Financial Literacy: How Prepared are College Students for their Financial Futures?

En Mao, Ph.D., Dan Yang, Ph.D., Shari Lawrence, Ph.D., Danielle Duplay

About the Authors

En Mao, Ph.D., Professor of Computer Information Systems, Nicholls State University (en.mao@nicholls.edu)

Dan Yang, Ph.D., Model Risk Management Associate, Morgan Stanley (dyangjess@gmail.com)

Shari Lawrence, Ph.D., Professor of Finance, Nicholls State University (Shari.Lawrence@nicholls.edu)

Danielle Duplay, Tax Associate, Southern Wealth Management (Danielle.duplay@gmail.com)

Abstract

This study assesses financial literacy among college students and its importance in determining financial wellbeing. A total of 617 college students were contacted and 365 (59%) completed the survey. Students were asked to assess their financial literacy level, interest, perceived importance, family influences, areas of interest, desired methods of learning, and when financial literacy should be taught in schools. Our findings indicate that there is a low level of financial literacy among college students. We also highlight an important disconnect where college students rate financial literacy as very important while their interest in it is much less obvious. This leads to our recommendation of mandating financial literacy at the college level. Our regression analysis results indicate that exposure at home has the most significant impact on financial wellbeing. This is consistent with our survey results in which students rate parental influence as the most important factor regarding financial literacy.

Keywords: financial literacy, financial education, parental influences, financial wellbeing, financial behavior

Introduction

Financial literacy is an important life skill that is often ignored due to lack of understanding, complacency, or simply procrastination. Being financially literate involves being knowledgeable with all aspects of one's financial life. This includes but is not limited to budgeting, investing, saving for long- and short-term goals, managing credit, major purchases such as an auto or home, insurance decisions, and estate planning. Unfortunately, many people go through their entire lives without ever really knowing how to handle money. For instance, two in three Americans are in debt (Statista, 2022) and half of US families have no retirement savings (Sainato, 2021), which seems implausible considering the US is the most overworked developed nation in the world (Miller, 2022). Even financial planners commonly believe people are financially illiterate for various reasons (Tibergien, 2021a). In addition, with inflation at its highest level in four decades (Tepper, 2022), it is more important than ever for young adults and consumers to embrace financial literacy.

Unfortunately, due to low financial literacy, many people believe that financial independence is beyond their reach. The popular press emphasizes "get rich quick" schemes by investing in whatever the favorite stock of the moment is or in speculative investments like crypto currencies. The press and social media often overwhelm us with conflicting information regarding current economic conditions as well as the best place to put your money. This creates confusion, resulting in inaction regarding investing and financial planning in general. The stark reality is that even among working Americans, one

in six has not saved anything for retirement (Arends, 2022). What really needs to be emphasized to the public is that anyone can build wealth if they follow a few simple rules: start saving as soon as possible (the younger you are the better), save methodically over time, and live within your means. However, the reality is that the financial literacy rate among knowledge workers is not only low but declining (Becker, 2022). It is reasonable to assume that college students are also subject to conflicting information regarding investing and financial planning. Young adults are exposed to financial behaviors at home, and such exposure serves as a model for their future behaviors. However, this can create a vicious cycle of financial illiteracy. The key challenge for young adults is to learn to navigate through all the noise and independently identify the best financial strategy.

Financial independence through wealth accumulation is analogous to Aesop's Fable of the Tortoise and the Hare. It is nearly impossible to "get rich quick" unless you are extremely lucky. Even if you can accomplish this, the next problem is maintaining the wealth you have made. Common advice is that slow and steady investing over time is the key to wealth. The reason is the power of compounding. For example, let us assume that a twenty-year-old saves five dollars a day, which works out to $150 per month or $1,800 per year, until he or she retires at age 65. If the money is invested in a U.S. equity index fund, we can conservatively assume an annual average return of 8% (since the historical annual return in the U.S. stock market over the last 90 years has been approximately 12%). By age 65, this investment would total $695,710. If the person decided to continue saving the $1,800 a year for five more years and retire at age 70, the amount would total $1,032,786. Anyone can become a millionaire for the cost of a cup of coffee per day if they start young enough and consistently save.

If more people realized how much their money could grow over time, they would likely be more motivated to save. Therefore, education is a key factor in teaching individuals how to create wealth and become financially literate, whether taught in the home, school or workplace. However, with high schools placing more emphasis on college preparatory courses, many students cannot fit a financial literacy or personal financial planning course into their schedules. Once students matriculate to college, financial literacy courses are typically just offered as electives within business schools. In the workplace, financial literacy education is centered mainly around investing for retirement since most employer-sponsored retirement plans (401(k) plans) require employees to select the investment options for their retirement plans.

It is encouraging to see that seven states have already mandated financial literacy classes at the high school level, and five additional states are in the process of implementing the mandate. However, there is still room for improvement (Povich, 2022). In addition, recent studies have analyzed the effectiveness of teaching financial literacy in primary and secondary schools. Specifically, Amagir et al. (2018) reviewed several school-based financial literacy education programs for children and adolescents. Their findings indicate that such programs can indeed improve childrens' and adolescents' financial knowledge as well as the intention to practice financially rational behavior. However, there is a lack of evidence regarding actual behavior. Therefore, the authors suggest that educators focus on experiential learning in primary and secondary schools, then shift the focus to specific "life events" at the college level. A related study by Asarta et al. (2014) analyzed high school personal finance curriculum during the 2011-2012 and 2012-2013 academic years. Their pre- and post-test results indicate that students' average personal finance knowledge significantly improves after completing a personal finance course. Ceneno et al. (2021) focused on youth from low-income households and found similar results; financial literacy knowledge improved after students were exposed to financial literacy curriculum. An interesting study by Wolla (2017) analyzed the effectiveness of an online format for teaching financial literacy at the high school level. The findings indicate significant positive gains in financial knowledge from pre- to post-test for students who completed the online financial literacy module.

This project aims to assess financial literacy among college-age students and offer suggestions to educators and policymakers to improve societal understanding of financial topics. Our paper seeks to add to the current body of literature by focusing specifically on the level of financial literacy among undergraduate college of business students. Specifically, we will assess students' personal financial knowledge in general, how they typically acquire financial knowledge, and if they believe financial literacy should be taught at the college and/or high school level. The remainder of the paper is organized as follows: Literature Review, Methodology, Results, Summary and Discussion, Implications, and Future Research.

Literature Review

We review the financial literacy literature in the following three key areas: the importance of financial literacy, the sources of financial education, and existing financial education. In addition, six research questions and two research hypotheses are developed.

The Importance and Impact of Financial Literacy

The National Financial Educators Council (2022) defines financial literacy as possessing the skills and knowledge on financial matters to confidently take effective action that best fulfills an individual's personal, family, and global community goals. Past studies have analyzed the financial literacy of college students, individuals in the workplace, and high school students. Specifically, Chen and Volpe (1998) surveyed 924 college students to examine their own financial literacy; the relationship between literacy and students' characteristics; and the impact of literacy on students' opinions and decisions. The authors found that approximately 53% of the survey questions were answered correctly, either with wrong opinions or incorrect decisions. In addition, non-business majors, women, students in the lower-class ranks, under age 30, and with little work experience had lower levels of knowledge. The less knowledgeable students tended to hold incorrect opinions and make wrong decisions. The authors concluded that low levels of knowledge regarding financial literacy will limit students' ability to make informed decisions.

Anderson et al. (2018) analyzed data from the 2015–16 National Postsecondary Student Aid Study (NPSAS:16), which included a standard set of financial literacy questions as well as a new set of questions measuring awareness of student loan repayment terms. Their findings indicate that students overall had low levels of financial literacy.

Another study by Chen and Volpe (2005) found that workers also lacked financial literacy. Their results indicate that participants believe financial literacy is important; however, the majority do not believe they have adequate knowledge regarding financial topics. Specifically, respondents ranked retirement planning as the most important topic, followed by personal finance basics, insurance, company benefit plans, taxes, investments, and estate planning. A related study by Joo and Garman (1998) investigated the relationship between personal financial wellness and worker job productivity and found that personal financial wellness has a positive effect on worker job productivity. This suggests that workplace financial literacy education benefits both employees and employers.

Malhotra and Baag (2022) found that financial knowledge had a significant impact on healthy financial behaviors, such as putting money aside regularly and investing. Fan and Zhang (2021) found that financial literacy and exposure to financial education at school and work significantly influenced behavior such as establishing an emergency fund.

Overall, the positive impact of financial literacy is well established in the literature. However, there is limited research on whether students perceive financial literacy to be important. In this study, we assess whether college students recognize the importance of financial literacy, how financially literate students are, and the impact of financial literacy on student financial behavior and wellbeing. We propose the following questions and hypotheses:

Research Question 1: How important is financial literacy to college students?

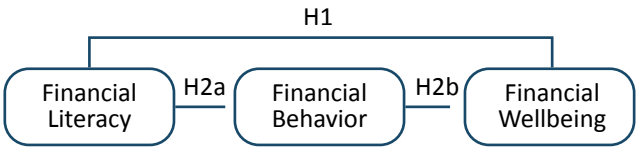
Research Question 2: How financially literate are college students?

Hypothesis 1: The level of financial literacy is significantly and positively correlated with students' overall financial wellbeing, measured by a rating of the sense of financial security. Specifically, students who perform better on the finance test, have taken economics/finance classes, or are more involved in finance at home, are more likely to feel financially secure.

Hypothesis 2: Financial literacy is significantly and positively related to better financial behavior, significantly increasing financial wellbeing.

