The Value of Financial Education During Multiple Life Stages

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This study examines the timing of financial education and its impact on short-term and long-term financial behavior. We also explore the power of financial education on financial knowledge and examine the link between financial knowledge and positive financial behavior. Exposure to financial education during multiple life stages leads to a better financial outcome. Financial education taught via multiple channels, including high school, college, the workplace, and at home, is the most optimal in the long run. For those who did not attend college, being exposed to financial education in high school is significantly associated with positive financial behavior. We cite implications for all financial education advocates. Policymakers in the financial capability arena can stay abreast of the channels of financial education that produce the most fruitful economic and societal gains.

Keywords: financial behavior, financial education, financial knowledge, financial literacy

Within today's economy the ability to fully comprehend and act on financial education is greater than ever. Unfortunately many individuals frequently make financial decisions that might increase utility in the short run while increasing the chances of experiencing financial difficulties in the future (Norvilitis 2014. Throughout life individuals are required to make a series of complex financial decisions. For example many millennials who recently graduated from college must navigate through a series of financial decisions such as student loan repayment cash management and planning for short-term and long-term goals while managing human and financial capital risks. New retirees must decide when to claim social security benefits navigate Medicare options and make decisions about their defined benefit and/or defined contribution plan. Moreover many retirees today must implement a consumption strategy using savings from their defined contribution accounts during retirement.

Some financial literacy proponents' persistent belief seems to be that higher literacy levels lead to better economic decision-making and that it is beneficial to have financial literacy education in schools (Hastings et al., 2013). Within the vast body of literature that explores financial literacy many studies use financial knowledge to measure financial literacy. Huston (2010) summarized an extensive collection of research and found that roughly 47% of studies used financial literacy and financial knowledge synonymously. However financial literacy extends beyond knowledge—it includes an understanding and an application of knowledge throughout the life cycle (Huston, 2010). Other factors such as cognitive bias self-control family experience peer groups community and institutions also influence individual financial well-being (Huston, 2010).

The purpose of this study is to explore *when* financial education provides the most value. We examine the impact of financial education in high school college the workplace and at home on financial behavior. Positive financial behavior is captured through the utilization of financial planning strategies such as having an emergency fund planning for retirement and financial market participation. Our study sheds light on when financial education can add value to subsequent short-term and long-term financial behavior.

Literature Review

Prior research has identified that many individuals lack what are deemed "basic" personal finance knowledge and skills, putting them at risk for poor financial decisions and outcomes in the future (Campbell, 2006; Lusardi et al.,

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2010; Lusardi & Tufano, 2015). Basic personal finance knowledge includes that of risky assets (e.g., the difference between stocks and bonds), time value of money concepts, and consumer loans (Huston, 2010; Lusardi et al., 2010; Van Rooij et al., 2011). The lack of financial skills is prevalent within our society. For instance, Campbell (2006) highlighted that many households are consistently making poor financial decisions. He provided evidence that among U.S. households, there is a low level of stock market participation. Many individual portfolios are poorly diversified, resulting from households' preference for investing in local or familiar companies and employer stocks. Many individuals also fail to refinance a fixed-rate mortgage when mortgage rates have decreased, selling assets that have gone up in value, and at the same time holding on to assets with declining value, even in light of unchanged predicted future returns.

Other notable household financial mistakes are found across the planning spectrum. This includes purchasing whole life insurance as opposed to a more affordable combination of term life insurance (Anagol et al., 2017). Gross and Souleles (2002) highlighted that many individuals tend to hold high-interest credit card debt while carrying a balance in a low-interest checking account. Amromin et al. (2007) revealed that many households prefer to pay down a mortgage faster while failing to contribute to a matched tax-deferred savings account. Choi et al. (2011) examined contributions to 401(k) plans by employees over age 59½ who were eligible for an employer match with immediate vesting and penalty-free withdrawals due to their age. They found that 36% of these employees either did not participate or contributed less than what was needed to receive the full employer match, thereby leaving free money on the table. However, more recently, Henager and Cude (2016) did find a positive association between financial literacy and having a retirement plan. Thus, it is of keen interest to see how financial education can mitigate common financial missteps.

Whether financial education should be offered in high school remains a debatable topic, as it is unlikely that the average high school student will have access to credit, a retirement plan, or resources to invest in the financial markets. Many studies have looked at the impact of high school financial education on student behavior. Danes et al. (1999) provide evidence that a financial planning curriculum in high school has a positive impact on students' financial knowledge, behavior, and self-efficacy immediately after studying the curriculum and several months after. Bernheim et al. (2001) found that students who attended high school in states with mandatory consumer financial education were more likely to save and have a higher net worth in adulthood. Similarly, Tennyson and Nguyen (2001) discovered that high school students in states requiring specific financial education coursework scored significantly higher on a personal finance test than those in states with either a general mandate or with no mandate. Walstad et al. (2010) examined the effects of high school financial education programs on students' knowledge of personal finance and found that scores increased regardless of the course in which the curriculum was taught.

Brown et al. (2014) analyzed credit card behavior in three states that require personal financial education in high school. They found that youth enrolled in school after the implementation of the financial education requirement had higher credit scores and lower relative delinquency rates than those in the control states. Cole et al. (2012) found that financial education increases stock market participation and decreases the likelihood of adverse debt-related outcomes. Almenberg and Dreber (2015) also investigate the relation between stock market participation and financial literacy and find gender differences.

