |
| \$50,000-\$74,999                         | -1.73(0.16)           | *** | -0.17(0.04)           | *** | -0.14(0.03)           | *** | -0.34(0.04)           | *** |
| \$75,000-\$99,999                         | -0.02(0.16)           |     | -0.41(0.04)           | *** | -0.08(0.03)           | **  | 0.06(0.04)            |     |
| Constant                                  | 28.56(0.24)           | *** | 6.39(0.06)            | *** | 1.09(0.10)            | *** | 1.64(0.12)            | *** |
| F-Value                                   | 111.55***             |     | 163.61***             |     | 224.17***             |     | 224.93***             |     |
| Adj. R-Square                             | .22                   |     | .29                   |     | .38                   |     | .38                   |     |

\* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$