

THE PENNSYLVANIA STATE UNIVERSITY
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DEPARTMENT OF ACCOUNTING

The Limitations of Financial Education: Financial Literacy of College Students

KATHERINE CLARKE
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Reviewed and approved* by the following:

Scott Collins
Associate Clinical Professor of Accounting
Thesis Supervisor

Samuel Bonsall
Faculty Director of Smeal Schreyer Honors Program
Honors Adviser

* Electronic approvals are on file.

ABSTRACT

Financial literacy is about making informed decisions regarding wealth management. Financial and economic topics fill the news on the ever-changing market. The topic of financial literacy is studied heavily across the world to assess the levels of financial literacy and the interaction with retirement savings. However, as prior research has centered around retirement and the older populations, college students have not been a heavily focused area as it pertains to their level of knowledge in the subject of financial literacy. This research aims to supplement the current research of financial literacy levels of college students based on the factors of education and parental influence. A survey was used to capture the performance of students' levels of financial literacy. The thesis compares the differences related to the average student performance on three key financial literacy questions. These three key questions cover the fundamental concepts of financial literacy: interest rates; risk diversification; and inflation. This study found a statistically significant difference related to risk diversification between the average score of a business student compared to the average score of a non-business student. This study also found a statistically significant difference related to knowledge about interest rates when comparing the average score of a business-accounting student to the average score of a business-non-accounting student. Lastly, this study found a statistically significant difference related to knowledge about interest rates when comparing the average score of a student whose parents earn more than \$150,000 to the average score of a student whose parents earn less than \$150,000. Based on the results of the students' performance on these key financial literacy questions, prior exposure to financial literacy concepts appear to influence a college student's level of financial literacy knowledge.

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Chapter 1

Introduction

This research focuses on different factors that affect the financial literacy levels of college students. First, whether the college of study creates a statistically significant difference of means when comparing student scores on three financial literacy questions. Next, taking this difference one step further, the study sought to question if a business specific major would affect the score of the student.

In addition to the education of college students, the study turned towards the influence of parental factors. The differences of parents' level of discussion of money and income are the two factors evaluated to compare the students' performance on the three specific financial literacy questions.

Prior to deploying the survey, in my research, I found a study known as the National Financial Capability Study by Annamaria Lusardi and Olivia S. Mitchell that properly evaluated the financial knowledge of Americans based in three fundamental concepts pertaining to economics and finance that would indicate financial literacy levels. The first question covers the knowledge of numeracy, assessing the understanding of the economic concept that is fundamental for saving. The second question investigates the respondents understanding of risk diversification. Risk diversification is a concept necessary for making smart investment decisions. The third question indicates the respondents' awareness of inflation, a necessary economic concept. Overall, the assessment of the students' acumen of interest rates, risk diversification, and inflation will inform the research of the financial literacy levels.

Regarding the research questions, a survey was sent to current students at The Pennsylvania State University to determine the financial literacy levels of students and to assess the impact of the factors under consideration. The survey was deployed through the channel of GroupMe.

With 84 survey responses, t-tests were run to evaluate if a statistically significant difference existed between groups and answer both research questions. A t-test was determined appropriate because the survey responses were evaluated to discover a difference of means. A total of 12 t-tests were run. Each of the results were analyzed based on the alpha levels of 0.1 and 0.05. Three statistically significant results were discovered. The first statistically significant result derived from question 4 when comparing the average score of a business student to the average score of a non-business student. The second statistically significant result came out of question 3 when comparing the average score of a business-accounting student to a business-non-accounting student. The last statistically significant result pertained to question 3 between the average score of a student whose parents earn more than \$150,000 to the average score of a student whose parents earn less than \$150,000.

Financial literacy is about making good decisions pertaining to wealth management. The existence of the financial adviser industry emphasizes the need for assistance with individuals' money such as savings accounts, retirement plans, etc. As I soon approach graduation and enter the world as an audit staff employee, I was contemplating my knowledge of personal finances and how I would be able to operate independently of my parents.

My interest in financially literacy was sparked by one specific memory. I was in high school when my dad decided to buy a new car and he allowed me to go with him through the whole process. When my dad picked a car, he argued back and forth with the dealership to

receive the best price and best payment method. After the ink dried and a handshake between the two, my dad asked the finance dealer who were the toughest customers to deal with when it came to finalizing a price. My dad expected him to answer people who were of lower socioeconomic status due to their limited funds. Surprisingly, the car salesman said it had less to do with wealth and more so with knowledge and understanding of economic concepts like interest rates. I have never forgot this conversation. Through my research about financial literacy, I am reminded of this story. This situation is the reason I wanted to investigate the current financial education programs and factors that increase financial literacy.

My parents instilled in me what it means to invest and save money so you can plan for your future. I pursued a degree in accounting with the main influence of my dad. So, likely, I would have believed I had a strong base line of financial literacy. Yet, the more I pursued my degree, I realized I lack financial knowledge because the money that I had was always my parents'.

Currently, research attempts to establish a working definition of financial literacy. Moreover, research establishes a strong causal relationship between financial literacy and retirement planning. Lastly, research establishes the current levels of financial literacy around the world. Yet, financial literacy education is limited. Therefore, I question the link between financial literacy and a general college education.

Chapter 2

Background

Since the 2008 global financial crisis, the United States has been booming with the creation of financial education programs to elevate financial literacy levels across all socioeconomic levels. However, these programs have failed to target the desired demographic: women; minorities; and lower socioeconomic individuals. This incompetency to increase financial literacy is not a result of failed financial knowledge, but the failure to effectively change the financial behaviors of citizens. Moreover, these programs need to target financial capability, rather than financial knowledge alone. To effectively be financially literate, one must reach equal levels of financial knowledge and financial capability.

To understand the necessary target of financial education, there needs to be a separation between the terms of financial literacy, financial knowledge, and financial capability. Monique Cohen and Candace Nelson best identify the differences between all the terms. “The U.S. Government Accountability Office (GAO) offers a broadly applicable definition for financial literacy as:

‘The ability to make informed judgments and to take effective actions regarding the current and future use and management of money. It includes the ability to understand financial choices, plan for the future, spend wisely, and manage the challenges associated with life events such as a job loss, saving for retirement, or paying for a child’s education.’”

In contrast, Cohen and Nelson state “financial education is the process of building knowledge, skills and attitudes to become financially literate. It introduces people to good money management practices with respect to earning, spending, saving, borrowing, and investing.”

Financial education is the teachings about the knowledge of financial topics to increase financial literacy.

In comparison, Cohen and Nelson mention that “financial capability includes the ‘use factor’ – the ability and opportunity to use the knowledge and skills implied in financial literacy. Financial capability is a broader concept that necessarily links individual functioning to the entities of the financial system.” Overall, financial capability is the application of financial knowledge and the combination of these two terms equates to one’s financial literacy.

