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Does it matter how you save your money?
Financial Literacy and Savings Rates Exploration

By

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Acknowledgements

I would like to give special thanks to my thesis advisor Dr. Fatma Sonmez-Leopold for her influence on my entire college career path. I was in her entry-level finance course and I am grateful that she was a part of my finance education journey down to the final completion of this research. Her accomplishments as a professor and as a woman in finance are incredibly inspiring to me as I enter my professional career. I would also like to thank Professor Nadim Jabaji and Professor Donald Cardarelli for their assistance in reading and critiquing my content. I discovered research connections in his international finance course which led me to recognize the importance of international market movements.

Additionally, I would like to thank Jeff Schor and Jason Halio for allowing me to shadow them at Bank of America Merrill Lynch on the Equity Derivatives Sales desk. The experience was incredibly helpful for my research and my understanding of derivatives.

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Thank you to the authors of the many books that sparked my curiosity about these topics and will continue to inspire my financial and career decisions for the foreseeable future. Thank you to the Renee Crown Honors Program for encouraging me to explore these interests of mine in a very impactful way.

Abstract

Literature about savings among U.S. households shows that people do not save enough for their future. In this paper, I looked at financial literacy's impact on adult and college student savings. My findings show that there is a positive relationship between financial literacy and savings in American households. Americans rely too heavily on debt financing and do not allow their money to compound in growth.

Regardless of age or background, everyone could benefit from understanding the three most important rules of investing. These rules are to have maximum diversification, to choose options that are low-cost, and that are tax efficient.

Executive Summary

Saving money is good. It is a concept that is almost universally agreed upon. People from all walks of life put some of their earnings away for a rainy day or an emergency, but how well are people really saving? This paper aims to understand the positive relationship between financial literacy and savings in American households and with college students. For the purpose of this paper, I will interchangeably call financial literacy, Financial IQ (hereafter FinIQ).

Given how severe the lack of FinIQ among U.S. households is on very basic financial issues such as inflation and interest rates, people do not know how to use this knowledge to save more for their future. This paper will look at the implications of FinIQ for the average saver.

To do so, I conducted surveys, interviews, and read relevant literature. My findings are that students who invest are in a superior financial situation to those who do not, and that not enough students are investors. Only 6.1% of student respondents were investors. The student investors had an average savings of $1,530.13, which is $289.66 higher than the average of all students. Of the 6.1% of student investors, 68% are majoring in the business school, economics, or mathematics. Business and STEM majors are more likely to reap monetary benefits from investing compared to their counterparts. In a ranking developed by OECD, the average literacy level of my survey respondents was a Level 3. Level 2 is considered the "baseline" literacy level. The largest concentration of students self-ranked at Level 4, which is good. The student survey showed that students in quantitative majors are four times more likely to invest their money and students who invest their money save on average 20% more than students who do not. Students who start these investment habits have healthier relationships with handling monetary decisions.

Parents' teaching about spending and saving habits has an immense impact on the literacy of those students. Based on these findings, increasing financial education is positively correlated with increased FinIQ. Students would benefit greatly from personal finance knowledge, and with access to resources when they get their first job.

The adult survey explained that Americans need pay off their debt, and issue fewer forms of debt. Only 5.9% of respondents had no debt, which was a mere 49 out of over 800. In general, people were three times more likely to over-rank, rather than under-rank their financial literacy. The actual results of the respondents do fit within the outlined predicted percentages that are present in Table 10 that contains explanations of every level of literacy (Table 1). Table 9 shows that only 9.49% of respondents actually achieved a Level 5 literacy score. Of over 800 respondents, 12.41% of respondents received a Level 1. The self-ranked data however, in Batch 1 13.29% of respondents self-ranked Level 5 literacy, and in Batch 2 9.31% self-ranked Level 5. Using Table 5, together Batch 1 and Batch 2 had 11.3% of respondents' self-rank Level 5. Using the OECD standards in Table 1, it was predicted that only 9.7% of respondents would be able to achieve the highest level, and this data falls under that predicted range. Of the 822 respondents, only 9.49% were able to achieve Level 5 literacy when tested.

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Introduction and Literature Review

For the last four years, I have learned the foundation of the business world at the Whitman School of Management. In particular, as a finance major, I have a better understanding of financial news and data. Like many of my peers, I appreciate the power of financial knowledge and use my Financial IQ every day. Mortgage calculations, student loan rates, stock market, bond market, currency market movements, are important for everyone, from owning a house to paying off loans. Clearly, having a university degree is not synonymous with financial literacy, even for business majors. As my passion for finance-related issues has grown, so has my acute awareness of the lack of interest and lack of FinIQ in the majority of people I meet.

Niall Ferguson's (2008) book, *The Ascent of Money, A Financial History of the World,* aims to explore a lot of the same phenomena that initially interested me and is present in FinIQ. Ferguson (2008) says "According to one 2007 survey, four in ten American credit card holders do not pay the full amount due every month on the card they use most often, despite the punitively high interest rates charged by credit card companies. Nearly a third (29%) said they had no idea what the interest rate on their card was. Another 30 percent claimed that it was below 10%, when in reality the overwhelming majority of card companies charge substantially in excess of 10%."[1]

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[1] Niall Ferguson (2008) *The Ascent of Money A Financial History of the World, page 13.*

Ferguson studied the financial literacy of students. Ferguson found in a 2008 survey that two thirds of Americans did not understand how compound interest works. In his book, he mentioned, "in one survey conducted by researchers at the University of Buffalo's School of Management, a typical group of high school seniors scored just 52% in response to a set of questions about personal finance and economics. Only 14% understood that stocks would tend to generate a higher return over eighteen years than a US government bond. Less than 23% knew that income tax is charged on the interest earned from a savings account if the account holder's income is high enough. Fully 59% did not know the difference between a company pension, Social Security and a 401(k) plan." [2]

Ferguson eloquently highlights the importance of increased financial literacy as globalization and access increase. "The more integrated the world's financial markets become, the greater the opportunities for financially knowledgeable people wherever they live - and the bigger the risk of downward mobility for the financially illiterate." [3]

In this research, I aim to answer similar questions as Ferguson (2008) by focusing on the importance of FinIQ in the context of how it affects the saving habits of a selective sample of college students and a selective sample of U.S. households.