Figure 1 illustrates a graphical representation of the research hypotheses. Specifically, we first regress the measure of financial welling on various measures of financial knowledge to understand the relationship between financial knowledge and financial wellbeing, then explore the underlying channels through which financial knowledge impacts financial wellbeing.

Figure 1 • Research Model



Note. Items for each variable: Financial Literacy (financial knowledge test; has taken any economics/finance classes; exposure to financial knowledge at home); Financial Behavior (keep track of expenses, put money aside for saving, pay credit card bills on time, prepare budget, make goals, comparison shop); Financial Wellbeing (Sense of Financial Security).

Sources of Financial Education

Financial education is defined as "an educational process by which one achieves financial knowledge and skills" (Delgadillo, 2014, p. 25). Financial education can be treated as "an input intended to increase a person's human capital, specifically financial knowledge and/or application" (Huston, 2010, p. 308). This definition clearly identifies the output of financial education as financial knowledge and/or application of the knowledge, which we have established as "financial literacy." In this section, we explore the various sources of financial education, including parents, peers, media, social media, school, finance professionals, etc.

Cude et al. (2006) researched the overall financial management practices of college students. Their survey sought to find out how college students acquire financial knowledge and behaviors, and the factors that place some students at greater financial risk than others. Their main finding is that parents play a key role in their children's financial education. Parental discussion of financial decisions and behaviors such as savings, investing, and budgeting fosters a more positive financial wellbeing in children (Lanz et al., 2019; Utkarsh et al., 2020). Overall, there is strong support of a parental role in shaping children's financial literacy (Shim et al., 2009; Tang & Peter, 2015). Another source of financial education is school (finance classes and professors) (Mimura et al., 2015; Shim et al., 2009). In addition, Malhotra and Baag (2022) examined how peer effect influenced financial behavior and found it to have a significant effect. Finally, Amagir et al (2018) analyzed financial literacy education curriculum for young adults. Their findings indicate that a school-based curriculum is effective in increasing financial knowledge. Gallardo et al. (2022) found that peer-based financial education was extremely effective in closing the knowledge gap between highly and less educated student groups. College students are navigating in an ever-evolving and expanding universe of information. Many investors, especially millennials, utilize social media outlets such as Twitter and Reddit (Evangelista, 2021; Greifeld, 2021). While many electronic sources such as social media that have not been widely studied, we are beginning to see research on this front. Some studies have identified that the internet and social media can be an effective tool (Cao et al., 2020; Çetiner & Çilingirtürk, 2019; Yanto et al., 2021). Along these lines, we would like to investigate the perceived importance of various types of educational resources by college students. This leads to our next research question:

Research Question 3: Who influences college students in the area of financial literacy and how important are those influences?

There is also a body of research that has identified levels of financial literacy among various socioeconomic and demographic groups. Anderson et al. (2018) found that financial literacy levels were higher among students with social, demographic, economic, and institutional characteristics that are predictive of success in college. Agnew et al. (2018) found that there are gender differences in parental influences. For example, girls are twice as likely to report saving their pocket money if their mother is present at the time of spending, compared to having no parent present. This effect is not found for boys. Studies have also found racial differences in how students gain financial knowledge. Koonce et al. (2008) for example, found that African American students tend to gain more financial literacy knowledge from schools compared to white students. We intend to explore the gender and racial differences in college students' sources of financial education in this study.

Existing Financial Education

In this section, we examine the existing financial education from educational institutions. Mandell (2008) summarizes the financial literacy levels among US high school students, per the National Jump$tart Coalition's 2008 National Survey. The findings indicate that high school students have low levels of financial literacy and therefore recommend that such courses be incorporated into the required curriculum. As mentioned in the introduction of this paper, high schools are now beginning to mandate financial literacy education. For example, Florida will begin the mandate as a half-credit course covering various topics in personal financial planning for high school students beginning in the 2023-24 school year (Povich, 2022).

College students differ from high school students as they likely have already started making many key life-changing financial decisions, such as paying rent and tuition, getting credit cards, and obtaining loans. Nearly half of U.S. young adults aged 18-34 carry loans (Lusardi, 2019). The 2021 College Student Financial Survey revealed that 41% of college students received assistance from their parents with their credit card bills (Kiernan, 2021). Because of the intense financial pressure on college students, the U.S. Financial Literacy and Education Commission has recommended that "institutions of higher education require mandatory financial literacy courses" (Lusardi, 2019). However, it does not appear that financial literacy

courses are commonly mandated at the college level. The exception is student-athletes since they are now allowed to earn money for the use of their name, image, or likeness. A 2022 Kentucky bill mandates colleges to establish financial literacy workshops for student-athletes. In addition, a District of Columbia bill encourages universities with student-athletes to teach financial literacy (Povich, 2022). In 2019, LendEDU began ranking college financial literacy programs based on the number of workshops and resources provided, access to one-on-one financial consultation, and incentivizing programs available (McCarthy, 2021). Stanford University was ranked first for their many resources and programs, including summer money management and investing programs, coaching provided by Stanford alumni, and a money management tool provided to students to answer questions about money management (McCarthy, 2021).

There are several approaches to offering financial literacy courses. Some utilize materials provided by the nonprofit Next Gen Personal Finance, while others enhance modules included in existing economics, math, or social studies courses (Povich, 2022). Next Gen is typically utilized in high schools. In terms of the content, Next Gen's free courses include tutorials, study guides on topics including managing credit, opening accounts, budgeting, paying for college, etc. (Povich, 2022). Jobst (2012) describes the financial literacy class offered at Benedictine University. The class was designed to be a 2-hour, 8-week class, and open for all on-campus students. The course covers objectives including developing future personal goals and plans to fund them, creating a personal budget, keeping track of spending, learning how to better manage credit cards, and learning ways to save regularly and wisely. The five components of the class include students posting their spending on a daily basis, presentations by experts on proper savings and investment, managing credit debit and credit card spending, insurance and tax issues, on-site and online discussions, and student presentations. Jacobsen and Correia (2019) find that business students who have completed a financial course better understand financial concepts than their counterparts. They suggest adding an elective financial class for students currently not required to take one to increase their financial literacy.

There are limited studies on the effect of mandated financial education as it is a relatively new phenomenon at the high school level. Past research indicates that financial education can indeed improve financial literacy (Collins, 2013; Wagner, 2019). Collins (2013) studied a mandated financial education program for public housing voucher participants in an experiment and found that such mandates could be beneficial in improving the participants' financial behaviors and status. The effects of mandated financial education in high school will be forthcoming as states implement mandatory high school financial literacy curriculum.

To further our understanding of the financial education needs of students, we developed the following research questions to gauge college students' interests:

Research Question 4: What knowledge should be delivered?

Research Question 5: When is it best to start teaching financial literacy in schools?

Research Question 6: How should we deliver such knowledge in college (mandatory vs elective; online)?

Methodology

Participants & Procedures

The authors developed a 22-question online survey based on an existing survey-the College Student Financial Literacy Survey from Virginia Tech University. The survey aims to assess students' financial knowledge, financial behaviors, and financial wellbeing. A complete copy of the survey can be found in the appendix. An institutional review board approval was required and obtained for this survey. The study was conducted at a University in the Southeastern United States. We utilized a convenience sampling method to collect our data. To distribute the survey, we contacted faculty members to share the online survey with their students; 10 out of the 34 course instructors participated. Even though the classes participating in the survey were not random, the students who completed the survey were voluntary and random within each class. Ultimately, students from 25 business classes participated. Out of the 617 students who were invited, a total of 365 students responded, yielding a response rate of 59%. Due to missing data for some variables, the sample size for the regression model ranges from 97 to 346. In our sample, 41% of the respondents were female, and the average age was 21.87. The overall percentage of female students at the college is 43%, which closely resembles our sample demographics, indicating a reasonable representation of our sample. Additional descriptive statistics are included in Table 1 (see appendix).

In the survey, we assess students' financial literacy level, the perceived importance of financial literacy, level of interest, sources of influences, areas of interest, their desired methods of learning, and when financial literacy should be taught in schools, if at all. In

addition, we conducted eight personal interviews with subjects from various age groups and racial backgrounds regarding the perceived importance of financial literacy.

We summarized our survey results for research questions 2 to 6 in Figures 2 - 9. We used Tableau - a professional visualization software to create the data visualizations. Regression analysis was performed using Stata to test our research hypotheses.

Results

In the following section, we report the results to the research questions and hypotheses raised in the previous sections.

Research Question 1: How important is financial literacy to college students?

First, the survey respondents were asked about their perceived importance of financial literacy. On a scale of 1 (least important) to 5 (the most important), the students rated financial literacy to be very important at 4.72. However, when asked about their interest in financial literacy, the score was significantly lower at 4.13 comparatively. There is a clear disconnect. This finding is consistent with prior research by Chen and Volpe (2005). Their study involved workers rather than college students, but the disconnect is still present after individuals have left school and gained experience in the workforce. In a survey of students at the University for Development Studies in Ghana, Oseifuah et al. (2018) discovered a similar discrepancy between college students' perceptions of the importance of financial literacy and being financially literate.

Research Question 2: How financially literate are college students?

We measured financial literacy using both a self-reported measure and an objective question. Respondents were asked about their self-reported grade in financial literacy using the letter grades of A, B, C, D, or F. Less than 8% of respondents perceived their knowledge to be a grade of A. Over 80% rated themselves as B (37.4%) and C (44.2%). A small number of participants graded themselves on the lower end with a D (7.1%) or F (3.3%). Figure 2 shows the overall number of self-grades marked to the right side of the bars. Each bar represented a self-grade in the order from the best grade A to F. The largest portion of students graded themselves a C (161 out of 365; 44.2%). This distribution shows that the majority of the students lack confidence in their financial knowledge.