Several studies have examined the impact of financial education offered in college and subsequent behavior, with mixed results. For instance, Robb and Sharpe (2009) found no significant difference with revolving credit card debt among students who completed a personal finance course when compared to students who did not take a personal finance course. They highlighted that students who completed the personal finance course were likely to carry a higher balance. On a more positive note, Peng et al. (2007) found that alumni from a large Midwestern university who took a personal finance course demonstrated greater investment knowledge. Goetz et al. (2011) found that college students who had completed a personal finance course were more open to receiving personal finance education through additional educational venues. Lyons (2004) found that college students taking financial education courses were less likely to engage in dangerous credit behavior. More recently, after examining the outcome of peer-based financial counseling, Britt et al. (2015) found an increase in financial knowledge among college students but no change in financial behavior.

Fernandes et al. (2014) emphasized that the effect of financial education on behavior is influenced by psychological traits—diminishing the overall effects of financial education on behavior. We also suggest that the impact of financial education on behavior is more pronounced if the education is acted upon within a short time frame. Kim et al. (2019) focus on millennials and find a positive relation between financial education and subsequent long-term financial decision-making, but also cite the possible bias asserted by Fernandes et al. (Fernandes et al. (2014). Xiao and Porto (2017) asserted that financial education contributes to financial well-being.

The effect of workplace financial education on financial behavior is also an area of interest to researchers. Kim et al. (2005) found participating in financial education workshops was positively related to both employees' and their spouses' contributions to retirement savings plans. Consistently, Joo and Grable (2005) discovered that individuals exposed to workplace financial education were more likely to participate in a retirement savings program, which positively impacted retirement confidence. Clark et al. (2017) examined the relation between financial knowledge and retirement savings plan performance. They found that more financially knowledgeable employees, on average, experienced annual risk-adjusted expected returns that were 130 basis points higher compared to those who lacked financial knowledge.

While focusing on individuals with lower income and lower education, Wagner (2019) investigated the impact of financial education across multiple channels—in high school, college, and through the employer, to specifically assess the effect on an individual's financial literacy score. The author found that individuals who received any type of financial education were likely to have higher financial literacy scores compared to those without financial education.

Receiving financial education at home has also been explored by several authors. Clarke et al. (2005) were among the first researchers to indicate that financial knowledge transfer often takes place in the home (parent to child), rather than through sources solely outside the home. Shim et al. (2010, 2015) found that financial education provided by parents during adolescence years played a significant role in young adults' current financial learning experience, attitude, and behavior. Grohmann et al. (2015) cited mixed results around financial socialization, which considers the combined experience of home, school, and work experience on adolescent money management. However, we found that financial literacy is primarily and positively influenced by two main channels of information—family and schools.

Tang et al. (2015) demonstrated that parental influence was positively associated with responsible financial behavior. They also examined the moderating role of gender and observed that financial knowledge and parental influence improved women's financial behavior more than men. Tang (2017) revealed that parents' financial behavior affects their children both directly and indirectly through general self-control skill development. LeBaron et al. (2020) also examined the transfer of financial education from parents to children during childhood and found that in later life, as adults, these individuals exhibited a greater level of healthy financial behaviors. These results, supporting the vital role of parental influence on financial knowledge and education, also persist globally. Using the Financial Literacy Assessment from the Organisation for Economic Co-operation and Development(OECD's) Programme for International Student Assessment (PISA), Chambers et al. (2019) found that among high school students, a mother's presence in the household played a bigger role in influencing financial knowledge in the home.

When it comes to studying financial education, there are some limitations. Fernandes et al. (2014) discussed the issues with prior research involving personal finance education. The researchers argued that "manipulated" interventions, such as education, have a reduced impact on financial outcomes than "measured" interventions, for example, financial knowledge surveys. They pointed out that omitted variables such as those relating to psychological/behavioral traits (e.g., self-control, time preference/delayed gratification) weaken the effects of education-related interventions. Moreover, Meier and Sprenger (2007) found that time preference plays a significant role in the behavior of individuals, citing that respondents who exhibit a lower time preference self-select into financial education programs.

While it is challenging to isolate the effects of education on financial behavior fully, this research study attempts to broaden the financial capability discussion and promote the possibility of timing education strategies effectively. Many studies have reiterated the importance of timing, or

providing financial education at "teachable moments," but none have investigated the unique and compounded effect of receiving financial education in high school, college, the workplace, and at home.

Research Framework

In addition to the human capital endowment, financial literacy, financial education, and other influences, we add to prior research by specifically introducing and examining the effect of timing on positive financial behavior. As a guide for this study, we employ a modified version of the conceptual framework modeled in Huston (2010) in Figure 1. Our first modification is the outcome variable. In Huston (2010), the model cites financial well-being as an outcome variable, while in our model, the outcome variable is positive financial behavior. Rather than provide an exhaustive list of past studies that use variables to conceptualize positive financial behavior, we highlight the most recent literature that readers can delve further into for more background. We conceptualize "good" financial behavior as having emergency funds (Babiarz & Robb, 2014; Kim et al., 2019), spending less than income (Cho et al., 2012; Heckman & Hanna, 2015), having a retirement plan (Henager & Cude, 2016; Van Rooij et al., 2011), calculated retirement needs (Kim et al., 2019; Mayer et al., 2011), credit use (Britt et al., 2015; Brown et al., 2014, budgeting (Britt et al., 2015; Shim et al., 2010), and stock market participation (Almenberg & Dreber, 2015; Van Rooij et al., 2011). We also include "having a college fund" as a proxy for good behavior. While this variable has not been evident in prior studies (aiming to capture positive financial behavior), we include this variable, as it is indicative of long-term saving behavior.