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[2] Niall Ferguson (2008) *The Ascent of Money A Financial History of the World, page 13.*
[3] Niall Ferguson (2008) *The Ascent of Money A Financial History of the World, page 16.*

Methods

To collect and analyze data on these topics and the issues involved I collected 4 original surveys with a total of over 1,150 unique respondents. I spoke to some very acclaimed industry professionals, academic professionals, and business students, as well as students of unrelated fields. At first, I was looking to gauge interest in financial concepts and markets, and then the information evolved into an entire look at student FinIQ. In order to get data on the effect of financial literacy, I had respondents use a financial literacy scale that I created from a scale used in Israel, where the respondents self-ranked their expected literacy and then took a test to get accurate scores.

This work started as a case study of how much students care about currency markets, and how there was a disconnect between students who are educated and their financially inclined intellectual curiosity. I had an unproven hypothesis that college students do not care enough about market movements. To test this hypothesis, I carried out a survey to gauge interest in financial concepts. It was distributed to 100 Syracuse University students across over 20 majors. The second survey was to 150 Syracuse students aged 18-22 and was much more comprehensive. It analyzed their job history over the past summer and on campus, their income, the pay structure of the jobs, and how much of that income they were able to save. Then they ranked their financial literacy as per the table below.

The data set I collected consisted of two batches, each of over 400 adult respondents mostly in the US but also globally. The demographic questions included their employment industry, income level, type of debt, money saved, and a self-ranked literacy score. In addition, there were some questions involving monetary habits. An actual versus perceived FinIQ was ranked. The

adult data was compared batch to batch, and as a set in its entirety. Through these channels, I compiled unique opinions from professionals in relevant fields for the Whitman School and my future career path.

Financial Literacy Scale by points for self-ranking and official scoring

Literacy Level	Quantitative Score Range	Percentage of people able to score in this group	What this level can typically do
1	326 to less than 400 points	95.2%	Can identify common financial products and terms and make simple everyday spending decisions
2 (Baseline)	400 to less than 475 points	84.7%	Can apply their general knowledge and recognize the value of a simple budget, understands the relationship between various financial elements
3	475 to less than 550 points	61.8%	Can apply their knowledge generally using financial documents and can calculate percentages and choose proper numerical functions to complete a budget
4	500 to less than 625 points	31.6%	Can apply their knowledge toward adulthood decisions, use bank account management, financial products, compound interest, understand implications of paying back a loan over a period of time
5	Equal to or higher than 625 points	9.7%	Can analyze complex financial products, take into account features of financial documents, work at a high level of accuracy and understand implications and outcomes related to solving those complex problems long term

Table 1. This table is taken from OECD (2014). The fourth column was simplified to increase the ease of use for respondents. [4]

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[4] OECD (2012). PISA 2012 Results: Students and Money: Financial Literacy Skills for the 21st Century (Volume VI), PISA, OECD Publishing, page 63.

Findings

The first survey results were significant and transformed this paper's pursuits. Figure 1. Panel A shows that 50% of college students do not follow any market movements. Figure 2. Panel B shows that 71% of the respondents were not business majors. Whereas Table 2 shows that 44.8% of finance majors follow market movements. Figure 1. Panel C shows that 24% of student respondents openly do not care about US dollar values. Figure 1. Panel D shows that more than half of the student respondents said they looked at exchange rates because they were studying abroad. This made me more interested in understanding how these same college students could save more money over time if they increased their FinIQ.
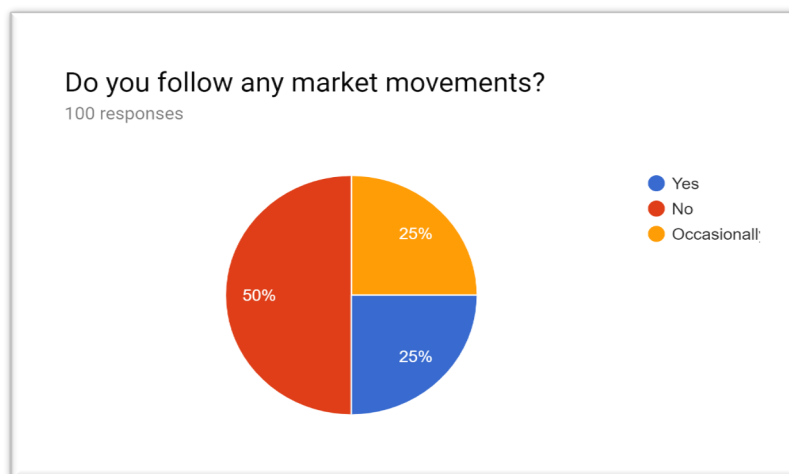

Figure 1. Panel A. "Do you follow any market movements?" This panel is a question from the first survey distributed to 100 current Syracuse University students across many majors and disciplines.
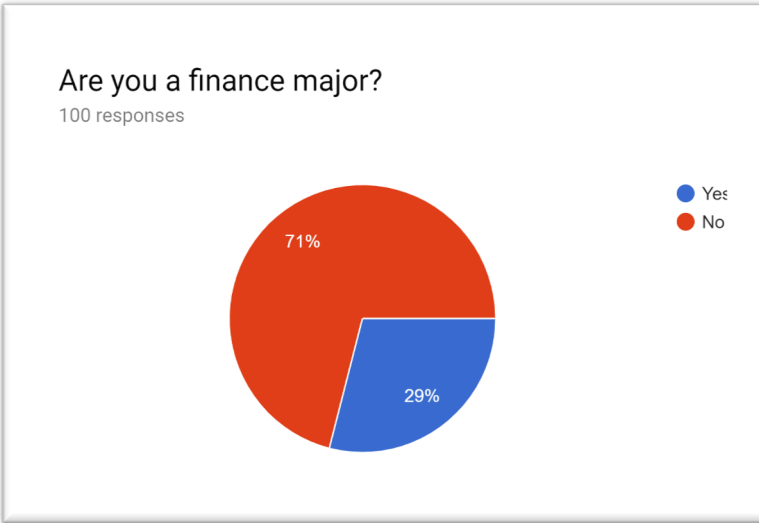
Figure 1. Panel B. "Are you a finance major?" This panel is a question from the first survey distributed to 100 current Syracuse University students across many majors and disciplines.
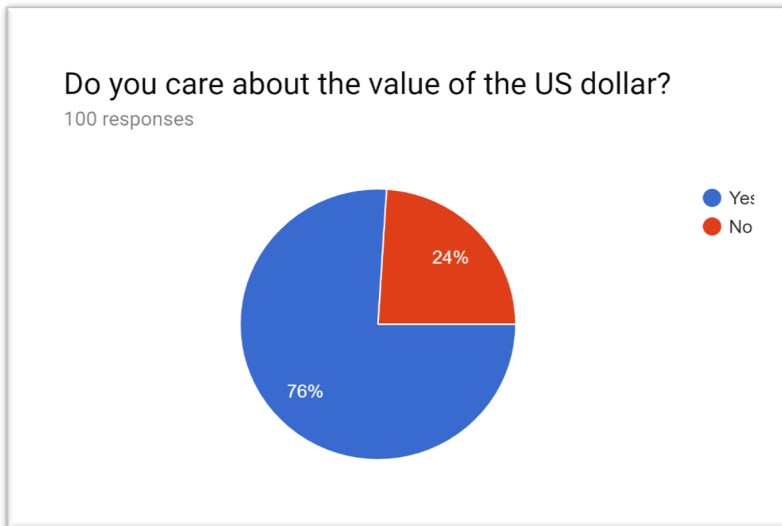