We further divide each grade into the number of students who have taken a finance-related (represented by the dark solid color) versus those who have not (represented by the gray color). "A" graders have the largest proportion (83%) of students who have taken a course followed by B, C, and D graders. The higher the financial literacy grade the students gave themselves, the higher the proportion of students who have taken a finance-related course. The F graders were an exception.

We also assessed the students' financial literacy knowledge using an objective question: "Assume you are in your early twenties and you would like to build up your nest egg for a secure retirement in 30 years. Which of the following approaches would best meet your needs?" The various possible answers are in Figure 3, which is sorted by the most popular to the least popular answers. The correct answer is to "Put monthly savings in a mutual fund consisting of stocks," which is represented by the second bar. Overall, 131 (35.89% out of 365) students answered correctly. This is consistent with the findings in other surveys that a small minority possess the correct financial knowledge. We divide the number of students who have taken a finance-related course (darker shading) and have not, we can see there is a positive effect of taking a class. As shown in Figure 3, there is a larger proportion of students who answered the knowledge question correctly and have taken a finance course (39%) versus those who answered incorrectly (27%). The most popular answer was "start to build up your savings account gradually in an insured bank," represented by the first bar. The overall lack of understanding of financial knowledge is echoed by one of the students interviewed "I think we should be taught financial literacy. It is a part of our lives and not many people know enough about it" (22 years old).

Figure 2 • Self-Reported Financial Literacy Grades with Course Influence

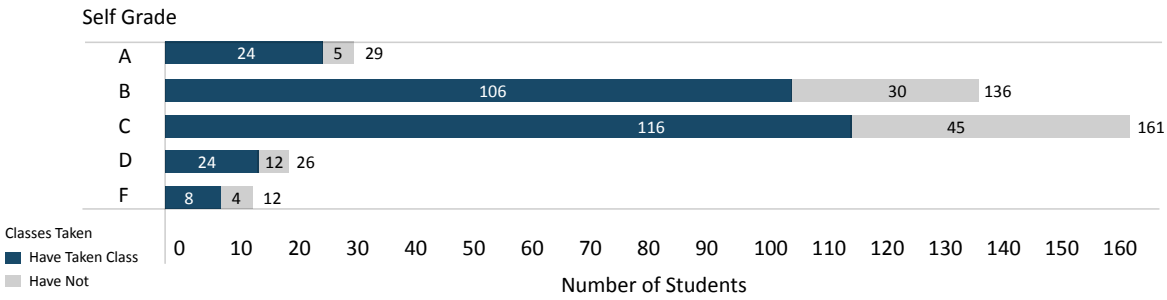
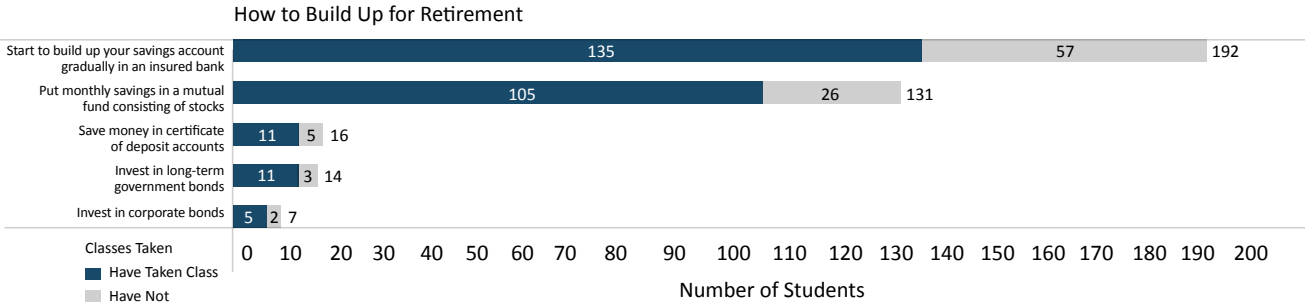


Figure 3 • Objective Financial Knowledge Answers with Course Influence



Note. The dark portion of each bar represents the number of students who have taken a finance-related class. The gray color represents those who have not. The total number of students for each answer is marked to the right side of the bar. When we divide the sample by race and gender, we see there are some differences in the percent of students who answered the objective knowledge question correctly (in descending order): 46.62% for White males, 32.43% for White females, 27.78% for Black males, and only 18.52% for Black females. White males is the strongest group with the highest proportion of students who answered correctly. Black females is the weakest group with less than 1 in 5 answered correctly.

Research Question 3: Who influences college students in the areas of financial literacy and how important are those influences?

In Figure 4, you will see the various influences (labeled to the left side of the bars) and their perceived importance (labeled to the right side of the bars). The top 5 are in dark shading. Overall, parents (4.196 out of 5) were perceived to be the most important source of influence for college students. Life experiences were the second most important at (3.635), followed by peer influence/ friends (3.018), Internet (2.865), and school (2.712). It is interesting to see that social media is relatively less important at 2.382.

In Figure 5, we further examine the importance level of the influences by race (Black and White; other groups are omitted due to small representations) and gender. Parents remain the most important influence for all race/gender subgroups. The average importance of parents is the lowest among Black female students at 3.778 while White male students reported the highest average at 4.276. This finding is consistent with prior research by Cude et al. (2006). The effect of life experience is the highest among Black male students (4.056; the only group averaged above 4) and lowest for White male students (3.538). Friends have higher influences for White students (above 3.2) while much lower for Black students (below 2.9). Overall, the school influence is low (ranging between 2.7 to 3). Books are even lower (ranging between 2.2 and 2.5). It appears that people in general place a lot of responsibility on parents; in one of our interviews, a 45-year-old male said that "I wish my parents would have better taught me about money."

Figure 4 • Importance of Various Influences

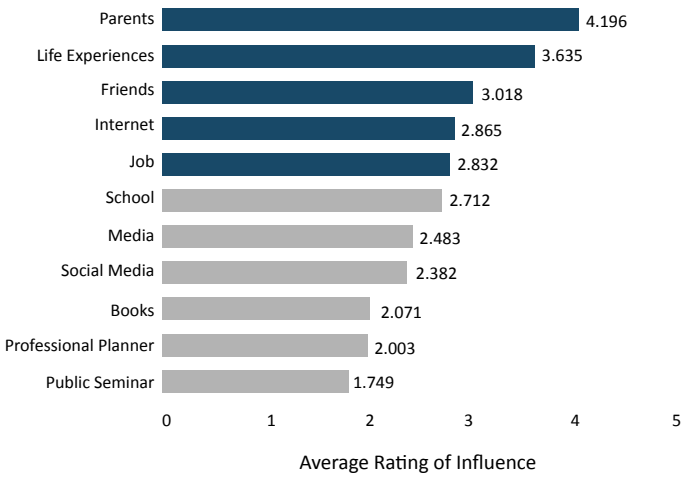
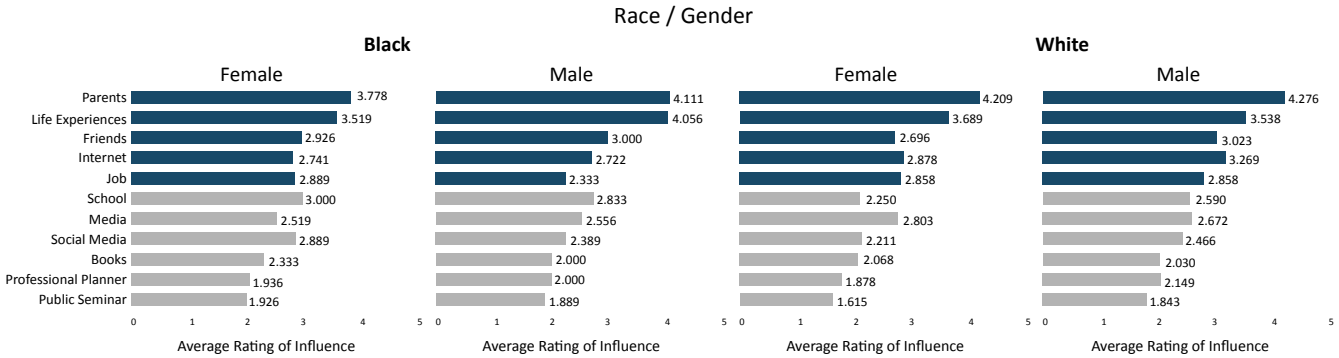
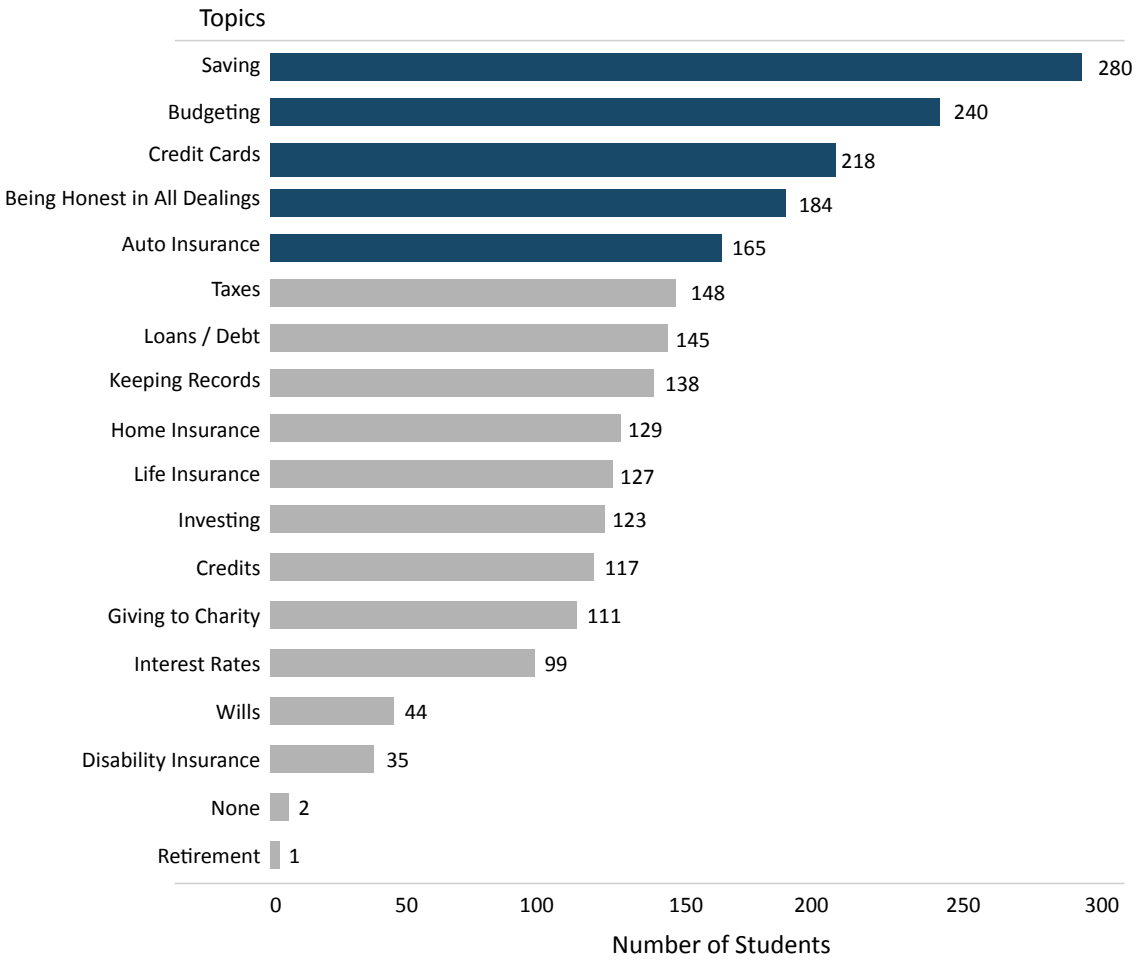