Financial education is an input variable that is expected to increase an individual's financial literacy; financial literacy aims to capture knowledge and the ability to use personal finance information effectively by demonstrating positive financial behavior. Huston (2010) argues that financial literacy has two components, knowledge and implementation. While the Huston (2010) model suggests that education leads to better financial literacy and better outcomes, it does not address the importance of timing and the need for implementation as part of financial literacy. Thus, in our model, we also highlight the importance of timing and the need for implementation. Xiao and O'Neil (2016), demonstrated that high school, college, and workplace financial education had a positive impact on financial education. This finding makes theoretical sense as "implementation" requires action postfinancial knowledge accumulation. For example, educating a new employee about retirement savings is more applicable than educating a high school student on the same topic. A working adult will be better able to understand and relate to retirement planning education than a high school student, as timing is more appropriate. Our enhancement of the conceptual framework cited in Huston (2010) is also consistent with the work presented by Fernandes et al. (2014). Therefore, the timing and need for financial education may have a moderating effect on financial literacy.

Hypotheses

We propose the following hypotheses to be tested empirically based on the conceptual framework:

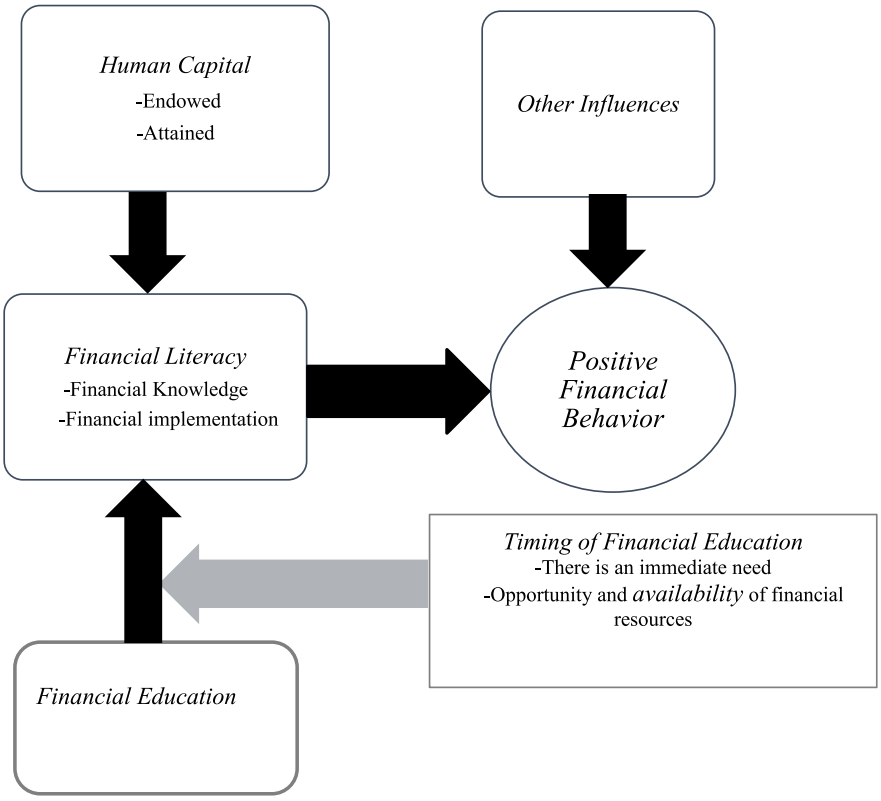
H1: Financial education provided via multiple stages will have a positive impact on financial behaviors.
H2: Financial education accessed through an employer will have a stronger effect on employee benefits knowledge and retirement-related financial behavior when compared with other types of financial education.
H3: Family financial education will have a broader and more positive impact on all financial behavior when compared with other channels of financial education.

Data and Methodology

The dataset for this study comes from the 2015 National Financial Capability Study (NFCS) commissioned by Financial Industry Regulatory Authority(FINRA) Education Foundation. The study contains three surveys: A national survey, a state-by-state survey, and a military survey. Since our primary focus is on the effects of financial education on subsequent behavior, we use the cross-sectional state-by-state survey. It was conducted online from June through October 2015 among a nationally representative sample of 27,564 American adults. According to the survey website, it has approximately 500 individuals per state, and oversamples of 1,000 in New York, Texas, Illinois, and California.

Using data from the Surveys of Consumers, and the Survey of Consumer Finances, Hilgert et al. (2003) organized household financial management practices into broad categories such as cash management, saving, credit, investing, and others. These surveys include questions ranging from

Figure 1. Conceptual model.



Note: This figure illustrates that the timing and need for financial education may have a moderating effect on financial literacy, thereby influencing positive financial behavior.

basic to sophisticated money decisions and behavior. In our analysis, we use a similar strategy to identify financial strategies and tools via the 2015 NFCS. Household financial decision-making may be assessed through financial practices and ownership of financial products, serving as a good proxy for behavior (Hastings et al., 2013; Hilgert et al., 2003; Hung et al., 2009; Remund, 2010).