Figure 1. Panel C. "Do you care about the value of the US dollar?" This panel is a question from the first survey distributed to 100 current Syracuse University students across many majors and disciplines.
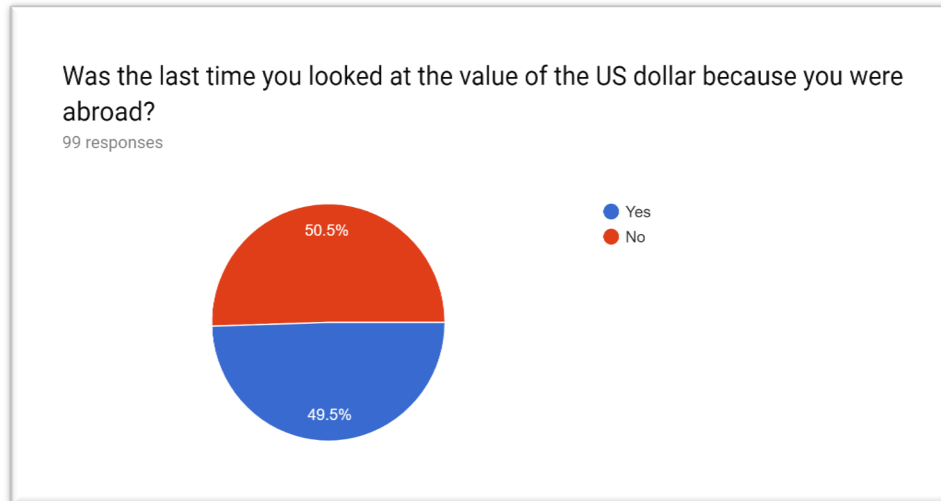
Was the last time you looked at the value of the US dollar because you were abroad?

99 responses

- Yes
- No

50.5%

49.5%

Figure 1. Panel D. "Was the last time you looked at the value of the US dollar because you were abroad?" This panel is a question from the first survey distributed to 100 current Syracuse University students across many majors and disciplines.

Do you follow market movements?		
Finance majors "Yes"	13	44.83%
Finance majors "Sometimes"	7	24.14%
Finance majors Total	**29**	
Non-finance "Yes"	2	2.74%
Non-finance "Sometimes"	15	20.55%
Non-finance Total	**73**	

Table 2. "Do you follow market movements?" This table breaks down responses to the student the survey question by major. As expected, a much larger percentage of finance majors follow market movements.

The second student survey increased to 152 respondents. Table 2 shows that 48.7% of them were business students for at least one of their majors. The students had over 40 unique majors and over 20 unique major combinations. Figure 2 shows the many majors survey respondents are pursuing.
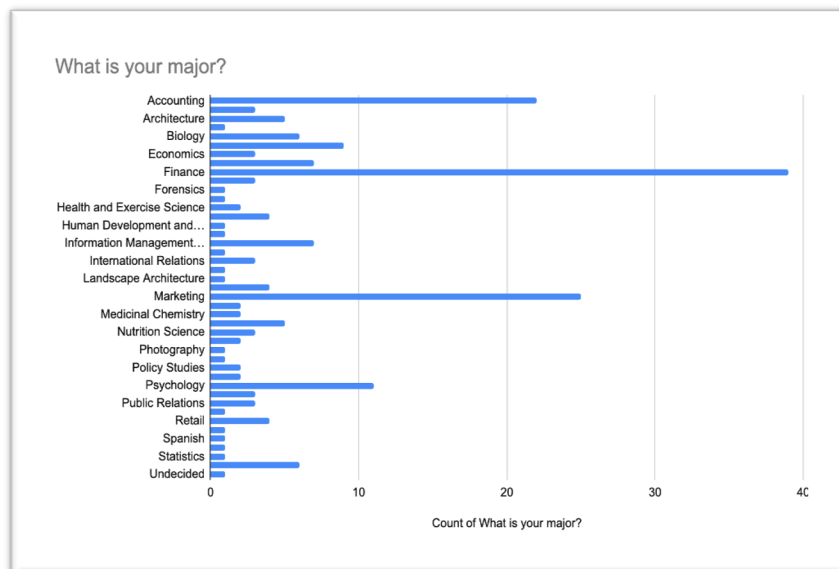
Figure 2. "What is your major?" is a breakdown of majors present from student survey respondents. Keep in mind that many students have more than one major.
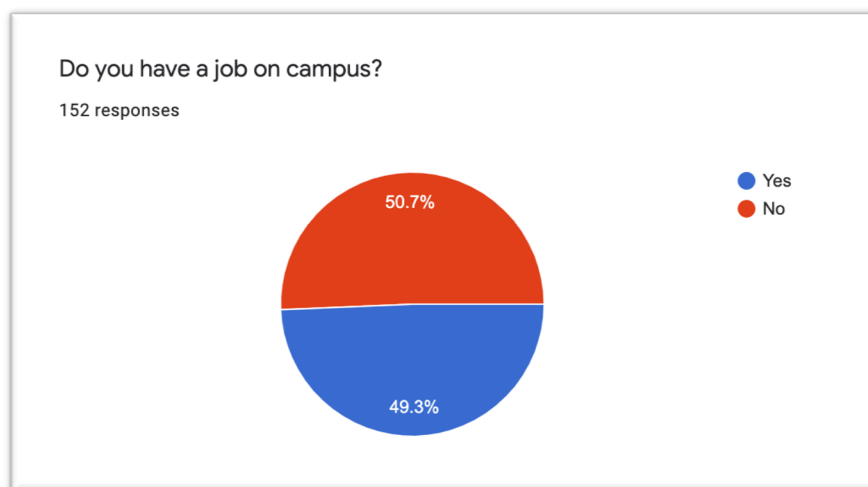