In “Financial literacy around the world: an overview,” Annamaria Lusardi and Olivia S. Mitchell emphasize the demographics that impact financial literacy levels. “Women are less financially literate than men, the young and the old are less financially literate than the middle-aged, and more educated people are more financially knowledgeable” (Lusardi). Importantly, the authors are able to assess that higher levels of retirement planning indicate higher financial literacy which is essential to obtain retirement security. Additionally, “a high level of financial knowledge reduces planning costs, i.e., reduces the economic and psychological barriers to acquiring information, doing calculations, and developing a plan” (Van Rooij). Those with a high financial literacy plan and complete this plan to invest in their retirement savings.

Financial literacy has become ever so important today because of the changes to retirement saving plans. Lusardi and Mitchell suggest that the “increasing aging population and falling birth rates” has shifted “traditional defined benefit (DB) pensions into individual-account defined contribution (DC) schemes” (Lusardi). This shift creates greater decision-making power for an individual as it pertains to retirement. However, the increased decision-making power requires that the individual is more adept at understanding the retirement plans. Also, there lies a greater consequence for one to become financial literate, which means they must “learn how to

process economic information and make informed decisions about household finances”

(Lusardi).

In “Financial Literacy, Retirement Planning, and Household Wealth,” the authors sought to isolate the effects of financial skills to determine the relationship between financial knowledge and household wealth. Although it has been found that financial knowledge significantly impacts savings, there are numerous underlying factors that contribute. Specifically, Van Rooij, Lusardi, and Alessie found “a positive association between financial literacy and wealth holdings after controlling for other determinants of wealth, such as income, age, education, family composition, risk tolerance, patience, and attitudes toward saving” (Van Rooij). However, a causal relationship cannot be determined because of variables omitted and unknown biases. Additionally, “a high level of financial knowledge lowers the costs of gathering and processing information and reduces barriers to investing in the stock market” (Haliassos and Bertaut, 1995; Vissing-Jorgenson, 2004). For example, when an individual holds a high level of financial knowledge, they are more likely to invest in the stock market. Investments in the stock market offer “equity premium on stock investments” (Van Rooij) which is utilized by individuals with higher financial literacy.

Further, the financial adviser industry was born due to the lack of financial literacy among the population. Ranging from low to extreme wealth all require financial literacy to understand how to have financial wellbeing. The poor might be searching to increase their wealth, therefore, need financial literacy. The wealthy might be looking for new investments, therefore need financial literacy. And both classes are looking for one day to retire from their job

and enjoy their retirement, only available to those who are financial literate. Every citizen needs sufficient financial literacy, which is currently not present today.

For example, risk exposure is inevitable when you invest, especially in the stock market. Yet, with greater risk comes great reward, and great loss. This type of investment is a plausible step for wealthier individuals to make because they have the resources to risk compared to poor individuals.

In the studies conducted by Sonia Marcolin and Anne Abraham, they clarify the definition of financial literacy. “The seminal definition of financial literacy is ‘the ability to make informed judgments and to take effective decisions regarding the use and management of money’ (Noctor et al).” They refine the definition by adding that financial literacy requires individuals to obtain the ability to make informed investment decisions and take advantage of investment opportunities including “the ability to balance a bank account, prepare budgets, save for the future and learn strategies to manage or avoid debt” (Marcolin). Marcolin and Abraham summarize the details of surveys conducted in the US to measure financial literacy from 1992 to 2006. The history of US citizens’ financial literacy is critical to identifying the current levels of financial literacy as the financial markets have changed over time.

Through the history of the research of financial literacy, Chen, Volpe, and Pavlicko identified the financial literacy of college students. “Studies have also shown that university students in the US have inadequate knowledge on personal finance” (Chen and Volpe, 1998; Volpe, Chen and Pavlicko, 1996). Additionally, Chen and Volpe (1998) organized a financial literacy survey involving 924 college students from thirteen colleges and that the overall mean percentage of correct scores was just 52.87 percent. More recently, a study on the financial literacy of US workers found that they too, had inadequate financial skills and knowledge (Chen

and Volpe, 2005). As a result, the low levels of financial literacy of US workers provide a need for financial planners.

In “Building the Case for Financial Education,” Fox explains that the need for financial education is evident by high “rates of bankruptcy, higher consumer debt levels, low saving rates, and other negative outcomes that may be the result of poor family financial management and low financial literacy levels” (Fox). Fox reviews the current ninety financial education programs that were established since 1990. These programs are differentiated into three categories. The first category identifies that there are programs specific to increasing financial literacy by discussing personal finance topics, such as budgeting, saving, and credit management. Next, the second category of programs provide training in retirement and savings and are generally offered by employers. Last, the third major category of programs addresses home buying and home ownership (Fox).

Recently in 2019, Emilio Abad-Segura and Mariana-Daniela Gonzalez-Zamar analyzed effects in adulthood as the current curriculum woefully under prepares students in financial education. Financial education is not a part of the curricula which undermines decisions in adulthood. “Foremost, the theory of education, in the branches of knowledge of organization and leadership, considers that cultural development and practice are linked to the capacity for innovation; the promotion of educational flexibility, in the sense of its modifiability; and experimentation. Thereby, this theory is related to the theory of entrepreneurship, that is, to education as an opportunity for the economic development of the individual” (Abad-Segura). Without the proper financial education, students are forced to accept jobs to avoid risk and limit their investments. The research on the relationship of financial education and creative

entrepreneurship has seen a recent spike in institutions and countries to further the sustainable growth of creative entrepreneurship.

Financial literacy plays a major role on the psychology of individuals. Financial instability creates stress on an individual, strains relationships, and has detrimental mental health effects. Analyzing the repercussions of low levels of financial literacy, Wolcott and Hughes identify that “financial hardship can increase isolation, emotional stress, depression and lower self-esteem, which, in turn, can generate or exacerbate marital tensions” that lead to divorce (Wolcott and Hughes). Financial literacy impacts citizens’ health and overall well-being negatively when they are ill prepared on how to manage their money and operate independently.

Lastly, in “Financial Literacy, Portfolio Choice and Financial Well-Being,” Zhong Chu and other contributors produce a study about the effects of financial literacy on individuals’ personal financial behavior. The study found that financial literacy promotes financial well-being, “which in this study refers to positive investment return” (Chu). Consistent with previous research, this study reiterates that individuals with higher levels of financial literacy engage in financial markets including holding mutual funds. Specifically, the study found that higher levels of financial literacy increase riskier investment behavior.

Chapter 3

Methodology

This study applies the quantitative research approach with the use of a survey to answer the following questions: “Is there a difference in financial literacy between those who study business majors and those who do not?” and “For those who study business, does the major of business result in a difference in financial literacy?” To answer these questions, one primary hypothesis and one secondary hypothesis were tested. The hypotheses include:

H1 (Stated in the Alternative): The average business student score is higher than the average non-business student score.

H2: The average business-accounting student score is higher than the average business-non-accounting student score.

Additionally, the survey is used to understand the influence of other variables outside of education. Specifically, the survey sought to answer: “For those parents who discuss money with their children, does that student perform better on the financial literacy questions?” and “Does a parent’s income impact a student’s financial literacy?” To answer these questions, one primary hypothesis and one secondary hypothesis were tested. The hypotheses include:

H3: The average student score whose parents discuss money with them is higher than the average student score whose parents do not discuss money with them.