Figure 5 • Influences by Gender and Race



In Figure 6, we listed the topics students learned from home. Students had the most exposure to "savings" from home (280 out of 365 or 77%), while 240 out of 365 or 66% of students learned about "budgeting" from home. We want to emphasize that only 123 out of 365 or 34% of students learned about "investing" from home (dark shading in Figure 6). As shown in Figure 3, a small minority of the students correctly (35.89%; 131 out of 365) answered the objective financial knowledge question regarding investing. One of the goals of financial literacy is to help people achieve their financial goals and stability. However, we can see that some important topics including wills, disability insurance, and retirement are among the least they learned from home. Only one student learned about retirement from home in our sample.

Figure 6 • What did the Students Learn from Home?

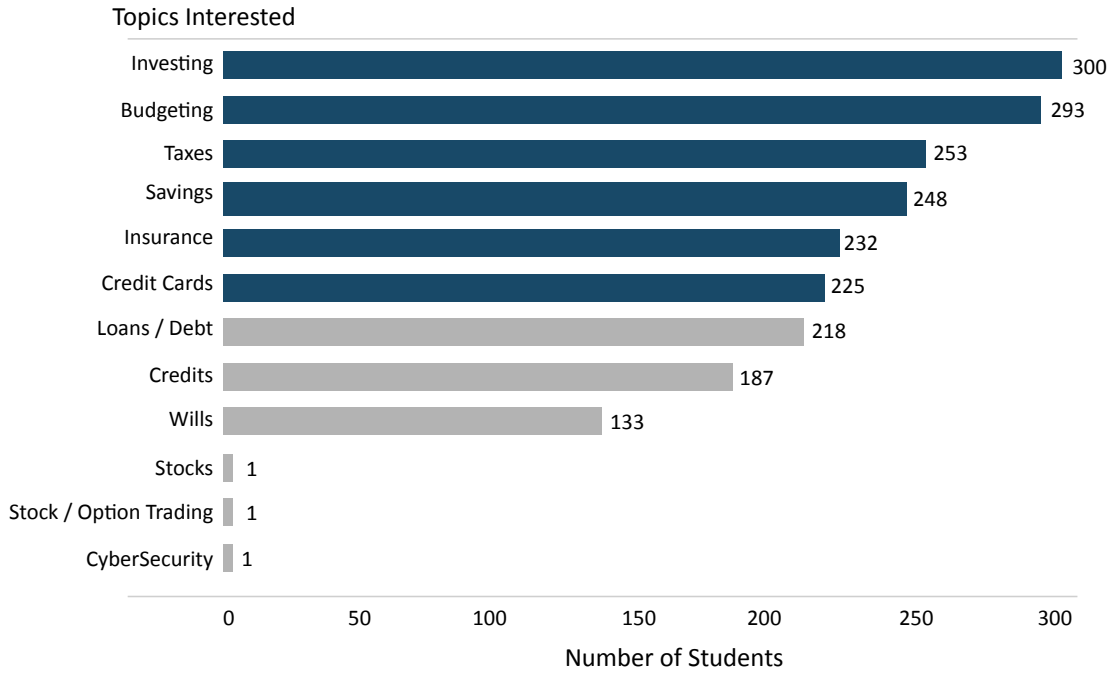


Parents can exert significant influence on their children. This phenomenon helps to explain how the absence of teaching children about investing in the home can lead to a lack of knowledge about investing in the long run.

Research Question 4: What knowledge should be delivered?

Figure 7 shows the survey results of what topics interest students the most. 300 out of 365 (82%) respondents voted for "investing" (dark shading), making it the most desired subject, followed by budgeting, taxes, savings, insurance, credit cards, etc. This result is a very powerful indication that students have a strong desire to learn about investing and implicitly indicates that they understand the importance of investing in financial preparation.

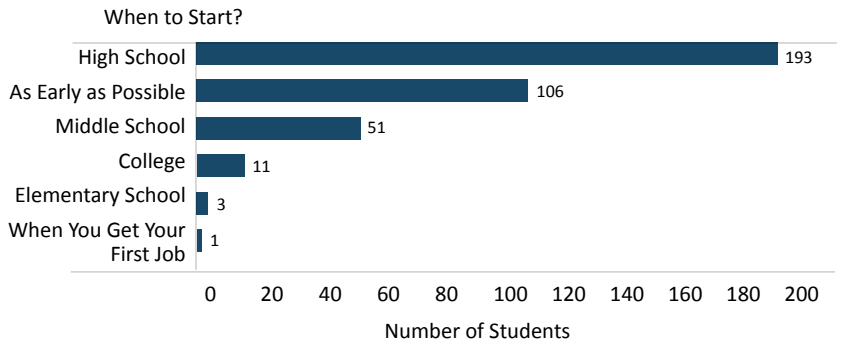
Figure 7 • Topics of Interest to the Students



Research Question 5: When is it best to start teaching financial literacy in schools?

There is uncertainty regarding when to begin teaching financial literacy in schools. With some states considering mandates to require financial literacy in schools, we are interested in learning about the students' perspective. We asked, "How soon should people begin learning about financial literacy?" with the options of "As early as possible", "Elementary school", "Middle school", "High school", or "College." Figure 8 represents the survey results. Over half (52.9%; 193 out of 365) of the respondents agree with "High school" being the best time to start. In our interviews, a 37-year-old male said "A financial literacy class should be required every year for 9th - 12th grade." This is much more than the existing state mandates but illustrates the need to start educating students early in life.

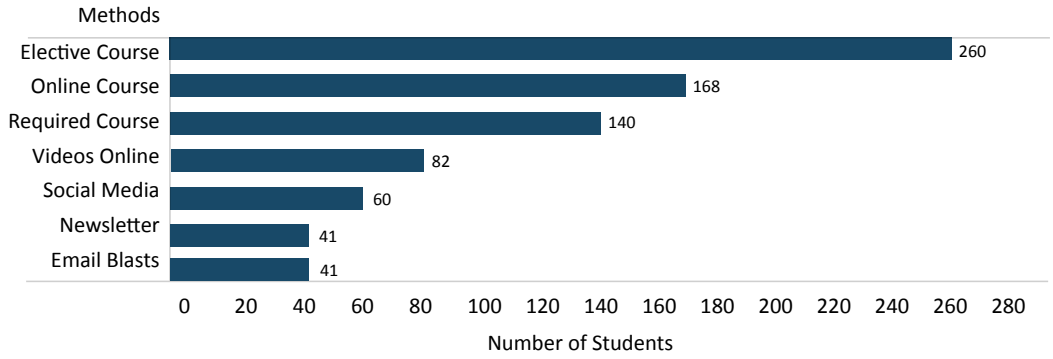
Figure 8 • When to Start Learning Financial Literacy?



Research Question 6: How should we deliver such knowledge in college?