Variables

For this study, we use two main sets of dependent variables and multiple independent variables. The dependent variables use questions from the survey, which include respondents having emergency funds, spending less than income, having a retirement plan, having a college fund, calculated retirement needs, always pay credit card in full (good credit), budgets, and participates in the stock market. We also use questions from the survey to capture whether respondents possess "good financial knowledge." To do this, we use the answers from financial knowledge questions related to saving, inflation, bond and interest rate relationship, mortgage interest, and stock mutual fund comparison. Those who got their question correct were assigned a value of "1" and "0" otherwise.

The independent variables that capture the types of financial education include high school financial education, college financial education, employer education, and family financial education. The "family financial education" variable was created based on the survey question, "Did your parents or guardians teach you how to manage your finances?" Within each model, we control for age, income, marital status, gender, race, the number of financially dependent children, and employment status (including retirement).

Descriptive Statistics

As shown in Table 1, about 45% of our sample received no financial education from any channel. Among those who stated that they had some financial education, most indicated that it was received at home. Panel B in Table 1 shows that 80% of respondents received no financial education in

high school, college, nor their workplace. Less than 14% of respondents received some financial education in college and fewer than 9% in the workplace.

Table 2 shows the percentage of positive financial behavior across different financial education channels. If respondents report that they have an emergency fund, we code that equal to "1," and "0" otherwise. The first row of Table 2 shows that for those who received financial education in college, 60% of them reported having an emergency fund established. For those who did not receive financial education in college, that ratio drops to 46%. The results shown in Table 2 consistently demonstrate that financial education from all three channels is positively associated with healthy financial behavior, as shown by the other variables in the table, confirming our expectations. Using questions from the NFCS to test for financial knowledge, Panel B (Table 2) shows that financial education from all channels is associated with better financial knowledge. Individuals who received some financial education performed better on questions related to the rate of return computation, inflation, bond pricing and interest rates, mortgage interest expenses, and the comparison between a single stock and a stock mutual fund.

Multivariate Analysis

This study uses multivariate regression analysis to provide insights into the value of timing financial education. The regression model used for our research is presented below.

$$\text{Odds Ratio of } (\textit{Good behavior/good financial knowledge})_i = \alpha + \beta_1 \textit{Financial Education Variables (Family, College, Employer)} + \beta_2 \textit{Income} + \beta_3 \textit{Education} + \beta_4 \textit{Health} + \beta_5 \textit{No. of Children} + \beta_6 \textit{Employment Status} + \beta_7 \textit{Age} + \beta_8 \textit{Race} + \beta_9 \textit{Gender} + \beta_{10} \textit{Marital Status} + \varepsilon_i$$

where:

"Good behavior" includes having an emergency fund, spending less than income, having a retirement plan, having a college fund, calculated retirement needs, good credit, budgeting, and stock market participation. "Good financial knowledge" uses answer choices from financial knowledge questions related to saving, inflation, bond and interest rate relationship, mortgage interest, and stock mutual Fund comparison.

In Table 3, we include all types of financial education, such as high school education, college education, employer education, and family financial education. We control for age, income, marital status, gender, race, the number of financially dependent children, and employment status (including retirement).

Table 3 shows the logistic regression results after controlling for all the variables mentioned above. For each row, we conducted a regression analysis of the dependent variable (financial behavior in the first column) and the types of financial education received sequentially (high school financial education in row one) and all control variables. The coefficients for the control variables are not provided due to the table's complexity and to condense the information. The detailed results of Table 3 are available from authors upon request. We then added college financial education in row two to high school financial education. Then, in row three, we added employer financial education to college financial education and high school financial education. Finally, we added family financial education to employer financial education, college financial education, and high school financial education. By adding each financial education channel one by one, we can show the marginal contribution of financial education across different life stages following the guidance of the conceptual framework. The results in Panel A indicate that financial education in college, from an employer, and at home are all important even after controlling for related variables, supporting our first hypothesis. Financial education received at home is statistically significant and has the most substantial impact on financial behavior when compared with other financial educational variables, confirming our third hypothesis. Notably, within our results, when we look at those respondents who indicated having a retirement plan, we see that all forms of education play a significant role. However, the most considerable effect is observed from employer-provided education. Similar results are observed among those who indicated calculating their retirement needs. All forms of financial education play a significant role in terms of savings for college, but the type of financial education with the largest impact is family financial education. Comparable results are observed for budgeting, always paying credit cards in full, and budgeting. Respondents who receive financial education from their family might come from wealthier households where they are exposed to good financial habits early in life, positively influencing financial

TABLE 1. Descriptive Statistics for Financial Education

Panel A					
				N	Column Percentage
Family Financial Education	High School Financial Education	College Financial Education	Employer Financial Education		
	No	No	No	12,501	45.35
			Yes	301	1.09
		Yes	No	698	2.53
No			Yes	270	0.98
	Yes	No	No	514	1.86
			Yes	115	0.42
		Yes	No	286	1.04
			Yes	227	0.82
	No	No	No	9,335	33.87
			Yes	290	1.05
		Yes	No	685	2.49
Yes			Yes	326	1.18
	Yes	No	No	644	2.34
			Yes	231	0.84
		Yes	No	571	2.07
			Yes	570	2.07
Panel B					
High School	College	Workplace	*N*	Column Percentage	
No	No	No	21,836	79.22	
		Yes	591	2.14	
	Yes	No	1,383	5.02	
		Yes	596	2.16	
Yes	No	No	1,158	4.20	
		Yes	346	1.26	
	Yes	No	857	3.11	
		Yes	797	2.89	