H4: The average student score whose parents earn greater than \$150,000 is higher than the average student score whose parents earn less than \$150,000.

Quantitative Approach

A survey (See Appendix A) was utilized to analyze the above hypotheses. The survey was designed so that all primary and secondary hypotheses were addressed concurrently. Qualtrics Survey Software was used to design the survey. In total, the survey consisted of 4 questions. Subjects were not required to answer every question, and they could skip any questions that they felt uncomfortable answering. In addition, most questions included an answer choice that stated, “Prefer not to answer” or “Do not know” which allowed subjects to choose what they were comfortable with disclosing. For example, question #10 asked for subjects to disclose their parents’ income range. Two subjects, or 2.38% of respondents, chose that they would prefer not to disclose this information, and seven subjects, or 8.33% of respondents, disclosed that they did not know. A mix of demographic questions and multiple-choice questions were deployed to understand the sample. Originally, in question 10, the income level difference was determined to be \$80,000 based on a 2021 Census Report, “Household Income,” that stated the median income in the United States was \$69,717 (Bureau). However, after receiving the respondents’ answers, the sample size was determined to be insufficient. As result, the income level was compared at \$150,000.

Additionally, three questions were included in the survey which followed established financial literacy questions from the working paper “Financial Literacy and Retirement Planning in the United States” by Annamaria Lusardi and Olivia S. Mitchell, where the three questions were utilized “with the purpose of benchmarking key indicators of financial capability and linking these indicators to demographic, behavioral, attitudinal, and financial literacy characteristics” (Lusardi, A & Mitchell, O.S). To be included in the survey, subjects must have been over the age of eighteen, enrolled in school as a full-time student at The Pennsylvania State

University, speak English, and reside in the United States. The survey generated 84 responses and all 84 responses were used to analyze the above hypotheses.

The survey was deployed on multiple GroupMe chats to reach individuals who met the inclusion criteria (See Appendix B). The chats included the Master of Accounting Class of 2023, Master of Accounting Class of 2024, Epsilon Sigma Alpha, one Finance THON committee, and various Schreyer Honors College groups. The Master of Accounting Class of 2023 group chat has 110 members. The Master of Accounting Class of 2024 has 94 members. In the Epsilon Sigma Alpha group chat, there are 174 members. The Finance THON committee has 15 members. In one Schreyer Honors College group chat, “Breyers Honors Creamery 3: Revenge of the Creamers,” there are 219 members. The Penn State Schreyer Honors College Class of 2025 has 118 members. The Penn State Schreyer Honors College Class of 2024 has 252 members. And, the last Schreyer Honors College group chat, “Breyer Honors Creamery 2: Attack of the Creamers,” there are 192 members.

Survey questions consisted of categorical variables. All answer choices were coded with numerical values starting at 1 to analyze the results. For example, the first question of the survey asks respondents to disclose their college. The six answer choices are as follows: Smeal College of Business, Bellisario College of Communications, College of Health and Human Development, College of Engineering, College of Liberal Arts, and Other. When analyzing the results, Smeal was designated with a 1, Communications was designated with a 2, Health and Human Development was designated with a 3, Engineering was designated with a 4, Engineering was designated with a 5, Liberal Arts was designated with a 6, and Other was designated with a 7. The results of the survey were analyzed with the use of Stata, the statistical software. A t-test, a type of inferential statistic, was used to test if there was a statistically significant difference

between the average responses because a t-test is a difference of means test. To conclude that a statistically significant difference exists between group averages is to say that error alone cannot account of this difference.

Through the implementation of a survey, there are several disadvantages with this design. A survey supplies weak validity support. As a result, it is impractical to be certain that the survey is testing its intended purpose. Furthermore, the survey was distributed on GroupMe; and it is impracticable to verify if respondents met the inclusion criteria. In addition, the sample size derives from the respondents' willingness to participate in the research. As a result, the survey will not capture the differences in answers between participants and non-participants.

Chapter 4

Results and Analysis

Survey responses were collected for 15 days from 10/16/2022-10/30/2022 for a total of 84 responses. The population sampled were individuals who were at the time of the survey over the age of eighteen and enrolled as full-time students at The Pennsylvania State University.

To gauge the students' demographic, the respondents reported their gender and self-reported GPA. To analyze gender results, all answer choices were coded with numerical values. The coding is as follows: male was assigned a 1, female a 2, and prefer not to say a 3. Table 1 displays the breakdown of respondents and their gender identity. Table 2 displays the self-reported GPA of the respondents.

Table 1 Distribution of Gender Identity

Gender	Count	Percentage (%)
Male	36	42.86
Female	47	55.95
Prefer not to say	1	1.19

Table 2 Distribution of Self-Reported GPA

Self-Reported GPA	Count	Percentage (%)
Below 2.0	0	0.0
2.0 to 2.5	0	0.0
2.5 to 3.0	0	0.0
3.0 to 3.5	9	10.71
3.5 to 4.0	74	88.10

Undisclosed	1	1.19
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To further understand the sample of survey respondents, a few questions required subjects to disclose their field of study. This included questions to determine which college they are enrolled in, the major of study, their self-reported understanding of personal finances, their parents' highest level of education, their parents' income, and whether their parents' discussed money with them. Table 3 displays the college of the students. The largest percentage of 48.81% are enrolled in Smeal, the business college. Table 4 displays the breakdown of survey respondents' majors in Smeal. A strong sample of 44.05% major in accounting. Table 5 displays the breakdown of the respondents and their self-reported understanding of personal finances. Most students identified their understanding of personal finances as "Proficient."

Table 3 Distribution of College

College	Count	Percentage (%)
Smeal	41	48.81
Communications	1	1.19
Health and Human Development	1	1.19
Engineering	18	21.43
Liberal Arts	8	9.52
Other	15	17.86

Table 4 Distribution of Smeal College of Business Majors

Smeal Majors	Count	Percentage (%)
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Accounting	37	44.05
Finance	0	0.00
Marketing	0	0.00
Other	6	7.14
Not Smeal	38	45.24
Undisclosed	3	3.57

Table 5 Distribution of Self-Reported Personal Financial Knowledge

Self-Reported Personal Finances	Count	Percentage (%)
Advanced	12	14.29
Proficient	49	58.33
Low	22	26.19
Do not know	0	0.00
Undisclosed	1	1.19

Table 6 displays the breakdown of respondents and their parents' highest level of education earned. This breakdown is split similarly between a bachelor's degree and a graduate or professional degree earned. Table 7 displays the breakdown of the respondents' parents' income. The highest percentage of respondents, 32.14%, reported their parents' income in between \$150,000 to \$300,000. Table 8 displays the breakdown of respondents and the level of whether their parents discuss money with them. The highest percentage of respondents, 41.67%, indicated that parents "probably yes" discuss money with them.