Figure 3. "Do you have a job on campus?" This chart is a breakdown of how many students work during the school year, compared to the students who either work only in the summer, or not at all.

Figure 3 shows that 49.3% of students have a job on campus. Some of these jobs included

working within recreation or in food services, as a medical dispatch, front desk in an academic

office or in the technology center, in the Carrier Dome, or as a coach or tutor. These jobs all have

similar requirements, and the usual pay for on-campus positions is $11 per hour. Student

consultants get paid per job, and some students had jobs with commission. The summer jobs

students reported were much more diverse. In addition, their total earnings ranged from 0 to

$23,000. The largest number of students were paid between $3,000 to $5,999 over the course of the summer. There were outliers mostly on the high end. There was a significant number of students who did not receive an income, either because they did not work, or they only did unpaid internships or jobs. The range of incomes for these students can be seen below in Figure 4.
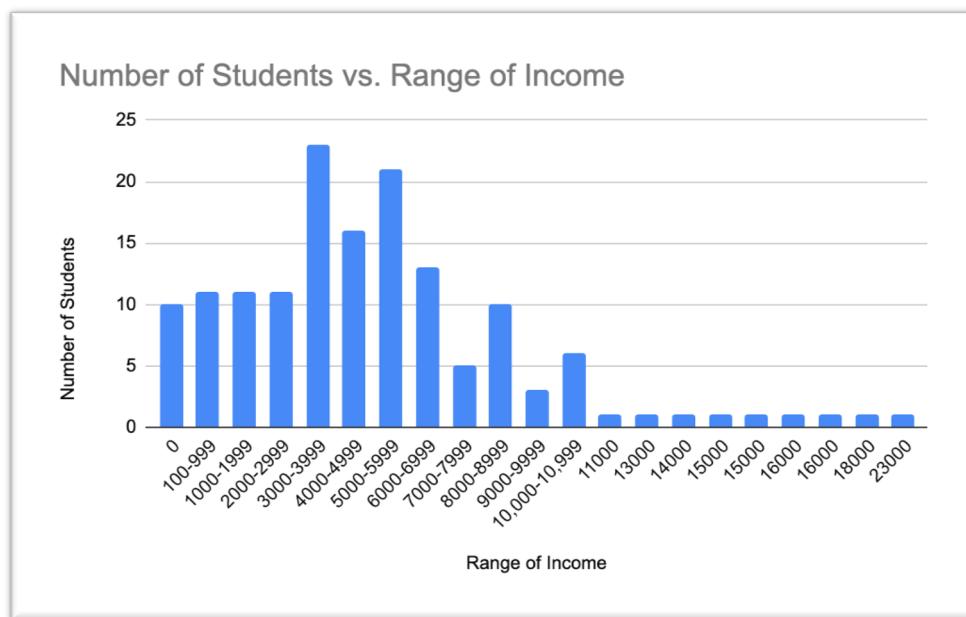

Figure 4. "Number of Students vs. Range of Income" is a chart that shows the distribution of dollar income for the student respondents.

Based on the student responses a few conclusions could be made. Students accredit most of their knowledge of financial concepts to their education. Not being a finance major is often emphasized when commenting on lack of FinIQ. Similarly, these students who exhibit low savings rates, and are non-finance majors, usually give themselves a Level 3 financial literacy grade. Their habits and ability to save reveal their real score is a Level 1 or 2. Figure 5 shows that 47.6% of student respondents were at either a Level 2 or 3 literacy level, and 58.5% in either 1, 2, or 3. This which is under the predicted cap of 61.8% that is visible in Table 1.
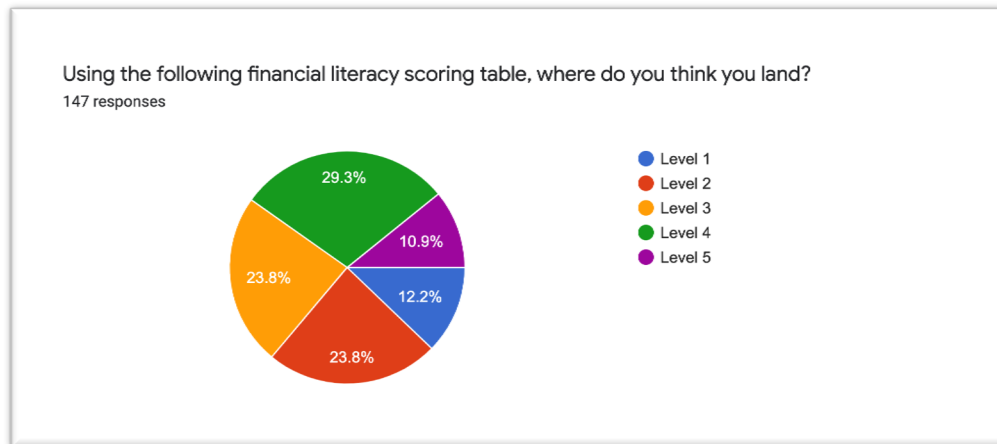
Figure 5. "Using the following literacy scoring table, where do you think you land?" This chart shows a breakdown of where students self-ranked their literacy score using the OECD (2014) Table 1.