TABLE 2. Descriptive-Means

	Panel A: Behavior							
	Emergency Funds	**Spend less than Income**	**Has Own Retirement Plan**	**College Funding**	**Calculated Retirement Needs**	**Good Credit**	**Budgeting**	**Stock Market Participation**
High School Financial Education								
No	0.47	0.41	0.33	0.15	0.31	0.63	0.49	0.31
Yes	0.54	0.44	0.40	0.21	0.44	0.66	0.52	0.40
College Financial Education								
No	0.46	0.40	0.32	0.14	0.31	0.62	0.48	0.30
Yes	0.60	0.47	0.46	0.23	0.46	0.72	0.56	0.46
Employer Financial Education								
No	0.46	0.41	0.32	0.14	0.31	0.62	0.48	0.30
Yes	0.67	0.49	0.57	0.25	0.51	0.78	0.63	0.54
Family Financial Education								
No	0.41	0.38	0.29	0.12	0.28	0.57	0.46	0.27
Yes	0.56	0.45	0.40	0.19	0.38	0.70	0.54	0.38

	Panel B: Knowledge				
	Savings Account Calculation	**Inflation Calculation**	**Bond Interest Relationship**	**Mortgage Interest Calculation**	**Stock Mutual Fund Comparison**
High School Financial Education					
No	0.76	0.62	0.29	0.77	0.48
Yes	0.81	0.65	0.35	0.82	0.56
College Financial Education					
No	0.76	0.61	0.28	0.77	0.46
Yes	0.84	0.71	0.41	0.85	0.63
Employer Financial Education					
No	0.76	0.61	0.28	0.77	0.47
Yes	0.84	0.74	0.44	0.87	0.66
Family Financial Education					
No	0.75	0.61	0.28	0.76	0.46
Yes	0.80	0.63	0.32	0.80	0.51

behavior. In other words, the behavior observed may come from good financial habits developed at home and not necessarily financial education itself. Regardless, this does not reduce the impact and contribution of our study. Slightly more than 45% of respondents received some financial education from their family, representing our largest financial education channel. After controlling for income, which can be viewed as capturing some internal human capital characteristics, our results posit that family financial education is the most significant education channel. We also find that financial education from the workplace and college are also important, even for those respondents who also received financial education from their family. Our findings suggest that broader access to financial education may have better financial behavior outcomes. Although an individual might receive financial education from their family and/or in school, workplace financial education is still beneficial and statistically significant.

Panel B of Table 3 shows that financial education, mainly from college and family, are significantly associated with good financial knowledge. Interestingly, exposure to workplace financial education is not significantly related to basic financial knowledge calculations, and its impact is not as high as college financial education. Still, it is significantly associated with positive financial behaviors, confirming our second hypothesis. Our results also support the validity of the financial literacy framework used in the Huston (2010) study and our modification of that framework.

We further explore the impact of financial education on behavior while controlling for financial knowledge. Table 3 uses financial behavior and financial knowledge as the dependent variables, and it is apparent that financial education is significantly associated with improved knowledge and behavior. It becomes necessary and interesting to see which financial behavior is more significantly associated with each financial education channel. Table 4 uses financial education channels as independent variables. For example, high school financial education is the independent variable in the regression analysis's first row. It equals "1" if the respondent received financial education in high school and "0," otherwise. In Table 4, variables that measure financial knowledge and all control variables listed in Table 3 are used as independent variables. The results displayed in Table 4 confirms that financial education is associated with financial knowledge. Overall, receiving financial education in college or at home was most significant across different financial knowledge types. We find other noteworthy results after controlling for financial knowledge. In Table 5, we show that financial education is still significantly associated with positive financial behavior after controlling for financial knowledge. Indeed, there might be some omitted variables related to financial education, which contributes to our results. However, we affirm that financial literacy, as proposed by Huston (2010), captures both financial knowledge and financial practices. For someone to exhibit "good" financial behavior, they should not only be armed with financial knowledge but also know *how to* implement the strategies mentioned above. Therefore, we show that financial education is still important after controlling for knowledge, as financial education can instigate practical, on-time financial planning implementation key to fulfilling life cycle goals.

Financial Education, Advanced Financial Knowledge, and Advanced Financial Behavior

Previous studies (e.g., Xiao & O'Neill, 2016) surveying the value of financial education have focused on broad financial behavior. We argue that some behaviors are more advanced than others, and it is inappropriate to weigh them equally in an analysis. Results from Tables 3, 4, and 5 show that having individuals engage in complicated financial behavior that fosters wealth accumulation, such as calculating retirement income needs, and just-in-time education from the workplace, is more important than other forms of financial education, even though workplace education might have a limited scope. Table 5 shows that advanced financial knowledge (calculating bond price changes with interest rates and the difference between stocks and mutual funds) has a more substantial impact on behavior as compared with other financial knowledge measurements. The results primarily highlight elements of some omitted variables by capturing the processing and use of information such as IQ. After controlling for financial knowledge, the primary value of financial education comes from the workplace and home. Our finding is fascinating as it provides further evidence supporting just-in-time education, such as that provided by employers. It also implies the importance of money habits (or monitoring money personalities) and/or practices at home, as opposed to traditional financial literacy formats discussed in much of the literature. Meanwhile, the value of financial education through college is still significant, even though the coefficient is smaller as compared with