Table 6 Distribution of Parents' Highest Level of Education

Parents' Highest Level of Education	Count	Percentage (%)
Below High School	0	0.00
High School Diploma	2	2.38
Two year associate or technical degree	2	2.38
Bachelor's degree	37	44.05
Graduate or professional degree	41	48.81
Do not know	0	0.00
Do not want to answer	2	2.38

Table 7 Distribution of Parents' Income

Parents' Income	Count	Percentage (%)
\$0 to \$20,000	0	0.00
\$20,000 to \$80,000	7	8.33
\$80,000 to \$150,000	25	29.76
\$150,000 to \$300,000	27	32.14
\$300,000 to \$600,000	13	15.48
Above \$600,000	2	2.38
Do not know	7	8.33
Do not want to answer	3	3.57

Table 8 Distribution of Parents' Level of Financial Discussions

Parents' Discussing Money	Count	Percentage (%)
Definitely not	4	4.76

Probably not	8	9.52
Might or might not	10	11.90
Probably yes	35	41.67
Definitely yes	26	30.95
Undisclosed	1	1.19

In addition, to be able to run the t-tests that would answer research question two, survey respondents were asked to disclose information about their current personal finance habits. This included questions to determine if the respondent had a budget, whether the respondents followed their budget, when they believe, they should start investing in retirement, and if they carry a credit card in their name. Table 9 displays the distribution of respondents and who has a budget. An approximately equal percentage of survey respondents, 40.48% and 39.28%, reported that they currently have a budget and they do not have a budget. Table 10 displays whether survey respondents currently follow their budget. The highest percentage of respondents responded that they often follow their budget with 26.19%. Table 11 displays the time that respondents should start saving for retirement. An overwhelming of respondents, 72.62%, indicated that they should start saving for retirement now. Table 12 displays the respondents who have a credit card in their name. The largest percentage of respondents, 78.57%, do in fact have a credit card in their name.

Table 9 Distribution of Having a Budget

Budget	Count	Percentage (%)
Yes	34	40.48
Maybe	16	19.05

No	33	39.28
Undisclosed	1	1.19

Table 10 Distribution of Following a Budget

Following Budget	Count	Percentage (%)
Never	1	1.19
Sometimes	20	23.81
Often	22	26.19
Always	7	8.33
Not applicable	33	39.29
Undisclosed	1	1.19

Table 11 Distribution of When to Save for Retirement

Retirement Savings Time	Count	Percentage (%)
Now	61	72.62
In 5 years	15	17.86
In 10 years	6	7.14
In 20 years	0	0.00
More than 20 years	0	0.00
Do not know	2	2.38

Table 12 Distribution of Credit Card in Your Name

Credit Card in Your Name	Count	Percentage (%)
No	16	19.05
Yes	66	78.57

Do not want to answer	2	2.38
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Finally, to determine the financial literacy levels of respondents and run the t-tests that would answer research question one and research question two, survey respondents were asked to answer the three questions created by Annamaria Lusardi and Olivia S. Mitchell to assess financial literacy levels (Lusardi, A & Mitchell, O.S). Table 13 displays the distribution of respondents and their answer choices to question 3 about interest rates. An overwhelming of respondents, 94.05%, correctly identified the answer. Table 14 displays the answers of respondents to question 4 about risk diversification in the survey. The majority identified the correct answer as “False.” Table 15 displays the respondents answer to question 5 about inflation. The largest percentage of respondents, 85.71%, answered correctly.

Table 13 Distribution of Answers to Question 3: Interest Rates

Question 3	Count	Percentage (%)
More than \$102	79	94.05
Exactly \$102	0	0.00
Less than \$102	1	1.19
Do not know	3	3.57
Refuse to answer	1	1.19

Table 14 Distribution of Answers to Question 4: Risk Diversification

Question 4	Count	Percentage (%)
True	1	1.19
False	64	76.19
Do not know	18	21.43

Refuse to answer	1	1.19
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Table 15 Distribution of Answers to Question 5: Inflation

Question 5	Count	Percentage (%)
More than today	2	2.38
Same	1	1.19
Less than today	72	85.71
Do not know	7	8.33
Refuse to answer	2	2.38

Research Question One

H1 hypothesizes that the average business student score will be higher on the financial literacy questions than a non-business student. To test this hypothesis, a t-test on the average score was run for each of the three financial literacy questions.

Two-sample t test with equal variances

Group	Obs	Mean	Std. err.	Std. dev.	[95% conf. interval]	
0	43	.9302326	.0393095	.2577696	.8509028	1.009562
1	41	.9512195	.0340591	.2180848	.8823835	1.020056
Combined	84	.9404762	.0259705	.2380235	.8888219	.9921305
diff		-.020987	.0522202		-.1248695	.0828956

diff = mean(0) - mean(1) t = -0.4019
H0: diff = 0 Degrees of freedom = 82

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(T < t) = 0.3444 Pr(|T| > |t|) = 0.6888 Pr(T > t) = 0.6556

Figure 1 Test Output for H1 Correct Answer to Question 3

H1 focused on the college and looked to see if a business student reported a higher average score when compared to the average score of a non-business student. Group 0 has a count of 43 respondents, and it represents those who are non-business. Group 1 has a count of 41 respondents, and it represents those who are business students. Group 0, or those who are non-business, had a reported mean of 0.9302. Group 1, or those who are business students, had a reported mean of 0.9512. A value between 0 and 1 represents the response of “More than 102” for question 3 in the survey. The t-test for a difference in means produced a t-statistic of -0.4019. The lower-tail test also produced a p-value of 0.3444. This indicates that the result is insignificant at both the 0.1 and 0.05 alpha levels. Figure 1 above displays the Stata output from the lower-tail t-test for the difference in means between group 0 and group 1.

Two-sample t test with equal variances

Group	Obs	Mean	Std. err.	Std. dev.	[95% conf. interval]	
0	43	1.348837	.1446105	.9482746	1.057001	1.640673
1	41	1.707317	.1117701	.7156781	1.481421	1.933213
Combined	84	1.52381	.0935011	.8569516	1.33784	1.709779
diff		-.3584799	.1839815		-.7244776	.0075179

diff = mean(0) - mean(1) t = -1.9485
H0: diff = 0 Degrees of freedom = 82

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(T < t) = 0.0274 Pr(|T| > |t|) = 0.0548 Pr(T > t) = 0.9726

Figure 2 Test Output for H1 Correct Answer to Question 4

The same groups were used to analyze the difference in means. In this t-test, group 0 had a reported mean of 1.3488, and group 1 had a reported mean of 1.7073. In this test, a value of 1 indicates that respondents indicated “true” as the answer. A value of 2 indicates that respondents answered “false.” The lower-tail t-test produced a t-statistic of -1.9485. The test also produced a p-value of 0.0274. This is a significant result at both alpha levels of 0.10 and 0.05. Figure 2 represents the Stata output that resulted from the lower-tail t-test.