Our results in Figure 9 indicate that 71.2% of the students select they would like to be taught financial literacy through an elective course whereas 46% would take it online. About 38.4% indicate that they believe a financial literacy course should be required. These results indicate that a mandate may not work at the college level. It is also encouraging to see the majority believe an elective course should be made available to students. Students are also open to an online option.

Figure 9 • Methods of Delivery for Financial Literacy Knowledge



Empirical Methodology for Hypothesis Testing

To test Hypothesis 1 and assess the relationship between financial literacy and financial well-being (measured by the degree of sense of financial security), we exploit the within-class variation in financial literacy. While the classes that are selected into the survey are not random, students who actually took the survey are voluntary and random within each class. To assess the impact of financial literacy on financial wellbeing, we adopt the following linear regression model:

$$y_i = \beta_0 + \beta_1 fin\_literacy_i + \tau_i + \beta_2 X_i + \varepsilon_i \quad (1)$$

Where y_i is the measure of self-reported financial wellbeing for respondent i. In the survey, we designed the question for respondents to rate "I feel secure in my current financial situation" on a scale of 1 (never) to 5 (always). A higher rating indicates a more secure feeling about the person's financial situation and therefore greater financial well-being. $fin\_literacy_i$ represents the measure of the respondent's level of financial literacy. Here, we consider 3 different measures as proxies for the level of financial literacy. Those include, 1. an indicator for whether the respondent inputted the correct answer for the financial knowledge question; 2. an indicator for whether the respondent has taken any economics/ finance classes; and 3. a measure of respondent's exposure to financial knowledge at home. τ_i controls for class fixed effects. X_i is a vector of controls for respondent characteristics, including respondent's age, income, parents' income, and dummy variables indicating race, gender, whether first generation in college, academic standing, and marital status. ε_i is the error term. The summary statistics are reported in Table 1.

Estimation Results for Hypothesis 1

Table 2 illustrates the estimated effect of financial literacy on financial wellbeing using equation (1). We separately regress the self-reported financial wellbeing on the three measures of financial literacy. Panels A - F present the estimated effects of taking an economics/finance class on financial wellbeing with/without controls for respondent characteristics, and for the full, female, and male samples, respectively. Panels G - L present the estimated relation between answering the financial test correctly on financial wellbeing with/without controls for respondent characteristics, and for the full, female, and male samples, respectively. Panels M - R present the estimated effects of home exposure to financial education on financial wellbeing with/without controls for respondent characteristics, and for the full, female, and male samples, respectively.

The results in Panel A show that whether the respondent has taken an economics or finance class has a positive impact on financial security, even though the effect is not significant. This unexpected finding may be an indicator that finance education at school has not been as effective as we would prefer.

The results in Panel G show that better performance on the financial knowledge test has significant positive impacts on respondents' sense of financial security. The estimated coefficient suggests that everything else held constant, on average, the rating on feeling financially secure is 0.32 points higher for those who provided the correct answer on the financial knowledge test.

As one would expect, exposure to financial education at home has a significant positive impact on feeling financially secure. Specifically, the estimate in Panel M shows that, all else held constant, a 1-unit increase in the exposure to financial education at home is associated with a 0.24 point increase in the sense of financial security.

If respondents are truly randomly drawn within each class, then the relationship between financial literacy and financial wellbeing will be exogenous to the characteristics of our respondents after class fixed effects are controlled. The estimated coefficients of financial literacy should remain relatively unchanged as we introduce respondent characteristics in the regressions and include class fixed effects. The estimated coefficients in Panels B, H, and N are largely similar in magnitude to those in Columns (A), (L), and (M), respectively, supporting the validity of our identification strategy.

To examine the heterogeneous effects of financial literacy for male and female respondents, we divide the sample into two parts based on gender, and rerun the regressions for each gender group. The results are reported in Panels C - F, I - L, and O - R. The results indicate that the impacts of financial literacy are similar among female and male respondents. Our results lend support to Hypothesis 1.

Potential Mechanisms for Hypothesis 2

A potential mechanism underlying the effect of financial literacy on financial wellbeing is that more financially literate respondents may display more financially informed behaviors, which, in turn, may improve respondents' sense of financial security and overall financial wellbeing. To investigate this potential channel, Table 3 illustrates the regression results for a variety of financial behaviors on the exposure to financial knowledge at home.

According to the linear regression results, respondents are more likely to engage in financial planning, such as keeping track of expenses, putting money aside for saving, preparing a budget for next month, making goals about how to spend money, and comparison shopping, if one is exposed to more financial knowledge at home. This finding confirms that financial literacy improves respondents' financial wellbeing through bettering decision makers' finance-related behaviors. Consequently, Hypothesis 2 is supported.

Summary and Discussion

Our findings point to an overall financially illiterate and unprepared college student population. This is consistent with the common belief that the general population is largely financially illiterate in the financial planning industry (Tibergien, 2021a). Our findings indicate that of those students who have taken a financial planning course, they graded themselves higher compared to those who have not. In addition, 27% of students who have not taken a financial planning related course answered our knowledge question correctly compared to 39% of the students who have taken a financial planning course. This finding indicates that there may be a positive effect from taking a financial planning course. While the students rate the importance of financial literacy at 4.72 out of 5, their interest is less at 4.13. We can determine that this is a disconnect between the perceived importance and interest in learning. Over 50% of respondents indicate that high schools are where financial literacy education should begin. In addition, we saw that parents were the most influential in these participants' lives.

We also found that Black students are less knowledgeable regarding financial literacy than White students. Past studies also found racial gaps in financial literacy (Al-Bahrani et al., 2019). This likely stems from family influences and generational issues (Shapiro et al., 2013). If parents do not have the knowledge, they cannot teach their children, or expect them to be interested in these topics. The good news is that college students expect to learn about financial literacy in school. Specifically, they are interested in learning about budgeting, investing, savings, taxes, and insurance. Finally, most prefer taking it as an elective course.

Financial literacy is an important life skill. In addition, higher levels of financial literacy increase one's sense of financial security and financial wellbeing. Educational institutions have a great responsibility to educate and prepare college students for future financial and life success. To this end, schools should consider offering courses and programs focusing on budgeting, investing, savings, taxes, and insurance at least in the format of electives or online deliveries. On the other hand, given the low interest college students showed in acquiring financial knowledge, per our survey results, making financial knowledge

classes required may be necessary. Furthermore, according to the survey results, the majority of college students agree that high school should be the most appropriate period to start financial literacy education.

Conclusion and Policy Implications

This study assessed financial literacy among college students. Students were asked to assess their financial literacy level, interest, perceived importance of financial literacy, family influences, specific areas of interest, desired learning methods, and when financial literacy should be taught in schools, if at all.

One key finding indicates a disconnect between perceived importance of financial literacy and interest. Specifically, students rate financial literacy as very important yet interest in financial literacy is significantly less. In addition, 44.2% of respondents rated themselves a grade of C regarding perceived financial literacy, followed by 37.4% rating themselves at a grade of B, and less than 8% rating themselves at an A. For students who have completed a course in financial planning, 83% rated themselves at a grade of A. Students rank their parents as having the largest influence on their level of financial literacy, with schools ranking below parents, life experience, friends, internet and job. In addition, Black males rate life experience significantly higher as an influence on financial literacy compared to the other cohorts in the study (White males and all females).

We also ran a regression model to assess the relationship between financial literacy and financial well-being. Our results indicate that exposure at home has the most significant and positive impact on financial well-being. This finding is consistent with our survey results in which students rate parental influence as the most important factor regarding financial literacy.

Implications of this study for policy makers are to encourage parents to openly discuss and teach broad-based financial literacy to their children. In addition, financial literacy should be taught as a regular part of secondary and college curriculum. Given the importance of home exposure to financial knowledge on students' financial behavior and financial wellbeing, increasing societal interest in financial literacy would encourage more people to educate themselves and pass this knowledge down to their children. Financial literacy education requires a concerted effort from educational institutions, social entities, and professional organizations. The following are our recommendations to educators and policymakers to improve financial literacy education:

Financial Literacy

Enhance students' understanding of financial literacy and its importance. Particularly, we see there is a disconnect between the students' interest and perceived importance of financial literacy. We need to explore ways to increase student's level of interest. Student organizations can participate in such campaigns to assess and raise awareness and interest levels in students. Policy makers may want to provide grants to educational institutions to implement new financial literacy programs. This finding should trigger university curriculum committees to evaluate strategies to encourage and increase student enrollment in financial literacy courses.

Financial Wellbing and Stability

Financial wellbeing and financial stability are critical for students' academic success and future career stability. Promoting students' awareness of the power of financial literacy on financial wellbeing can help increase students' interest in financial literacy. On the other hand, achieving financial security is a basic life goal for everyone, and the starting point toward this goal is to become literate and acute. However, we must recognize the limitations of the impact of financial literacy on financial wellbeing. Other factors such as income may exert a greater impact on people's financial wellbeing (West et al., 2021). Universities should actively assess students' financial wellbeing and literacy and track them over time. Such results can be reported at the aggregate level to policymakers to make assessments at the societal level.

Education at Home

According to our findings, home education is significant at determining college students' level of financial literacy. However, according to the survey, students have learned most about saving, budgeting, and credit cards at home, while they are most interested in learning about investing, followed by budgeting, taxes, and savings. That leads us to think that education in college should fill in this gap between students' interest and what has been taught at home. Universities may offer classes in investing, taxes, insurances, etc. Particularly, with only about 30% of public high school students having access to financial literacy classes (Povich, 2022), the burden of financial literacy education falls on higher education and workplaces. We believe that universities have this social responsibility to ensure college graduates gain this important life skill. As our study discovered that there is a disconnect between perceived importance of financial literacy and interest in learning about it at the college level, educational institutions may need to negotiate with higher

education policymakers to make financial literacy a mandatory requirement to bridge that gap. This may be even more important in states where there is no high school-level mandated financial literacy requirement.