Figure 5 shows that only 12.2% of the students marked their score as a Level 1, attributing their inability to save to things beyond their control, for example, the need to pay off student loans. One additional consideration is that many of these students work in order to have money to spend on their activities of choice. Many students are supported by their parents for the cost of their education, but personal luxuries like going out to eat or drink, are the student's responsibility. Students are less likely to care that they have no savings, and sometimes work only enough to ensure they can have the social life they choose.
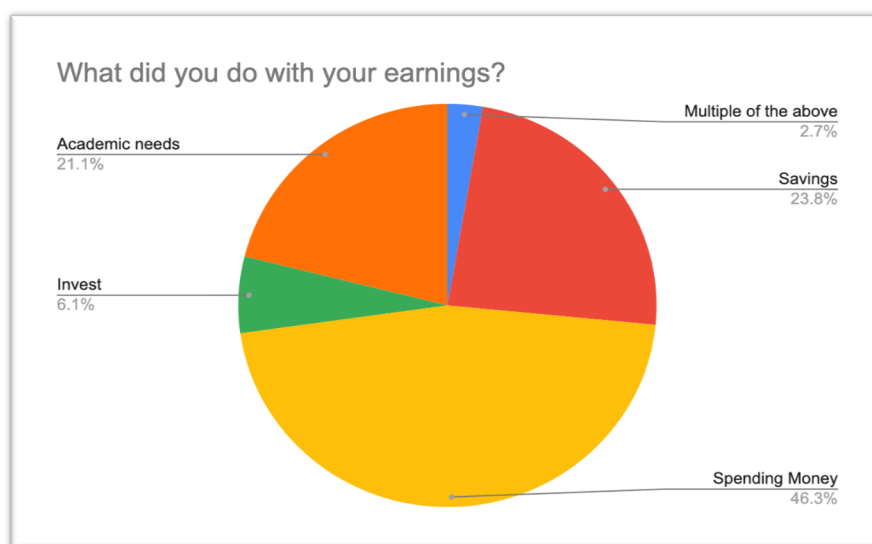
Figure 6. "What did you do with your earnings?" This chart is a breakdown of what students chose to do with the money they earned. The choice "multiple of the above" refers to the group of students who said they did more than one of the listed options.

Using the data from Figure 4, the 152 students saved a total of $147,615.45 last summer. Figure 6 shows that 6.1% of those respondents said that they do some form of investing. The average dollars saved per student was $1,240.47. 65 of the 152 students are investors, which represents 6.1%. 51.3% of all dollars saved were from student investments. 51.3% of all dollars saved arose from these student investments.
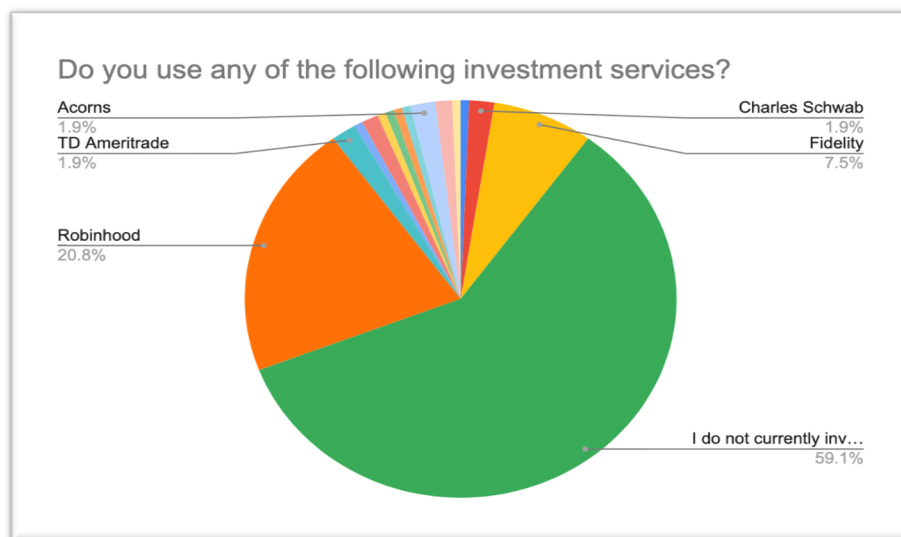

Figure 7. "Do you use any of the following investment services?" This chart is a breakdown of what services and brokerage firms' students use for their investment needs. Keep in mind that student investors use more than one investment service.

Using figures 4 and 6, the student investors saved $289.66 more than the students who did not. Investors had an average savings of $1,530.13, compared to the non-investor average of $1,240.47. Of the 6.1% of student investors in Figure 6, 68% are majoring in the business school, economics, or mathematics. Their average literacy level was a Level 3. The largest concentration of students self-ranked at Level 4 when baseline literacy is only Level 2.

Self-Ranked Financial Literacy Level	Number of Students
Level 1	18
Level 2	35
Level 3	35
Level 4	43
Level 5	15

Table 3. "Student Self-Ranked Literacy Level" chart is the breakdown of student's literacy ranking from Table 1. This can also be viewed in Figure 5.

If you recall the above self-ranking financial literacy score from Figure 5, only 12.2% of students gave themselves a financial literacy score of 1. Level 2 is the baseline for literacy from Table 1, and based on bell curve distribution, about 23% percent should be between Level 1 and 2. My data in Table 3 is consistent with a bell curve. Of note, when students FinIQ was ranked, student investors were modest in their self-assessment. Their actual FinIQ was 4% higher than their perceived FinIQ. Interestingly, non-investors are 3% more likely to over-rank their FinIQ. Eighty percent of non-business school students learned important saving techniques via experience or positive parental influence. Of the 152 responders, 13% mentioned their parents as a reason for their ability to financially plan and save.

Another interesting topic is how students perceive their saving habits will change after graduation. The college savers think they will be able to save more. The college spenders think they will have more expenses. The college investors want to continue to invest. College students who live paycheck to paycheck say that they will have similar tendencies, but on a larger scale. One Newhouse student who did not invest but saved just over $100 this year said, "I don't think my spending habits will change much. I have to live on a tight budget now, that doesn't seem like it's going to change." Thirty-six students stated that they would have to save more because

of lifestyle changes, moving to New York, or having higher expenses in the future. Thirteen students used the word "hopefully," when describing their saving and investing goals. Twice as many students said they would "save more," as compared to "spend more." This comes from the assumption that they will have a larger income but similar expenses.