Two-sample t test with equal variances

Group	Obs	Mean	Std. err.	Std. dev.	[95% conf. interval]	
0	43	2.651163	.1483901	.973059	2.351699	2.950626
1	41	2.487805	.1784826	1.142846	2.127078	2.848532
Combined	84	2.571429	.1152285	1.056086	2.342244	2.800613
diff		.1633579	.231221		-.2966143	.6233301

diff = mean(0) - mean(1) t = 0.7065
H0: diff = 0 Degrees of freedom = 82

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(T < t) = 0.7591 Pr(|T| > |t|) = 0.4819 Pr(T > t) = 0.2409

Figure 3 Test Output for H1 Correct Answer to Question 5

The same groups were used to perform this t-test. In this test, group 0 had a reported mean of 2.6512, and group 1 had a reported mean of 2.4878. Coding for the correct answer to question 5 is as follows: 1 indicates “more than today”, 2 indicates “same”, 3 indicates “less than today”, 4 indicates “don’t know”, and 5 indicates a refusal to answer. Therefore, a reported mean between 2-3 indicates the answer of “less than today.” This was an upper-tail t-test. However, the test produced a t-statistic of 0.7065 and a p-value of 0.2409. This is an insignificant result for both alpha levels at 0.10 and 0.05. Figure 3 above displays the Stata output that resulted from the t-test.

H2 hypothesizes that a business-accounting student will perform on an average higher on the three financial literacy questions in comparison to the average score of a business -non-accounting student. To analyze this question, three separate t-tests were conducted.

Two-sample t test with equal variances

Group	Obs	Mean	Std. err.	Std. dev.	[95% conf. interval]	
0	6	.8333333	.1666667	.4082483	.404903	1.261764
1	37	1	0	0	1	1
Combined	43	.9767442	.0232558	.1524986	.9298121	1.023676
diff		-.1666667	.0627444		-.2933816	-.0399517

diff = mean(0) - mean(1) t = -2.6563
H0: diff = 0 Degrees of freedom = 41

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(T < t) = 0.0056 Pr(|T| > |t|) = 0.0112 Pr(T > t) = 0.9944

Figure 4 Test Output for H2 Correct Answer to Question 3

H2 focused on the major and looked to see if an accounting major receives a higher average score when compared to the average score of a business-non-accounting major. Group 0 has a count of 6 respondents, and it represents those who are business-non-accounting majors. Group 1 has a count of 37 respondents, and it represents those who are business-accounting. Group 0, or those who are business-non-accounting majors, had a reported mean of 0.8333. Group 1, or those who are business-accounting majors, had a reported mean of 1. A value between 0 and 1 represents the response of “More than 102” for question 3 in the survey. The t-test for a difference in means produced a t-statistic of -2.6563. The lower-tail test also produced a p-value of 0.0056. This indicates that the result is significant at both the 0.1 and 0.05 alpha levels. Figure 4 above displays the Stata output from the lower-tail t-test for the difference in means between group 0 and group 1.

Two-sample t test with equal variances

Group	Obs	Mean	Std. err.	Std. dev.	[95% conf. interval]	
0	6	1.666667	.3333333	.8164966	.8098061	2.523527
1	37	1.72973	.113956	.693167	1.498616	1.960843
Combined	43	1.72093	.1069334	.7012092	1.50513	1.936731
diff		-.0630631	.3121922		-.693548	.5674219

diff = mean(0) - mean(1) t = -0.2020
H0: diff = 0 Degrees of freedom = 41

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(T < t) = 0.4205 Pr(|T| > |t|) = 0.8409 Pr(T > t) = 0.5795

Figure 5 Test Output for H2 Correct Answer to Question 4

The same groups were used to analyze the difference in means. In this t-test, group 0 had a reported mean of 1.667, and group 1 had a reported mean of 1.7297. In this test, a value of 1 indicates that respondents indicated “true” as the answer. A value of 2 indicates that respondents answered “false.” The lower-tail t-test produced a t-statistic of -0.2020. The test also produced a p-value of 0.4205. This is an insignificant result for both alpha levels at 0.10 and 0.05. Figure 3 represents the Stata output that resulted from the lower-tail t-test.

Two-sample t test with equal variances

Group	Obs	Mean	Std. err.	Std. dev.	[95% conf. interval]	
0	6	2.5	.5	1.224745	1.214709	3.785291
1	37	2.594595	.1709339	1.03975	2.247925	2.941265
Combined	43	2.581395	.1604001	1.051814	2.257695	2.905096
diff		-.0945946	.4682883		-1.040322	.8511328

diff = mean(0) - mean(1) t = -0.2020
H0: diff = 0 Degrees of freedom = 41

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(T < t) = 0.4205 Pr(|T| > |t|) = 0.8409 Pr(T > t) = 0.5795

Figure 6 Test Output for H2 Correct Answer to Question 5

The same groups were used to perform this t-test. In this test, group 0 had a reported mean of 2.5, and group 1 had a reported mean of 2.5945. Coding for the correct answer to question 5 is as follows: 1 indicates “more than today”, 2 indicates “same”, 3 indicates “less than today”, 4 indicates “don’t know”, and 5 indicates a refusal to answer. Therefore, a reported mean between 2-3 indicates the answer of “less than today.” This was a lower-tail t-test. However, the test produced a t-statistic of -0.2020 and a p-value of 0.4205. This results in an insignificant result for both alpha levels at 0.10 and 0.05. Figure 6 above displays the Stata output that resulted from the t-test.

Research Question Two

H3 investigated that the average student score whose parents discuss money with them is higher than the average student score whose parents do not discuss money with them. Three separate t-tests were run to analyze the results of each financial literacy question.

Two-sample t test with equal variances

Group	Obs	Mean	Std. err.	Std. dev.	[95% conf. interval]	
0	22	1	0	0	1	1
1	61	.9344262	.0319567	.2495898	.8705033	.9983492
Combined	83	.9518072	.0236515	.2154753	.9047569	.9988576
diff		.0655738	.0534223		-.0407199	.1718674

diff = mean(0) - mean(1) t = 1.2275
H0: diff = 0 Degrees of freedom = 81

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(T < t) = 0.8884 Pr(|T| > |t|) = 0.2232 Pr(T > t) = 0.1116

Figure 7 Test Output for H3 Correct Answer to Question 3

H3 focused on the parents' level of discussion with a student about money and see if the average score of a student whose parents discuss money is higher compared to the average score of a student whose parents do not discuss money. Group 0 has a count of 22 respondents, and it represents those whose parents do not discuss money. Group 1 has a count of 61 respondents, and it represents those whose parents discuss money with them. Group 0, or those whose parents do not discuss money, had a reported mean of 1. Group 1, or those whose parents discuss money with them, had a reported mean of 0.9344. A value between 0 and 1 represents the response of "More than 102" for question 3 in the survey. The t-test for a difference in means produced a t-statistic of 1.2275. The upper-tail test also produced a p-value of 0.116. This indicates that the result is insignificant at both the 0.1 and 0.05 alpha levels. Figure 6 above displays the Stata output from the upper-tail t-test for the difference in means between group 0 and group 1.