TABLE 3. Regression Results

	Panel A: Behaviors					
	High School Education	**College Education**	**Employer Education**	**Family Financial Education**	**McFadden R-Squared (%)**	**Control Variables**
Emergency funds	1.374***				13.06	Yes
	1.171***	1.444***			13.24	Yes
	1.086*	1.325***	1.448***		13.36	Yes
	1	1.272***	1.396***	1.845***	14.69	Yes
Spend less than income	1.125***				3.9	Yes
	1.044	1.184***			3.95	Yes
	1.039	1.178***	1.021		3.95	Yes
	1.004	1.158***	1.005	1.279***	4.2	Yes
Has own retirement plan	1.502***				17.83	Yes
	1.247***	1.482***			18.03	Yes
	1.119**	1.307***	1.622***		18.25	Yes
	1.05	1.271***	1.584***	1.57***	18.92	Yes
College funding	1.62***				48.63	Yes
	1.296***	1.65***			48.85	Yes
	1.181**	1.505***	1.508***		48.95	Yes
	1.086	1.447***	1.434***	1.887***	49.8	Yes
Calculated retirement needs	1.832***				24.44	Yes
	1.481***	1.653***			24.75	Yes
	1.283***	1.41***	2.106***		25.14	Yes
	1.21***	1.367***	2.049***	1.597***	25.82	Yes
Good credit	1.232***				16.45	Yes
	1.093*	1.34***			16.56	Yes
	1.038	1.266***	1.309***		16.61	Yes
	0.97	1.219***	1.259***	1.687***	17.52	Yes
Budgeting	1.154***				14.27	Yes
	1.099*	1.117**			14.28	Yes
	1.069	1.081*	1.144**		14.3	Yes
	1.03	1.06	1.124**	1.316***	14.56	Yes

TABLE 3. Regression Results *(Continued)*

	High School Education	College Education	Employer Education	Family Financial Education	McFadden R-Squared (%)	Control Variables
Panel A: Behaviors						
Stock market participation	1.53***				15.79	Yes
	1.24***	1.564***			16.07	Yes
	1.142***	1.42***	1.454***		16.2	Yes
	1.069	1.38***	1.417***	1.603***	16.95	Yes
Panel B: Knowledge						
Savings account calculation	1.375***				4.72	Yes
	1.18***	1.482***			4.91	Yes
	1.191***	1.5***	0.95		4.92	Yes
	1.161***	1.479***	0.936	1.22***	5.06	Yes
Inflation calculation	1.318***				12.09	Yes
	1.119**	1.488***			12.29	Yes
	1.104**	1.465***	1.071		12.3	Yes
	1.093*	1.457***	1.065	1.082**	12.32	Yes
Bond interest relationship	1.324***				6.61	Yes
	1.067	1.586***			6.95	Yes
	1.029	1.517***	1.183**		6.98	Yes
	1.007	1.503***	1.173***	1.16***	7.06	Yes
Mortgage interest calculation	1.5***				8.51	Yes
	1.293***	1.484***			8.69	Yes
	1.26***	1.44***	1.155**		8.71	Yes
	1.228***	1.419***	1.137*	1.221***	8.85	Yes
Stock mutual fund comparison	1.455***				9.08	Yes
	1.135***	1.781***			9.55	Yes
	1.094*	1.709***	1.195***		9.58	Yes
	1.073	1.692***	1.184***	1.155***	9.66	Yes

Note. Each row is a separate logistic regression with all control variables. Only results of interest are reported. Full results are available in the appendix.

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

TABLE 4. Regression of the Impact of Types of Financial Education on Financial Knowledges

	Financial Knowledge Variables				
	Savings Account Calculation	**Inflation Calculation**	**Bond Interest relationship**	**Mortgage Interest Calculation**	**Stock Mutual Fund Comparison**
High school financial education	1.161	1.093*	1.007	1.228***	1.073
College financial education	1.479***	1.457***	1.503***	1.419***	1.692***
Employer financial education	0.936	1.065	1.173**	1.137*	1.184***
Family financial education	1.22***	1.082***	1.16***	1.221***	1.155***
Control Variables	Marital Status, Age, Gender, Race, Income Levels, No. of Children, Employment Status				

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

TABLE 5. Regression of the Impact of Types of Financial Education on Financial Behaviors After Controlling for Financial Knowledge

		Emergency Funds	Spend less than income	College Funding	Calculated Retirement Needs	Good Credit	Budgeting
Financial Education Variables	High School financial education	0.99	0.994	1.08	1.182**	0.948	1.023
	College financial education	1.18***	1.105**	1.457***	1.248***	1.133**	1.009
	Employer financial education	1.368***	0.997	1.426***	2.034***	1.239***	1.119**
	Family financial education	1.813***	1.259***	1.884***	1.56***	1.653***	1.297***
Financial Knowledge Variables	Savings Account Calculation	1.071*	1.152***	0.904*	1.013	1.063*	1.262***
	Inflation Calculation	0.946*	1.136***	0.723***	0.998	1.21***	1.115***
	Bond Interest relationship	1.534***	1.111***	1.311***	1.461***	1.248***	1.116***
	Mortgage Interest Calculation	1.086**	1.125***	0.872**	1.391***	1.167***	0.926**
Control variables	Marital Status, Age, Gender, Race, Income Levels, No. of Children, Employment Status						

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

workplace and family financial education. This could be because there are some practical values captured in college education other than knowledge.