Using Figures 2 and 4, students in quantitative majors are four times more likely to invest their money and students who invest their money save on average 20% more than students who do not. Students who start these investment habits have healthier relationships with handling monetary decisions. Parents' teaching about spending and saving habits has an immense impact on the literacy of those students. Based on these findings, increasing financial education is positively correlated with increased FinIQ. There is also a correlation between FinIQ increase and the ability to save additional funds. This data only accounts for one year in the life of 152 Syracuse University students and doesn't account for post-graduate spending habits as many of them pointed to the fact that their habits may change because of the new pay structure in that point of life.

One concept that would elevate the saving ability of many Americans is compounding.

After This Many Years	$1,000 Earning 10% Simple Interest	$1,000 Earning 10% Compound Interest
1	$1,100	$1,100
2	$1,200	$1,210
3	$1,300	$1,331
4	$1,400	$1,464

5	$1,500	$1,611
6	$1,600	$1,772
7	$1,700	$1,949
8	$1,800	$2,144
9	$1,900	$2,358
10	$2,000	$2,594

Table 4. "Benefits of Compounding." This table explains the money that could be saved when compounding is used. The benefits of compounding will be explained in more detail in the "Quick Guide to Investment Decisions" section.

The Table 4 data supports the notion that the biggest loss of monetary value for college students is not the cost of college, or the burden of loans but it is the missed opportunity at financial stability, which could be gained from initiating a savings plan and allowing retirement money to compound as soon as possible. College students are a particularly good group to market the concept of compounding to. This is because the earlier you start, the more money you can save. These concepts will be explored in more detail in the "Quick Guide to Investments" section below.

In addition to surveying Syracuse University students, 830 adults over various backgrounds were tested on their financial literacy and saving tendencies were surveyed through Amazon Mechanical Turk. The 417 respondents in Batch 1 of this survey provided their location within the US or outside, industry work, types of household debt, gender, level of education, people per household, household income and savings rate. This first 417 responders are referred to as Batch 1.
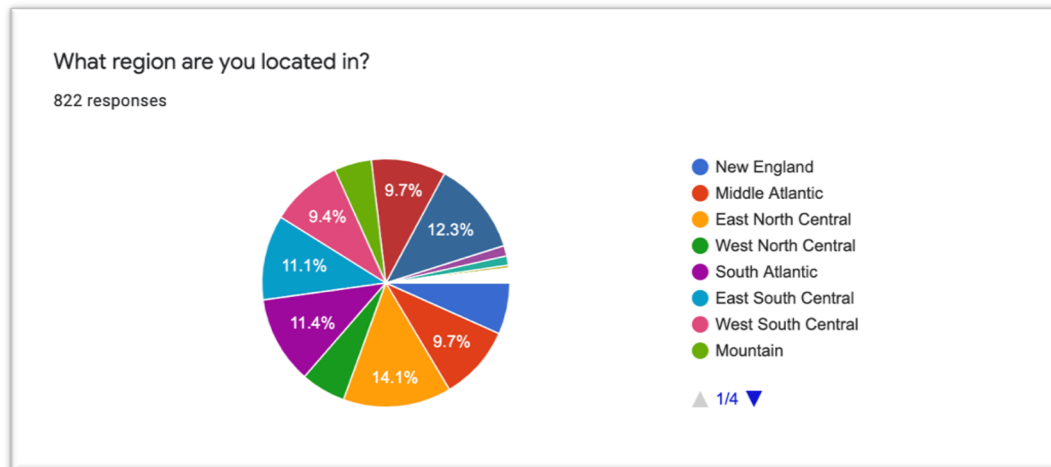
Figure 8. "What region are you located in?" This chart is a survey question which was used to understand the demographics of the adult survey respondents in both Batch 1 and Batch 2.

Figure 9 shows that the largest subsection of adult respondents in Batch 1 worked in Telecommunications, Technology, Internet, and Electronics, at 15.9%, which is 66 people. Forty-eight respondents work in Education totaling to 11.6%, and 37 in Finance and Financial Services, at 8.9% of respondents. Other prevalent industries were Healthcare and Pharmaceuticals at 7.5%, and 6.5% worked in Business and Logistics. Of the respondents, 6.7% answered that they are not currently employed.
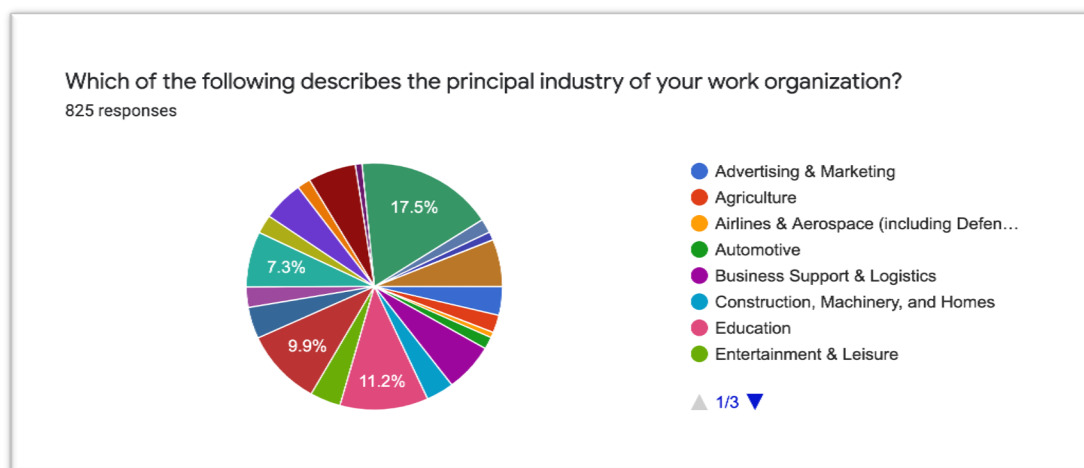

Figure 9. "Which of the following describes the principal industry of your work organization?" This chart is a survey question which was used to understand the demographics of the adult survey respondents in both Batch 1 and Batch 2.