Two-sample t test with equal variances

Group	Obs	Mean	Std. err.	Std. dev.	[95% conf. interval]	
0	22	1.545455	.1828972	.8578641	1.165099	1.92581
1	61	1.540984	.1085769	.8480128	1.323797	1.75817
Combined	83	1.542169	.0927923	.8453777	1.357575	1.726762
diff		.0044709	.2115324		-.4164121	.425354

diff = mean(0) - mean(1) t = 0.0211
H0: diff = 0 Degrees of freedom = 81

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(T < t) = 0.5084 Pr(|T| > |t|) = 0.9832 Pr(T > t) = 0.4916

Figure 8 Test Output for H3 Correct Answer to Question 4

The same groups were used to analyze the difference in means. In this t-test, group 0 had a reported mean of 1.5455, and group 1 had a reported mean of 1.5409. In this test, a value of 1 indicates that respondents indicated “true” as the answer. A value of 2 indicates that respondents answered “false.” The upper-tail t-test produced a t-statistic of 0.0211. The test also produced a p-value of 0.4916. This is an insignificant result for both alpha levels at 0.10 and 0.05. Figure 8 represents the Stata output that resulted from the upper-tail t-test.

Two-sample t test with equal variances

Group	Obs	Mean	Std. err.	Std. dev.	[95% conf. interval]	
0	22	2.590909	.2246603	1.05375	2.123702	3.058116
1	61	2.606557	.1307371	1.021089	2.345044	2.86807
Combined	83	2.60241	.1123308	1.023382	2.378948	2.825871
diff		-.0156483	.2560679		-.525143	.4938464

diff = mean(0) - mean(1) t = -0.0611
H0: diff = 0 Degrees of freedom = 81

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(T < t) = 0.4757 Pr(|T| > |t|) = 0.9514 Pr(T > t) = 0.5243

Figure 9 Test Output for H3 Correct Answer to Question 5

The same groups were used to perform this t-test. In this test, group 0 had a reported mean of 2.5909, and group 1 had a reported mean of 2.6065. Coding for the correct answer to question 5 is as follows: 1 indicates “more than today”, 2 indicates “same”, 3 indicates “less than today”, 4 indicates “don’t know”, and 5 indicates a refusal to answer. Therefore, a reported mean between 2-3 indicates the answer of “less than today.” This was a lower-tail t-test. However, the test produced a t-statistic of -0.0611 and a p-value of 0.4757. This results in an insignificant result for both alpha levels at 0.10 and 0.05. Figure 9 above displays the Stata output that resulted from the t-test.

H4 concentrated on the income of a student’s parents. In the alternate hypothesis, H4 states the average student score whose parents earn more than \$150,000 is higher than the average student score whose parents earn less than \$150,000. To evaluate the hypothesis, three t-tests were run.

Two-sample t test with equal variances

Group	Obs	Mean	Std. err.	Std. dev.	[95% conf. interval]	
0	18	1	0	0	1	1
1	21	.9047619	.0656383	.3007926	.7678428	1.041681
Combined	39	.9487179	.0357816	.2234559	.8762819	1.021154
diff		.0952381	.0710342		-.0486909	.2391671

diff = mean(0) - mean(1) t = 1.3407
H0: diff = 0 Degrees of freedom = 37

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(T < t) = 0.9059 Pr(|T| > |t|) = 0.1882 Pr(T > t) = 0.0941

Figure 10 Test Output for H4 Correct Answer to Question 3

H4 focused on the parents' income and looked to see if a student whose parents' income is greater than \$150,000 reported a higher average score when compared to the average score of a student whose parents' income is less than \$150,000. Group 0 has a count of 18 respondents, and it represents those whose parents' income is less than \$150,000. Group 1 has a count of 21 respondents, and it represents those whose parents earn more than \$150,000. Group 0, or whose family income is less than \$150,000, had a reported mean of 1. Group 1, or whose family income is greater than \$150,000, had a reported mean of 0.9048. A value between 0 and 1 represents the response of "More than 102" for question 3 in the survey. The t-test for a difference in means produced a t-statistic of 1.3407. The upper-tail test also produced a p-value of 0.0941. This indicates that the result is insignificant at 0.05 alpha level but significant at 0.1 alpha level. At 0.1 alpha level, student whose parents earn less than \$150,000 received a higher average score than the student whose parents earn more than \$150,000. Figure 10 above displays the Stata output from the upper-tail t-test for the difference in means between group 0 and group 1.

Two-sample t test with equal variances

Group	Obs	Mean	Std. err.	Std. dev.	[95% conf. interval]	
0	18	1.555556	.2016634	.8555853	1.130083	1.981028
1	21	1.428571	.2020305	.9258201	1.007143	1.85
Combined	39	1.487179	.1416683	.8847181	1.200387	1.773972
diff		.1269841	.2872356		-.4550104	.7089787

diff = mean(0) - mean(1) t = 0.4421
H0: diff = 0 Degrees of freedom = 37

Ha: diff < 0 Ha: diff != 0 Ha: diff > 0
Pr(T < t) = 0.6695 Pr(|T| > |t|) = 0.6610 Pr(T > t) = 0.3305

Figure 11 Test Output for H4 Correct Answer to Question 4

The same groups were used to analyze the difference in means. In this t-test, group 0 had a reported mean of 1.5556, and group 1 had a reported mean of 1.4286. In this test, a value of 1 indicates that respondents indicated “true” as the answer. A value of 2 indicates that respondents answered “false.” The upper-tail t-test produced a t-statistic of 0.4421. The test also produced a p-value of 0.3305. This indicates that the result is insignificant at both 0.10 and 0.05 alpha levels. Figure 11 represents the Stata output that resulted from the upper-tail t-test.

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Two-sample t test with equal variances

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Group	Obs	Mean	Std. err.	Std. dev.	[95% conf. interval]	
0	18	2.833333	.1666667	.7071068	2.481697	3.184969
1	21	2.428571	.2634156	1.207122	1.879096	2.978047
Combined	39	2.615385	.1627007	1.016065	2.286014	2.944755
diff		.4047619	.3239864		-.251697	1.061221

```

diff = mean(0) - mean(1)                t = 1.2493
H0: diff = 0                            Degrees of freedom = 37

Ha: diff < 0                            Ha: diff != 0                            Ha: diff > 0
Pr(T < t) = 0.8903                       Pr(|T| > |t|) = 0.2194                       Pr(T > t) = 0.1097

```

Figure 12 Test Output for H4 Correct Answer to Question 5

The same groups were used to perform this t-test. In this test, group 0 had a reported mean of 2.8333, and group 1 had a reported mean of 2.4286. Coding for the correct answer of question 5 is as follows: 1 indicates “more than today”, 2 indicates “same”, 3 indicates “less than today”, 4 indicates “don’t know”, and 5 indicates a refusal to answer. Therefore, a reported mean between 2-3 indicates the answer of “less than today.” This was an upper-tail t-test. However, the test produced a t-statistic of 1.2493 and a p-value of 0.1097. This is an insignificant result for both alpha levels at 0.10 and 0.05. Figure 12 above displays the Stata output that resulted from the t-test.