Parental Involvement

College students are influenced by many entities, with parents being the most important. Regardless of whether parents are actively teaching their children about financial literacy, their behaviors and conversations about money management directly influence their children. Parental involvement needs to be more conscious and direct (Gerrans & Heaney 2019). One way is to partner with financial literacy agencies and institutions to send relevant and timely materials (electronic or printed) home at both the high school and college levels. For example, at the beginning of school years, relevant materials can include how to budget for the new semester. In the summertime, when students are more likely to get summer jobs, materials on savings can be sent. The messages to the parents can be about how to teach your children about budget and providing them with basic tutorials. For young adults, the content can include short video tutorials on the relevant topics.

Defining Course Topics

In developing financial literacy course content, it is important that we deliver the fundamentals and strategies of investing, which is the most desired financial knowledge for college students. This also appears to be a weak area for students. In addition, emphasizing the connection between investing and its impact on retirement can ensure long-term financial stability. Students also crave practical knowledge including budgeting, taxes, and savings. One student we interviewed said: "I wish I would've learned about budgeting and taxes in high school." While our results are at the college level, it is important not to generalize our findings to high schools as past research has found mixed results on the effectiveness of finance courses on financial knowledge at the high school level (Mimura et al., 2015). It is critical that we investigate the salient topics at the high school level.

Course Delivery

With regard to how the financial classes should be delivered, the majority of the respondents agree with an elective course format. A little less than half of the respondents are interested in taking those classes online, followed by the option to make them required. As we have discovered that college students rate the importance of financial literacy very high (4.72) but their interest was much lower (4.13). This is indicative that students are reluctant to become more educated in financial literacy knowing how important it is. It's time for universities to follow the recent actions of many states that have mandated or in the process of mandating financial literacy at the high school level. We believe the time to mandate financial literacy at the college level is now. In addition, we can develop curriculum using other creative approaches and techniques, such as using financial software, as past studies show that such use improves financial literacy and knowledge in college students (Bi et al., 2020). Software technology, however, needs to be carefully selected, planned, and utilized in designing financial literacy pedagogy; we need to make sure students and faculty members have sufficient computer literacy and information literacy to take advantage of software use in financial literacy education (Yu & Okojie, 2017). For example, Stanford University provides a tool to its students that can answer any money management questions (McCarthy, 2021). This model can be a substitute if policy makers feel that mandated financial literacy policy may be infeasible or would take too long to approve. Other creative solutions such as financial planning tools can be implemented with little cost.

Leverage Resources

Universities must not work in silos and need to leverage non-profits such as Next Gen Personal Finance (Povich, 2022), alumni (McCarthy, 2021) and existing financial planning professionals to help educate our students and develop partnerships to enhance the effectiveness of financial literacy education (Tibergien, 2021b). Students can also partner with financial planning industry professionals in service-learning projects to further their financial literacy (Vizenor et al., 2016). Working with high schools by sharing resources and knowledge helps deliver consistent knowledge, which can consequently increase the effectiveness of the messages over time. Such partnerships can be encouraged and facilitated at the policy making-level. With all stakeholders working in collaboration, the financial stability of the next

Limitations and Future Research

The sample used in this study is limited to one university. The majority of our respondents are within the College of Business, and the total number of respondents is 365. Second, our sample lacks racial representation. The majority of the respondents in our sample are non-Hispanic White, and only 20% of the respondents are other non-White races.

In regard to assessing when financial literacy should be delivered, It is important to note that our

respondents are college students. Our research may not provide definitive answers on when students should be taught as these are college students with limited financial literacy and life experiences. Our findings must be validated from other sectors of the population.

As indicated that this study was conducted using survey data from a single university, future studies should make an effort to examine the generalizability of the findings in a broader range of universities. Also, one may consider extending the study to students beyond the college of business, post-college, mid-career, and late-career.

In addition, one key finding in our research is that financial literacy was deemed as very important to students, yet there is less interest in learning it. Future study should focus on discovering why this was the case. Results from those studies could pay dividends in developing students' interests in financial literacy.

References

Agnew, S., Maras, P., & Moon, A. (2018). Gender Differences in Financial Socialization in the Home - An Exploratory Study. *International Journal of Consumer Studies, 42*(3), 275–282. https://doi.org/10.1111/ijcs.12415

Al-Bahrani, A., Weathers, J., & Patel, D. (2019). Racial Differences in the Returns to Financial Literacy Education. *Journal of Consumer Affairs, 53*(2), 572-599. https://doi.org/10.1111/joca.12205

Amagir, A., Groot, W., Maassen van den Brink, H., & Wilschut, A. (2018). A Review of Financial-Literacy Education Programs for Children and Adolescents. *Citizenship, Social and Economics Education, 17*(1), 56–80. https://doi.org/10.1177/2047173417719555

Anderson, D. M., Conzelmann, J. G., & Lacy, T. A. (2018). The State of Financial Knowledge in College: New Evidence from a National Survey. *Rand Corporation.*

Arends, B. (2022, June 22). Here's how much the Average Working Boomer has Saved for Retirement. *MarketWatch.* Retrieved June 24, 2022, from https://www.marketwatch.com/story/heres-how-much-the-average-working-boomer-has-saved-for-retirement-11655923201?adobe_mc=MCMID%3D22401510316038773740403579277202843861%7CMCORGID%3DCB68E4BA55144CAA0A4C98A5%2540AdobeOrg%7CTS%3D1656091146

Asarta CJ, Hill AT, Meszaros BT (2014) The Features and Effectiveness of the keys to Financial Success Curriculum. *International Review of Economics Education* 16: 39–50.

Becker, S. (2022, May 24). Most People can't Answer all 5 of these Basic Financial Literacy Questions. Can you? *Fast Company.* Retrieved June 16, 2022, from https://www.fastcompany.com/90754811/most-people-cant-answer-all-5-of-these-basic-financial-literacy-questions-can-you

Bi, Q., Dean, L., Meng, X. (2020). The Impact of Financial Software Use on Financial Literacy Education-Evidence from China. *Journal of Personal Finance, 19*(1), 81-99.

Cao,Y., Gong, F., & Zeng. T. (2020). Antecedents and consequences of using social media for personal finance. *Journal of Financial Counseling and Planning, 31*(1), 162-176. https://doi.org/10.1891/JFCP-18-00049

Cedeño, D., Lannin, D. G., Russell, L., Yazedjian, A., Kanter, J. B., & Mimnaugh, S. (2021). The Effectiveness of a Financial Literacy and Job-Readiness Curriculum for Youth from low-income Households. *Citizenship, Social and Economics Education, 20*(3), 197–215. https://doi.org/10.1177/20471734211051770

Çetiner, M. & Çilingirtürk, A. M. (2019). The Effect of Social Networks on Financial Literacy. *Sosyoekonomi Journal, 27*(41). https://doi.org/10.17233/sosyoekonomi.2019.03.02

Chen, H., & Volpe, R. P. (1998). An Analysis of Personal Financial Literacy among College Students. *Financial services review, 7*(2), 107-128. https://doi.org/10.1016/S1057-0810(99)80006-7

Chen, H., & Volpe, R. P. (2005). Financial Literacy, Education, and Services in the Workplace. *A Journal of Applied Topics in Business and Economics, 1*, 1-16.

Collins, J. M. (2013). The Impacts of Mandatory Financial Education: Evidence from a Randomized Field Study. *Journal of Economics Behavior and Organization, 95*, 146–158. https://doi.org/10.1016/j.jebo.2012.08.011

Cude, B. J., Lawrence, F., Lyons, A., Metzger, K., LeJeune, E., Marks, L., & Machtmes, K. (2006). College Students and Financial Literacy: What they know and what we need to Learn. *Proceedings of the Eastern Family Economics and Resource Management Association, 102*(9), 106-109.

Danns, D. E., & Danns, G. K. (2017). The Creation of Financial Literacy Programs in Small Developing Countries: An Institutional Model Approach. *Journal of International Business Disciplines, 12*(2), 16-37.

Delgadillo, L. M. (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

Evangelista, A. (2021, February 21). The big Squeeze: How Betting Against Wall Street Helped "Wallstreetbets" earn big. *Moorpark College Reporter.* Retrieved March 25, 2022, from https://moorparkreporter.com/4016336/news/the-big-squeeze-how-betting-against-wall-street-helped-wallstreetbets-earn-big/

Ezarik, M. (2022, Feb 25). Survey: College Students need help with Financial Literacy. *Inside Higher Ed*, Retrieved March 20, 2022, from https://www.insidehighered.com/news/2022/02/25/survey-college-students-need-help-financial-literacy

Fan, L. & Zhang, L. (2021). The Influence of Financial Education Sources on Emergency Savings: the role of Financial Literacy. *Family and Consumer Sciences Research Journal, 49*(4), 344-361. https://doi.org/10.1111/fcsr.12400

National Financial Educators Council. NFEC. Retrieved November 15, 2022, from https://www.financialeducatorscouncil.org/financial-literacy-definition/

Gallardo, J. E., Moore, C. M., & Scott, A. (2022). Changes in Financial Knowledge Post Peer Financial Counseling. *Journal of Financial Service Professionals, 76*(2), 65-74.