Some important demographic distinctions were collected to understand the backgrounds of the respondents in Batch 1. Figure 10 shows that 60.5% of responders were male and 39.1% female, only 3 respondents marked that they would prefer not to say. Figure 11 shows the distribution of survey respondent's ages.

Figure 10. "What is your gender?" This chart is a survey question which was used to understand the demographics of the adult survey respondents in both Batch 1 and Batch 2.
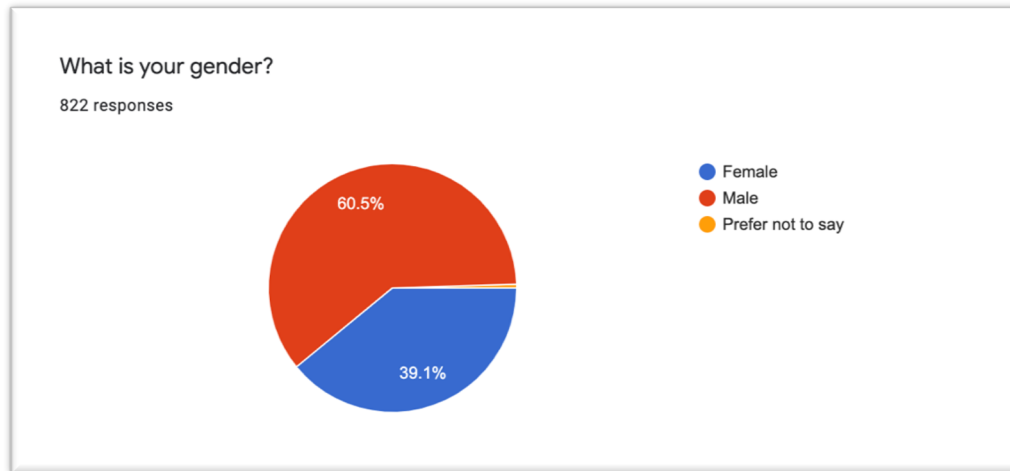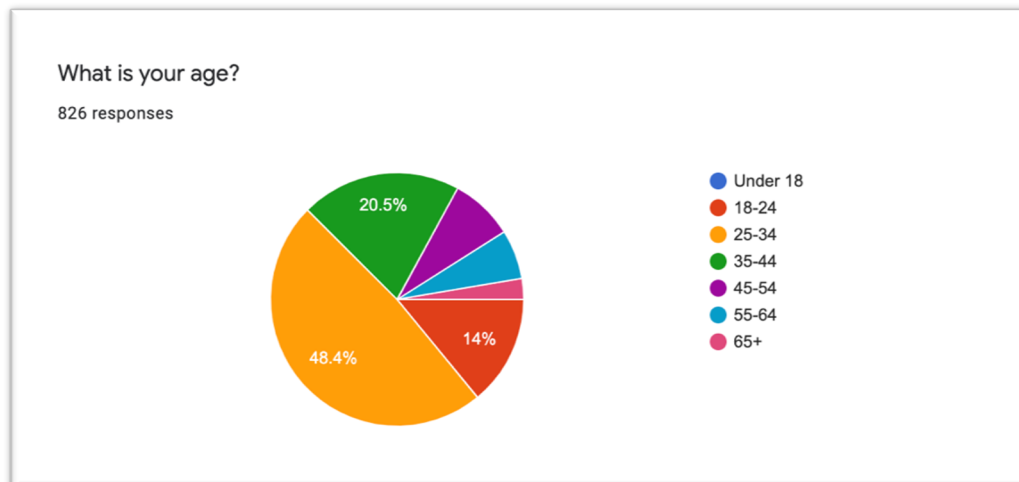

Figure 11. "What is your age?" This chart is a survey question which was used to understand the demographics of the adult survey respondents in both Batch 1 and Batch 2.

Batch 1			Batch 2		
Level 1	37	8.94%	Level 1	46	11.27%
Level 2	71	17.15%	Level 2	91	22.30%
Level 3	114	27.54%	Level 3	115	28.19%
Level 4	137	33.09%	Level 4	118	28.92%
Level 5	55	13.29%	Level 5	38	9.31%
Total	414		408		

Table 5. "Breakdown of Self-Ranked Literacy Level per Batch." This table shows the percentage of respondents who self-ranked at each literacy level using Table 1.