Chapter 5

Conclusion

While statistical analysis was used to recognize the relationship between variables, there may not be a statistically significant relationship present. This study centered on whether there are differences in the average score of a business student and a non-business student for three questions that suggest financial literacy levels. To analyze this question, six t-tests were analyzed to provide support for one primary hypothesis and one secondary hypothesis.

Research Question One

The first primary hypothesis (H1) attempted to provide support to answer if there is a difference in the average score of a business student compared to the average score of a non-business student. Of the three statistical tests run for this question, one was statistically significant. The statistically significant result came from question 4, which attempted to determine the knowledge of risk diversification. Business students appear to have greater acumen on risk diversification compared to non-business students due to their exposure to the concept. For the two non-statistically significant results, there could be many factors that caused this result in the statistical tests. Since I am an accounting college student, those who are friends and colleagues be likely to have similar life experiences. This could have caused bias in the results of the survey. In addition, a large portion of the survey responses came from the Schreyer Honors College group chats. This could have caused the results of the survey to be heavily distorted to only capture those who are members of the Honors College.

Second, the secondary hypothesis (H2) attempted to answer the question of “What differences exist between the average score of a business-accounting student to the average score of a business-non-accounting student?” Three additional t-tests were run resulting in one

statistically significant difference between a business-accounting student score compared to a business-non-accounting student score. The statistically significant result came from question 3. Question 3 assessed the knowledge of interest rates. Therefore, business-accounting students received a higher score on the topic of interest rates. Business-accounting students possibly have greater experience dealing with interest rates. As for the two other statistically insignificant results, many other variables have the potential to be associated with financial literacy levels. First, the use of GroupMe to distribute the survey may have caused some unknown bias in the results. Although using GroupMe was an effective way to get statistical power in the results, it may have narrowed the reach of the survey. For example, the largest group chats the survey was deployed in was the Master of Accounting chats. These group chats only encountered fourth- and fifth-year accounting students. In these group chats, those who would have seen the survey would only be those who are members of the GroupMe chat. Because of this, the number of group observations were distorted. Group 1, business-accounting students, contained 37 observations compared to the 6 observations in Group 0, business-non-accounting students. Both groups are a small sample size. Therefore, there is much room for further research in this area. Specifically, there needs to be greater research into the comparison of each major such that accounting compared to finance, accounting to marketing, accounting to management, and so on in a larger sample size. These pair wise results are necessary to be conducted to support further evidence that there are differences in the average score of a business-accounting student to the average score of a business-non-accounting student.

Research Question Two

The second primary hypothesis (H3) and the second secondary hypotheses (H4) attempted to provide support to answer the broad question of “How do parents impact the

performance of a student on the three financial literacy questions?” For instance, when looking at the parents’ influences, the degree to which parents have financial discussions with their student and parents’ income were considered. In total, six statistical tests were conducted to answer this research question.

The second primary hypothesis (H3) attempted to provide support to answer if the average student score whose parents discuss money with them is higher than the average student score whose parents do not discuss money with them. The three statistical tests run for this question were statistically insignificant. However, the result of question 3, pertaining to the knowledge of interest rates offered a weak significance just above the alpha level of 0.1 where the average score of a student whose parents do not discuss money is higher than the average of a student whose parents discuss money. The number of observations in each group is disproportionate because group 1, whose parents discuss money, is approximately 3 times the size of group 0, whose parents do not discuss money. This difference in number of observations per group could be driving these results. Overall, parents discussing money with their student results in no statistically significant difference on the three areas of focus that pertains to financial literacy levels. Further research is necessary to determine if this factor impacts financial literacy levels. Specifically, research needs to investigate the types of conversations parents are having with their student about money.

Further, the secondary hypothesis (H4) attempted to answer the question of “What differences exist between the average score of a student whose parents earn more than \$150,000 to the average score of a student whose parents earn less than \$150,000?” Three additional t-tests were run resulting in one statistically significant difference. The upper-tailed test resulted in a statistically significant result from question 3, obtaining the knowledge of interest rates.

Statistically significant at both alpha levels 0.1 and 0.5, the average score of a student whose parents earn less than \$150,000, group 0, received a higher average than a student whose parents earn more than \$150,000, group 1. A possible explanation for this difference in means is the experience with interest rates when a parents' income is less than \$150,000. As for the two other statistically insignificant results, other factors contribute to the differences of financial literacy levels. Both groups are a small sample size so further testing is necessary with a large sample size to confirm result. Moreover, the students reported their parents' income, and an error could be significant and bias these results. 11.90% of the students did not know or refuse to answer this question, limiting analysis.

In conclusion, there are many factors that may lead to higher levels of financial literacy in college students. This study focused on the impact of education and parental factors that would result in differences of means in a student's score on three key financial literacy questions. Further research is necessary to investigate any additional factors that might impact financial literacy. From this research, the student acumen of interest rates, risk diversification, and inflation was shown to be influenced by experience with these topics. Therefore, the average performance on financial literacy topics appear to increase as a student has greater exposure to these key concepts.

Appendix A

Financial Literacy of College Students Survey



Office for Research Protections
 Human Research Protection Program
 Office of The Senior Vice President for Research
 The Pennsylvania State University
 101 Technology Center
 University Park, PA 16802

814-865-1775
 irb-orp@psu.edu
 research.psu.edu/irb

EXEMPTION DETERMINATION

Date: October 11, 2022

From: Amy Long, IRB Analyst

To: Katherine Clarke

Type of Submission:	Initial Study
Title of Study:	Financial Literacy in College Students
Principal Investigator:	Katherine Clarke
Study ID:	STUDY00020073
Submission ID:	STUDY00020073
Funding:	Not Applicable
Documents Approved:	<ul style="list-style-type: none"> • Financial Literacy Survey (0.01), Category: Other • HRP 591 (0.02), Category: IRB Protocol • Possible Follow Up Interview Questions (0.01), Category: Other

The Office for Research Protections determined that the proposed activity, as described in the above-referenced submission, does not require formal IRB review because the research met the criteria for exempt research according to the policies of this institution and the provisions of applicable federal regulations.

Continuing Progress Reports are **not** required for exempt research. Record of this research determined to be exempt will be maintained for five years from the date of this notification. If your research will continue beyond five years, please contact the Office for Research Protections closer to the determination end date.

Changes to exempt research only need to be submitted to the Office for Research Protections in limited circumstances described in the below-referenced Investigator Manual. If changes are being considered and there are questions about whether IRB review is needed, please contact the Office for Research Protections.

Penn State researchers are required to follow the requirements listed in the [HRP-103](#) – Investigator Manual, which can be found by navigating to the IRB Library within CATS IRB (<http://irb.psu.edu>).