Gerrans, P., & Heaney, R. (2019). The Impact of Undergraduate Personal Finance Education on Individual Financial Literacy, Attitudes and Intentions. *Accounting & Finance, 59*(1), 177-217. https://doi.org/10.1111/acfi.12247

Greifeld, K. (2021, August 5). Investing Influencers use Twitter, TikTok to Educate their Audiences. Bloomberg.com. Retrieved October 4, 2022, from https://www.bloomberg.com/news/articles/2021-08-05/investing-influencers-use-twitter-tiktok-to-educate-their-audiences

Huston, S. J. (2010). Measuring Financial Literacy. *Journal of Consumer Affairs, 44*(2), 296–316. https://doi.org/10.1111/j.1470-6431.2012.01122.x

Jacobsen, C., & Correia, J. (2019). Analysis of Financial Literacy in a College Population. *Journal of Higher Education Theory & Practice, 19*(4). https://doi.org/10.33423/jhetp.v19i4.2197

Jobst, V. J. (2012). Financial Literacy Education for College Students: A Course Assessment. *Journal of Higher Education Theory and Practice, 12*(2), 119-128.

Joo, S. & Garman, E.T. (1998). The Potential Effects of Workplace Financial Education based on the Relationship Between Personal Financial Wellness and Worker job Productivity, *Personal Finances and Worker Productivity, 2*(1),163- 173.

Kiernan, J. S. (2021, August 18). 2021 College Student Financial Survey. *WalletHub*. Retrieved June 26, 2022, from https://wallethub.com/blog/college-banking-credit-cards/65596

Koonce, J. C., Mimura, Y., Mauldin, T., Rupured, M., & Jordan, J. J. (2008). Financial Information: Is it Related to Savings and Investing Knowledge and Financial Behavior of Teenagers? *Journal of Financial Counseling and Planning, 19*(2), 19-28.

Lanz, M., Sorgente, A., & Danes, S. M. (2019). Implicit Family Financial Socialization and Emerging Adults' Financial Well-Being: A Multi-Informant Approach. *Emerging Adulthood*. https://doi org/10.1177/2167696819876752

Lusardi, A. (2019, June 28). It's Time for Colleges to Require Mandated Financial Literacy Courses. CNBC. Retrieved April 21, 2022, from https://www.cnbc.com/2019/06/25/its-time-for-colleges-to-require-mandated-financial-literacy-courses.html

Malhotra, N. , & Baag, P. K. (2022). The Influence of Financial Literacy and Peer Effect on Financial Outcomes in self-help Groups in India: a Study using the PLS-SEM Approach. *IUP Journal of Bank Management, 21*(1), 7-28.

Mandell, L. (2008). The Financial Literacy of Young American Adults. Results of the 2008 National Jump$tart Coalition Survey of High School Seniors and College Students. *Jump$tart Coalition for Personal Financial Literacy.* Retrieved July 3, 2022 from https://views.smgww.org/assets/pdf/2008%20JumpStart%20Financial%20Literacy%20Survey.pdf

McCarthy, T. (2021, July 7). Top 50 College Financial Literacy Programs of 2019. LendEDU. Retrieved April 26, 2022, from https://lendedu.com/blog/top-college-financial-literacy-programs/

Miller, G. E. (2022). The U.S. is the Most Overworked Nation in the World. 20somethingfinance.com. Retrieved February 24, 2022, from https://20somethingfinance.com/american-hours-worked-productivity-vacation/

Mimura, Y., Koonce, J., Plunkett, S. W., & Pleskus, L. (2015). Financial Information Source. Knowledge, and Practices of College Students from Diverse Backgrounds. *Journal of Financial Counseling and Planning, 26*(1), 63–78. https://doi.org/10.1891/1052-3073.26.1.63

Financial Literacy Definition. NFEC. (2022, November 14). Retrieved November 15, 2022, from https://www.financialeducatorscouncil.org/financial-literacy-definition/

Oseifuah, E., Gyekye, A., & Formadi, P. (2018). Financial Literacy Among Undergraduate Students: Empirical Evidence from Ghana. *Academy of Accounting and Financial Studies Journal, 22*(6), 1-17.

Povich, E. S. (2022, April 27). Covid woes Prompt more States to Require Financial Literacy Classes. *The Pew Charitable Trusts*. Retrieved May 23, 2022, from https://www.pewtrusts.org/en/research-and-analysis/blogs/stateline/2022/04/27/covid-woes-prompt-more-states-to-require-financial-literacy-classes

Sainato, M. (2021, December 13). 'at 75, I still have to work': Millions of Americans can't Afford to Retire. *The Guardian.* Retrieved February 24, 2022, from https://www.theguardian.com/money/2021/dec/13/americans-retire-work-social-security

Shapiro, T., Meschede, T., & Osoro, S. (2013). The Roots of the Widening Racial Wealth gap: Explaining the Black-White Economic Divide. *Institute on Assets and Social Policy,* Brandeis University, Waltham, https://heller.brandeis.edu/iere/pdfs/racial-wealth-equity/racial-wealth-gap/roots-widening-racial-wealth-gap.pdf

Shim, S., Xiao, J. J., Barber, B. L., & Lyons, A. C. (2009). Pathways to Life Success: A Conceptual Model of Financial Well-Being for Young Adults. *Journal of Applied Developmental Psychology, 30*(6), 708–723. https://doi.org/10.1016/j.appdev.2009.02.003

Statista. (2022, April 8). Personal debt in the U.S. - statistics & facts. Retrieved February 24, 2022, from https://www.statista.com/topics/1203/personal-debt/#dossierKeyfigures+

Tang, N. and Peter, P. C. (2015). Financial Knowledge Acquisition among the Young : The role of Financial Education, Financial Experience, and Parents' Financial Experience. *Financial Services Review, 24*(2), 119-137.

Tepper, T. (2022, February 10). Why is Inflation so High? Forbes. Retrieved February 24, 2022, from https://www.forbes.com/advisor/investing/why-is-inflation-rising-right-now/

Tibergien, M. (2021a). Financial Literacy Education Is About Choices. *Journal of Financial Planning. 34*(4), 66-69.

Tibergien, M. (2021b). Should Financial Literacy Education Be Core to Your Mission? *Journal of Financial Planning. 34*(7), 58-61.

Virginia Tech. (n.d.). The College Student Financial Literacy Survey. https://vtechworks.lib.vt.edu/bitstream/handle/10919/35407/CSFLC_Survey.pdf

Vizenor, N., Souza, T. J., & Ertmer, J. J. (2017). Benefits of Participating in Service-Learning, Business-Related Classes: Assessing the Impact on the Community Partners. *The Journal of Research in Business Education, 58*(1), 1-15.

Wagner, J. (2019). Financial Education and Financial Literacy by Income and Education Groups. *Journal of Financial Counseling and Planning, 30*(1), 132-141. https://doi.org/10.1891/1052-3073.30.1.132

West, T., Cull, M., & Johnson, D. (2021). Income More Important than Financial Literacy for Improving Wellbeing. *Financial Services Review, 29*(3), 187-207.

Wolla, S. (2017). Evaluating the Effectiveness of an Online Module for Increasing Financial Literacy. Social S*tudies Research and Practice, 12*(2), 154-167.

Yanto, H., Ismail, N., Kiswanto, K., Rahim, N. M., & Baroroh, N. (2021). The Roles of Peers and Social Media in Building Financial Literacy Among the Millennial Generation: A case of Indonesian Economics and Business Students, *Cogent Social Sciences, 7*(1), DOI: https://doi.org/10.1080/23311886.2021.1947579

Yu, W. C. W., & Okojie, M. C. (2017). Pedagogy and Technology Infusion. *The Journal of Research in Business Education, 58*(1), 61-74.

Appendixx

Survey Questions

1. What is your gender?

2. How old are you?

3. What is your ethnicity?

4. What is your marital status?A
   a. Single, Married, Divorced

5. What is your academic standing?
   a. High school graduate
   b. College freshman
   c. College sophomore
   d. College Senior
   e. College graduate
   f. In Master's degree program
   g. Master's degree graduate
   h. Doctorate degree

6. Are you a first generation college student/graduate?

7. What best describes you or your parent's income last year?
   a. $0 - 34,999
   b. $35,000 - 49,999
   c. $50,000 - 79,999
   d. $80,000 - 99,999
   e. $100,000 - 124,999
   f. $125,000 - 149,000
   g. $150,000 or more
   h. Don't know

8. What describes your income last year?
   a. $0 - 9,999
   b. $10,000 - 19,999
   c. $20,000 - 29,999
   d. $30,000 - 39,999
   e. $40,000 or more

9. On a scale from A to F, what grade would you give yourself in terms of your knowledge about personal finances?

10. On a scale of 1 to 5, how important do you think financial literacy is? (1 Not important at all to 5 Very important)

11. How interested are you in increasing your knowledge of finance? (scale of 1 Very Uninterested to 5 Very Interested)

12. Assume you are in your early twenties and you would like to build up your nest egg for a secure retirement in 30 years. Which of the following approaches would best meet your needs?
    a. Start to build up your savings account gradually in an insured bank
    b. Put monthly savings in a mutual fund consisting of stocks
    c. Invest in long-term government bonds
    d. Invest in corporate bonds
    e. Save money in certificate of deposit accounts

13. How soon should people begin learning about financial literacy?
    a. As early as possible, Elementary school, Middle school, High school, or College

14. Using the scale given below, please rate the importance of items to you (1. not important, 2.somewhat unimportant, 3. not sure, 4. somewhat important,5. very important)
    a. Maintaining adequate financial record
    b. Spending less than your income
    c. Maintaining adequate insurance coverage
    d. Planning and implementing a regular investment/savings program

15. Which topics would be of interest to you? (Check all interested topics)
    a. Budgeting, Investing, Taxes, Credits, Wills, Insurance, Loans/debt, Credit cards, Savings.