Robustness Check—Separate Analysis Within Each Degree Level

Because of the collinearity between educational attainment and financial education in high school and college, the education level variable was not included in the previous analysis. It is of keen interest to investigate whether financial education is valuable in contributing to financial behaviors among specific groups of respondents with the same degree level, allowing for a more robust analysis. Table 6 shows the results from the robustness analysis within each degree level. The results provide evidence that can be used to inform financial education policymakers. Specifically, the results indicate that family education consistently plays a significant role in all financial behavior. It suggests that policy initiatives can be more strategic when it comes to the provision of financial education. For example, targeting workplace education (or other statistically significant variables in the study) may be of more value than mandating the provision of financial education at lower levels of schooling (e.g., elementary). From a societal welfare perspective, policymakers can provide incentives to companies that offer financial education to their employees. If workplace financial education positively influences retirement savings behavior, it would make sense for the government to provide incentives to companies who offer financial education to their employees. If this leads to more individuals thinking about and saving for retirement, it will lessen the burden on the already strained social security system.

Regarding financial education in school, it varies based on the degree level of respondents. For those with a graduate degree, it appears that they can work through sorting out their personal finances. Hence, financial education has a relatively small impact. A potential explanation for this might be due to the straightforward measurements of financial behaviors (e.g., budgeting and cash management). Also, individuals with an advanced degree are far more likely to have higher incomes. High human capital influences financial behavior and often precedes high financial capital. For example, an individual with a high income can have an extra $2,000 in savings because their income exceeds their marginal propensity to consume. Furthermore, there is a possibility that more educated individuals can learn how to manage their finances from their peers. For individuals with only a high school degree, receiving financial education in high school is very important—as this period of life is a pivotal time to gain adequate financial knowledge before transitioning into the workforce (—especially if the transitional employer does not offer financial education). High schools and programs that grant GEDs might find it worthwhile to include financial education as part of an "exit" counseling. High school financial education implementation can also be a more informed and strategic policy agenda versus requiring all high schools to develop financial education programs. For those who earned a bachelor's degree, college financial education is important, while high school financial education's statistical power diminishes. Panel B shows the results after controlling for financial knowledge. Similar results are observed.

Financial education in college is important. Nevertheless, further consideration should be given to the curriculum and the practicality of the material being taught. Incorporating a practical and/or just-in-time curriculum similar to what is being offered in the workplace might be more beneficial for college students. For high schools, financial education programs can be a vital resource for those students who transition into full-time work or drop out of high school. Therefore, schools with a higher dropout rate than average may want to consider the implications of our findings. Since there is a large portion of individuals who choose not to attend college, the financial education they receive in high school will have a significant impact on behavior, as demonstrated by our results. The consequences of negative financial behavior may be larger because these individuals tend to start working/managing full-time earnings earlier than those pursuing more advanced degrees.

Discussion

We believe our findings have important implications for financial planners, financial educators, and policymakers. Our results show that not only is financial education relevant throughout various life stages, but the timing and ability to act are also important. Consistent with prior literature, we show that financial education taught in the home is essential. Financial educators at all levels—college, high school, and so on—who teach personal finance should encourage students to have conversations about personal finance at home, not just today but also in the future when they become parents. Even more, they can aid students by

TABLE 6. Subsample Analysis by Education Level

Panel A: Controls—YES					
	Education (Degree) Level	**High School Financial Education**	**College Financial Education**	**Employer Financial Education**	**Family Financial Education**
Emergency funds	High School	1.206*		1.631***	1.836***
	College	1.011	1.244***	1.412***	1.792***
	Graduate	0.712**	1.293**	1.157	1.98***
Spend less than income	High School	1.217**		0.824	1.275***
	College	0.973	1.173***	1.059	1.299***
	Graduate	0.891	1.131	0.918	1.159**
Has own retirement plan	High School	1.193		2.061***	1.629***
	College	1.091	1.194***	1.487***	1.539***
	Graduate	1.029	1.032	1.702***	1.415***
College funding	High School	1.238		1.689*	2.169***
	College	1.066	1.457***	1.383***	1.819***
	Graduate	1.217	0.972	1.624**	1.611***
Calculated retirement needs	High School	1.336***		2.376***	1.864***
	College	1.212***	1.272***	2.008***	1.505***
	Graduate	1.279	1.24*	2.007***	1.474***
Good credit	High School	1.171		1.995***	1.453***
	College	0.909	1.195***	1.22***	1.726***
	Graduate	1.291	0.794	1.041	1.857***
Budgeting	High School	1.106		1.054	1.222***
	College	1.033	1.043	1.128*	1.34***
	Graduate	0.973	1.031	1.12	1.32***
Stock market participation	High School	1.305**		2.091***	1.615***
	College	1.067	1.327***	1.396***	1.604***
	Graduate	1.021	1.148	1.198	1.387***

(*Continued*)