(Questions 3-5 were included from “Financial Literacy and Retirement Planning in the United States” by Annamaria Lusardi and Olivia S. Mitchell)

1. What college are you in?
 - a. Smeal
 - b. Communications
 - c. Health and Human Development
 - d. Engineering
 - e. Liberal Arts
 - f. Other

2. If you are in Smeal, what is your major?
 - a. Not in Smeal
 - b. Accounting
 - c. Finance
 - d. Marketing
 - e. Other

3. Suppose you had \$100 in a savings account and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow?
 - a. More than \$102
 - b. Exactly \$102
 - c. Less than \$102
 - d. Do not know

4. Please tell me whether this statement is true or false. “Buying a single company’s stock usually provides a safer return than a stock mutual fund.”
 - a. True
 - b. False
 - c. Do not know

5. Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account?
 - a. More than today
 - b. Exactly the same
 - c. Less than today
 - d. Do not know
 - e. Refuse to answer

6. Where do you learn the news?
 - a. Single line response

7. What is your gender?
 - a. Male
 - b. Female
 - c. Prefer not to answer

8. How would you rate your overall understanding of personal finance?
 - a. Advanced
 - b. Proficient
 - c. Low
 - d. Do not know

9. What are your parents' highest level of education?
 - a. Below high school
 - b. High school diploma
 - c. Two-year associate or technical degree
 - d. Bachelor's degree
 - e. Graduate or professional degree
 - f. Do not know
 - g. Prefer not to answer

10. What is your parents' income?
 - a. \$0 to \$20,000
 - b. \$20,000 to \$80,000
 - c. \$80,000 to \$150,000
 - d. \$150,000 to \$300,000
 - e. \$300,000 to \$600,000
 - f. Above \$600,000
 - g. Do not know
 - h. Prefer not to answer

11. Do your parents discuss money with you?
 - a. Definitely not
 - b. Probably not
 - c. Might or might not
 - d. Probably yes
 - e. Definitiey yes

12. Do you have a budget?
 - a. No
 - b. Maybe
 - c. Yes

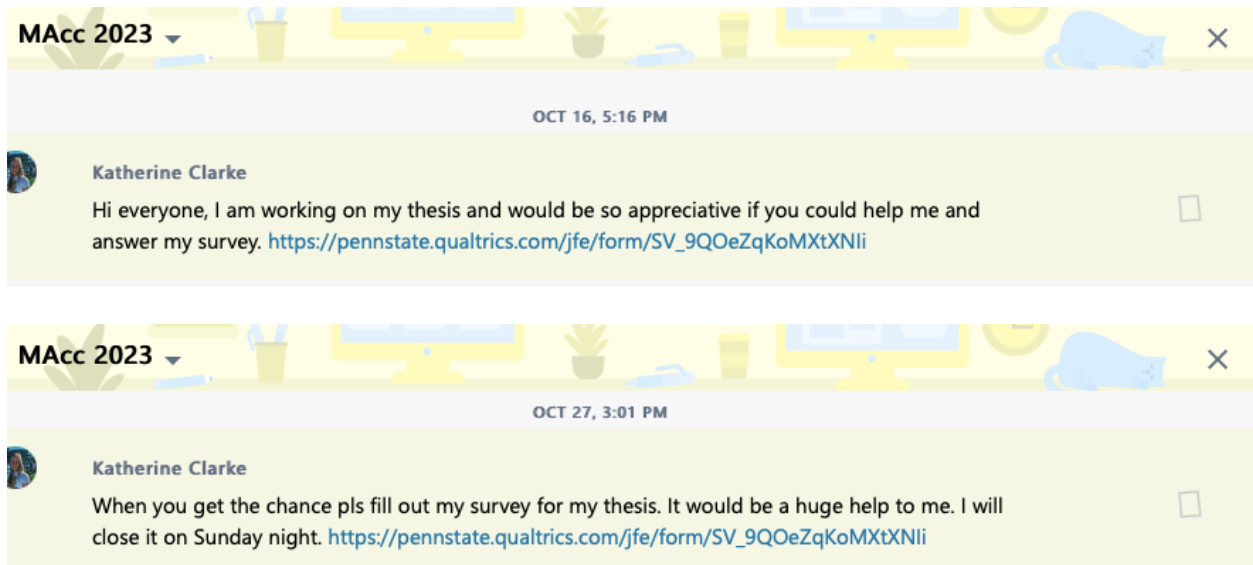
13. If you have a budget, do you follow it?
 - a. Never
 - b. Sometimes
 - c. Often
 - d. Always
 - e. Not applicable

14. When should you start saving for retirement?
 - a. Now

- b. In 5 years
 - c. In 10 years
 - d. In 20 years
 - e. In more than 20 years
 - f. Do not know
15. Self-reported GPA
- a. Below 2.0
 - b. 2.0 to 2.5
 - c. 2.5 to 3.0
 - d. 3.0 to 3.5
 - e. 3.5 to 4.0
16. Do you have a credit card in your name?
- a. No
 - b. Yes
 - c. Prefer not to answer
17. If you are open for a short interview, please provide your email below.

Appendix B

Survey Recruitment Methods



**All other listed groups were sent these messages.

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ACADEMIC VITA

KATHERINE M. CLARKE

katherineclarke24@gmail.com

EDUCATION

The Pennsylvania State University

Smeal College of Business, Schreyer Honors College, Class of 2022

Master of Accounting, Bachelor of Science in Accounting

University Park, PA

Dean's List 8:8 Semesters

RELEVANT WORK EXPERIENCE

Deloitte

Summer Audit Intern

- Support Staff to complete external audit of client

Philadelphia, PA

June 2022 – Aug 2022

Vigilant Compliance, LLC

Summer Intern

- Support Senior Management to evaluate compliance reviews and conduct customer reviews for future clients

Chadds Ford, PA

May 2021- Dec 2021

Smeal College of Business

Financial & Managerial Accounting Teaching Assistant

- Hold office hours, proctor exams and lead lecture sessions to assist students' understanding of course material

University Park, PA

Aug. 2021 – Current

MAcc Program Student Association Board Vice President

Dec. 2020- Dec. 2021

- Facilitate the growth of the Master of Accounting Program and liaise with industry recruiters
- Support market-facing communications and community relations

Start-Up Consultant Research Assistant

Jun. 2020 – Oct. 2021

- Provide financial analysis, develop business plans, and oversee the continuity of roughly 40 start-up companies

Honors Corporate Finance Teaching Assistant

Aug. 2020 – May 2021

- Grade assignments, proctor exams and lead review sessions to further students' understanding of course material

HONORS AND ACCOLADES

PwC Challenge Case Competition

University Park, PA

- Earned second place with my team after two rounds of presentations against 23 teams

David S Rocchino Family Foundation Scholarship Recipient

University Park, PA

- Earned the scholarship through successful interviews and academic success in Schreyer Honors College

VOLUNTEER EXPERIENCE

OPPerations of THON

Happy Quarters Chair

- Calculated and delivered funds donated to THON on a weekly basis

State College, PA

Sept. 2019 – Mar. 2020

Relevant Skills

- Microsoft Office; Data Analytics; Budgeting; Financial & Managerial Accounting; Tax; Financial Analysis