16. Rate the following influences on a scale of 1-5 (1 =none, 2 = not much, 3 = not applicable, 4 =some, 5 =a lot). How often were you influenced by or did you discuss finances with the following:
    a. Parents, Friends, Schools, Books, media, Job, Life Experiences, Internet, Social Media (Facebook, Instagram, etc.), Informal public seminar or class, Professional financial planner or counselor.

17. Which of the following items did you learn about in your home while growing up? (Check all that apply):
    a. Saving, Budgeting, Credit cards, Being honest in all dealings, Auto insurance, taxes, Loans/debt, Keeping records, Home insurance, Life insurance, Investing, Credits, Giving to Charity, Interest rates, Wills, Disability insurance, Retirement.

18. Which of the following classes have you had? (check all that apply)
    a. An entire course in money management or personal finance
    b. A portion of a course where at least a week was focused on money management or personal finance
    c. An entire course in economics
    d. None

19. Where do you expect to learn/increase our financial knowledge? (check all that apply)
    a. Parents, friends, School, Books, Social Media, Job, Life Experience, Financial planner, Internet.

20. How would you describe how finances were handled in your family? (check all that apply) This question was used for Exposure to financial knowledge. Each selected answer is coded as either a positive 1 or negative 1 (shown in the parentheses).
    a. My parents usually argued about the finances (-1)
    b. Within the family we openly discussed our finances (+1)
    c. My parents explicitly taught me about finances (e.g., credit cards, debt, budgeting, savings) (+1)
    d. We didn't talk much about finances but I learned from their examples (+1)
    e. My parents included me in various financial decisions (+1)

21. How would you like personal financial learning opportunities delivered to you at the college level (choose all that apply)?
    a. Required course
    b. Elective course
    c. Online course
    d. Social Media
    e. Videos online

f. Newsletter
g. E-mail blasts

22. Rate your financial behaviors on a scale from 1 (Never) to 5 (Always):
    a. I keep track of my expenses on a regular basis.
    b. I put money aside for savings, future purchases, or emergencies.
    c. I pay my credit card bills on time each month and am almost never late.
    d. I prepare a budget every month.
    e. I make goals about how to spend money and I discuss them with my family.
    f. I comparison-shop or buy things on sale.
    g. I feel secure in my current financial situation.

Table 1

Summary Statistics

Variable	Variable Definition	Mean	SD
Panel A: Respondent Characteristics			
Female	=1 if a respondent is male =0 otherwise	0.40	0.49
Age	Age in years	21.91	5.29
Academic Standing	Highest degree	3.96	1.25
Marital Status	=1 if a respondent is married =0 otherwise	0.07	0.25
First Gen. College	=1 a respondent is the first generation in college =0 otherwise	0.36	0.48
Income	Income category. 1-"$0 - 9,999"; 2-"$10,000 - 19,999"; 3-"$20,000 - 29,999"; 4-"$30,000 - 39,999"; 5-"$40,000 or more"	1.79	1.17
Parents' Income	Income category.1-"$0 - 34,999"; 2-"$35,000 - 49,999"; 3-"$50,000 - 79,999"; 4-"$80,000 - 99,999"; 5-"$100,000 - 124,999"; 6-"$125,000 - 149,000"; 7-"$150,000 or more"	3.66	2.14
Panel B: Financial Behavior and Wellbeing			
Keep track of expenses	How often a respondent keeps track of expenses (on a scale of 1-5, 1-never, 5-always)	3.69	1.23
Put money aside for saving	How often a respondent saves	3.90	1.09
Pay credit card bills	How often a respondent pays credit-card bills on time	4.11	1.28
Prepare budget	How likely a respondent prepares a budget for next month	2.72	1.42
Make goals	How often a respondent makes goals about how to spend money and discuss with family	3.00	1.46
Comparison-shop	How likely a respondent comparison-shops and buys things on sale	3.99	1.01
Financial Security	How secure a respondent feels about its financial situation	3.58	1.19

Panel B: Measures of Financial Literacy			
Financial test	=1 if a respondent answers the financial test question correctly =0 otherwise	0.39	0.49
Has taken ECON./FIN. classes	=1 if a respondent has taken any economics or finance classes =0 otherwise	0.72	0.45
Exposure to financial knowledge at home	A score ranged between -1 and 2; -1-the lowest exposure, 3-the highest	0.38	0.64
Observations		204	

Table 2

The OLS Regression Results of Financial Wellbeing on Various Measures of Financial Literacy

Effect	Estimate	SE	P	Controls	Class	Observations fixed effects	R-squared
Panel A. Whether have taken ECON/FINC class - full, with controls							
Intercept	3.56	0.64	0.000	Y	Y	210	0.40
Whether have taken ECON/FINC class	0.14	0.20	0.519				
Panel B. Whether have taken ECON/FINC class- full, without controls							
Intercept	3.44	0.14	0.000	N	N	210	0.004
Whether have taken ECON/FINC class	0.18	0.18	0.326				
Panel C. Whether have taken ECON/FINC class – female, with Controls							
Intercept	3.4	0.65	0.000	Y	Y	127	0.28
Whether have taken ECON/FINC class	0.14	0.24	0.548				
Panel D. Whether have taken ECON/FINC class – female, without Controls							
Intercept	3.35	0.19	0.000	N	N	127	0.006
Whether have taken ECON/FINC class	0.19	0.21	0.376				
Panel E. Whether have taken ECON/FINC class – male, with Controls							
Intercept	4.4	0.66	0.000	Y	Y	83	0.44
Whether have taken ECON/FINC class	0.12	0.24	0.633				
Panel F. Whether have taken ECON/FINC class – male, without Controls							
Intercept	3.6	0.23	0.000	N	N	83	0.001
Whether have taken ECON/FINC class	0.11	0.24	0.636				

Panel G. Financial test- full, with controls							
Intercept	3.5	0.48	0.000	Y	Y	210	0.42
Financial test	0.32*	0.15	0.039				
Panel H. Financial test- full, without controls							
Intercept	3.4	0.1	0	N	N	210	0.03
Financial test	0.4	0.14	0.012				
Panel I. Financial test - female, with controls							
Intercept	3.55	0.71	0	Y	Y	127	0.44
Financial test	0.27	0.17	0.118				
Panel J. Financial test - female, without controls							
Intercept	3.41	0.68	0	N	N	127	0.03
Home exposure	0.35*	0.15	0.026				
Panel K. Financial test - Male, with controls							
Intercept	5.62	1.63	0.003	Y	Y	83	0.61
Financial test	0.2	0.32	0.550				
Panel L. Financial test - male, without controls							
Intercept	3.55	0.2	0.000	N	N	83	0.01
Financial test	0.28	0.23	0.240				
Panel M. Exposure to financial knowledge at home- full, with controls							
Intercept	3.25	0.48	0.000	Y	Y	210	0.42
Home exposure	0.24*	0.09	0.015				
Panel N. Exposure to financial knowledge at home- full, without controls							
Intercept	3.47	0.1	0	Y	Y	210	0.02
Home exposure	0.25*	0.11	0.033				
Panel O. Exposure to financial knowledge at home - female, with controls							
Intercept	3.41	0.68	0	Y	Y	127	0.46
Home exposure	0.35*	0.15	0.026				
Panel P. Exposure to financial knowledge at home - female, without controls							
Intercept	0.22*	0.11	0.07	N	N	127	0.01
Home exposure	3.41	0.13	0				
Panel Q. Exposure to financial knowledge at home - male, with controls							
Intercept	5.51	1.71	0.004	Y	Y	83	0.61
Home exposure	0.07	0.23	0.765				
Panel R. Exposure to financial knowledge at home - male, without controls							
Intercept	3.58	0.15	0	N	N	83	0.02
Home exposure	0.27	0.18	0.158				

Note. Respondent control variables include respondent's age, income, parents' income, and dummy variables indicating academic standing, marital status, race, gender, whether first generation in college. Standard errors are clustered at the class level and reported in parentheses.

Table 3

Potential Mechanisms

Effect	Estimate	SE	P	Controls	Class	Observations fixed effects	R-squared
Panel A. Keep track of expenses							
Intercept	2.17	0.76	0.009	Y	Y	209	0.25
Home exposure	0.17	0.13	0.215				
Panel A. Saving							
Intercept	3.17	0.56	0.147	Y	Y	209	0.30
Home exposure	0.19	0.13	0.147				
Panel A. Pay credit card on time							
Intercept	2.63	0.66	0.001	Y	Y	208	0.22
Home exposure	-0.007	0.13	0.958				
Panel A. Prepare budget							
Intercept	2.80	0.68	0.000	Y	Y	209	0.32
Home exposure	0.06	0.13	0.621				
Panel A. Make goals about spending							
Intercept	2.66	0.77	0.002	Y	Y	210	0.27
Home exposure	0.32	0.15	0.05				
Panel A. Comparison shop							
Intercept	3.21	0.67	0	Y	Y	209	0.22
Home exposure	0.14	0.09	0.113				

Note: Students are asked to rate their financial behaviors on a scale of 1(never) to 5(always).Respondent control variables include respondent's age, academic standing, marital status, income, parents' income, and dummy variables indicating academic standing, marital status, race, gender, whether first generation in college. Standard errors are clustered at the class level and reported in parentheses.