TABLE 6. Subsample Analysis by Education Level *(Continued)*

	Education (Degree) Level	High School Financial Education	College Financial Education	Employer Financial Education	Family Financial Education
Panel A: Controls—YES					
Panel B: Controls—YES with Knowledge					
	High School	1.136		1.589**	1.801***
Emergency funds	College	1.002	1.182***	1.384***	1.777***
	Graduate	0.703**	1.229*	1.147	1.95***
	High School	1.165		0.815	1.256***
Spend less than income	College	0.963	1.137**	1.049	1.285***
	Graduate	0.905	1.803	0.922	1.15**
	High School	1.125		1.975***	1.593***
Has own retirement plan	College	1.084	1.104*	1.447***	1.522***
	Graduate	1.047	0.953	1.712***	1.395***
	High School	1.253		1.642*	2.15***
College funding	College	1.058	1.462***	1.382***	1.827***
	Graduate	1.148	1.031	1.537**	1.578***
	High School	1.265**		2.351***	1.828***
Calculated retirement needs	College	1.181**	1.198***	1.982***	1.48***
	Graduate	1.27	1.164	2.043***	1.462***
	High School	1.113		1.974***	1.43***
Good credit	College	0.889*	1.142**	1.199**	1.703***
	Graduate	1.311	0.752**	1.025	1.842***
	High School	1.066		1.041	1.202***
Budgeting	College	1.023	1.011	1.123*	1.329***
	Graduate	0.987	0.978	1.13	1.311***
	High School	1.237*		2.012***	1.58***
Stock market participation	College	1.058	1.232***	1.356***	1.591***
	Graduate	1.029	1.081	1.19	1.366***

Note. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

providing activities or projects designed to increase money talk in the home. Financial planners should encourage their clients to have conversations about money with immediate family members. As a value-add, financial planners ought to consider providing their clients with educational materials that can be used at home. Financial education materials such as books, videos, blogs, and podcasts should be considered (if not utilized already) as these materials can be used in the home. In some cases, financial planners should invite an entire family to an annual meeting or client engagement event. Not only is this good from a financial education standpoint, but it might help retain assets across generations.

Overall, our findings are consistent with prior studies that focused on financial education's effects via multiple channels. However, while most previous studies focused on various financial education channels, the majority examined the impact on financial literacy or financial behavior separately. As the authors of this article, we have added to the vast financial literacy literature by assessing financial education's compounded effect through multiple life stages on financial behavior.

Many states have not adopted a financial literacy mandate at the high school or college level. Our results show that for those with only a high school degree, being exposed to financial education positively influences financial behavior, consistent with prior findings. Since a large portion of the U.S. population lacks a college degree, many individuals will benefit from receiving some financial education in high school. This may likely reduce heavy reliance on our welfare system.

Although financial education received in the workplace does not appear to affect financial knowledge significantly, it positively impacts behavior. As a result, providing incentives such as a reduction in taxes for companies that offer financial education might benefit the economy in the long run. From a practitioner perspective, financial planners who engage in workshops and events such as "Lunch and Learns" provide a valuable service to individuals. Not only are financial advisors engaging with prospective clients, but the education provided may potentially lead to positive financial outcomes. Businesses that wish to have greater employee participation in the company's retirement plan and benefit packages ought to consider providing financial education workshops and other educational resources.

This study also highlights and addresses the importance of the timing of financial education. While general principles can be beneficial at all education levels, careful consideration should be given to more specialized topics. High school students and new college students enrolling in a financial education course might be more interested in learning about student loans and how to complete the Free Application for Federal Student Aid (FASFA). With strategic timing, students are more likely to be vested. On the other hand, a college senior might be more interested in learning about student loan refinancing and repayment options and how to navigate the benefits provided by an employer. With regards to practitioners, it is important to tailor educational content based on specific life stages, for example, urging discussions around personal finance in the home and/or providing resources to client households with dependents.

There are some limitations alongside directions for future research following our results. Our "family financial education" variable that reflected whether respondents were taught about money in the home can be more robust by capturing parents' specific education strategies. Future research can also benefit by using more recent data to investigate financial socialization, considering the combined experience of home, school, and work experience on money management in later life. Research in this area can aim to account for any changes across generational cohorts, especially given the current digital age and reliance on social media.

Conclusion

This article explores the impact of receiving financial education in high school, college, the workplace, and at home and subsequent financial behavior. We demonstrate that financial education at all levels positively influences financial behavior. Among all four levels of education, financial education in the home had the largest impact on financial behavior even for those who were also exposed to financial education in college and the workplace. Interestingly, our results reveal that financial education is not significantly associated with financial knowledge, but it is significantly associated with positive financial behavior. While an individual might not comprehend the principle of compounding interest or how changes in interest rates affect bond prices, exposure to financial education in the workplace leads to positive financial behavior, such as saving for retirement. Regardless, we find value in most levels of financial

education as it supplements knowledge; but the content's specificity should be considered. In college, students may understand student loans and credit cards, but they may not be vastly interested in retirement accounts. Financial education in the workplace that focuses on key life cycle planning stages such as retirement is very beneficial, positively influencing behavior. For individuals who only have a high school degree, we find that being exposed to high school financial education is very important as it is significantly associated with positive financial behavior.

We want to reiterate suggested improvements around disseminating financial education intended to better financial outcomes. Hensley (2015) provides a good overview of what all financial education stakeholders can do. Positive financial behavior can be promoted if:

- Personal finance advocates pursue a more collaborative approach in addressing this important area of well-being
- All educators are confident, competent, and knowledgeable before teaching personal finance in any capacity
- Best practices are promoted and shared among financial literacy advocates
- Programs seeking to stimulate positive financial behavior are evaluated to ascertain the effectiveness

While our study finds that financial behavior is heavily influenced by what is learned within homes, educators, financial counselors, practitioners, and regulators should continuously stay abreast and informed of current societal and cultural trends affecting financial education. In addition to prior research, our study demonstrates that education outside the home should be tailored and targeted, especially given the resources, body of research, and tools financial education stakeholders have access to.

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