The breakdown per batch allows for a more in-depth exploration of how the data is distributed. Table 1 states that no more than 61.8% of respondents should be able to score a Level 3 literacy score. In Batch 1 of Table 5, 53.63% of respondents self-ranked at Level 3 or lower. In Batch 2, 61.76% self-ranked at either Level 1, 2, or 3. Batch 2 was a nearly perfect distribution to the OECD guidelines from Table 1. Table 1 also shows that only 9.7% of respondents should be able to reach Level 5. In Table 5, Batch 1 respondents self-ranked much higher than Batch 2. Batch 1 had a smaller portion of respondents in the lower levels, and too many respondents in Level 4 and 5. The 13.29% of Batch 1 respondents self-ranked at the highest level, which is well over the 9.7% cap. Batch 2 continued with its perfect distribution, when 9.31% of respondents self-ranked at Level 5. In reality, Figure 13 shows that 9.49% of adult respondents were at Level 5. Batch 1 respondents were 8% more likely to be incorrect when self-ranking. In general, people were three times more likely to over-rank, rather than under-rank their financial literacy. Using Table 5, together Batch 1 and Batch 2 had 11.3% of respondents' self-rank Level 5.
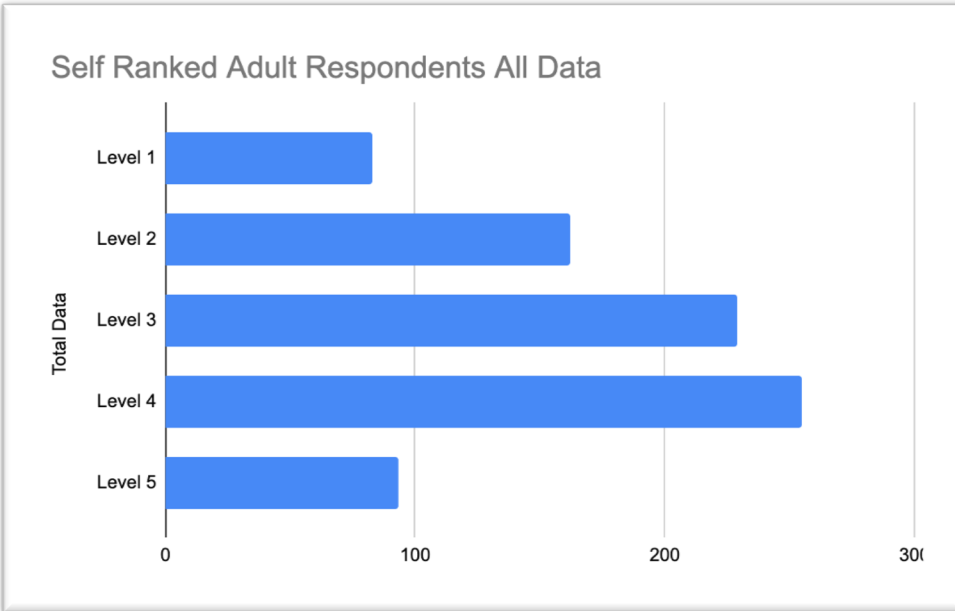
Figure 12. "Self-Ranked Adult Respondents All Data." This table shows the breakdown, which is almost a perfect bell curve.
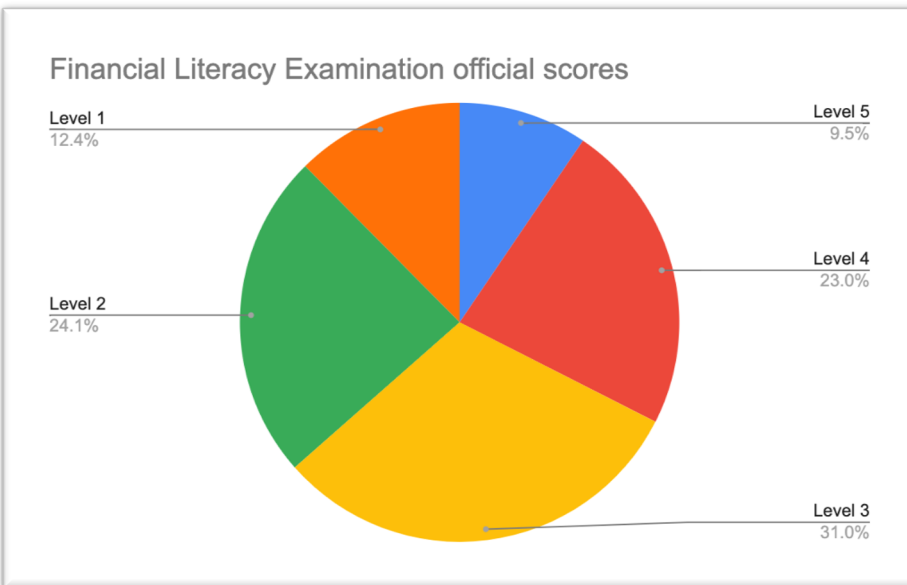
Figure 13. "Financial Literacy Examination official scores" The chart above shows the distribution of actual scores of the adult respondents.
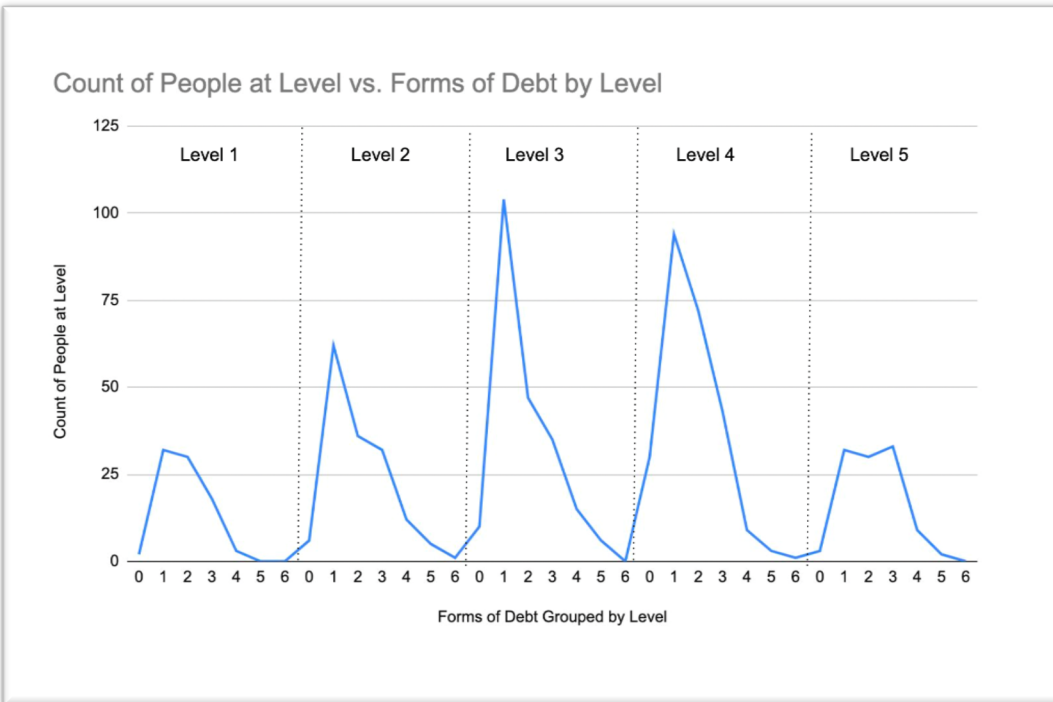
Figure 14. "Count of People at Level vs. Forms of Debt by Level." This chart shows the number of forms of debt a respondent has at each self-ranked literacy level. The respondents each had between zero to six forms of debt.

Figure 15 is a grouped collection of how many forms of debt adult respondents had at each

FinIQ Level. Level 3 had the highest concentration of respondents with only one form of debt.

Only 5.9% of adult respondents had no debt, and some respondents even had 5 types of debt.

Figure 15. "What type of debt does your household have?" This chart shows a breakdown of types of debt that adult survey respondents have. Keep in mind that some respondents selected up to six forms of debt. Only 5.9% of respondents had no debt. Forms of Debt is visible in Figure 17 and Table 7.

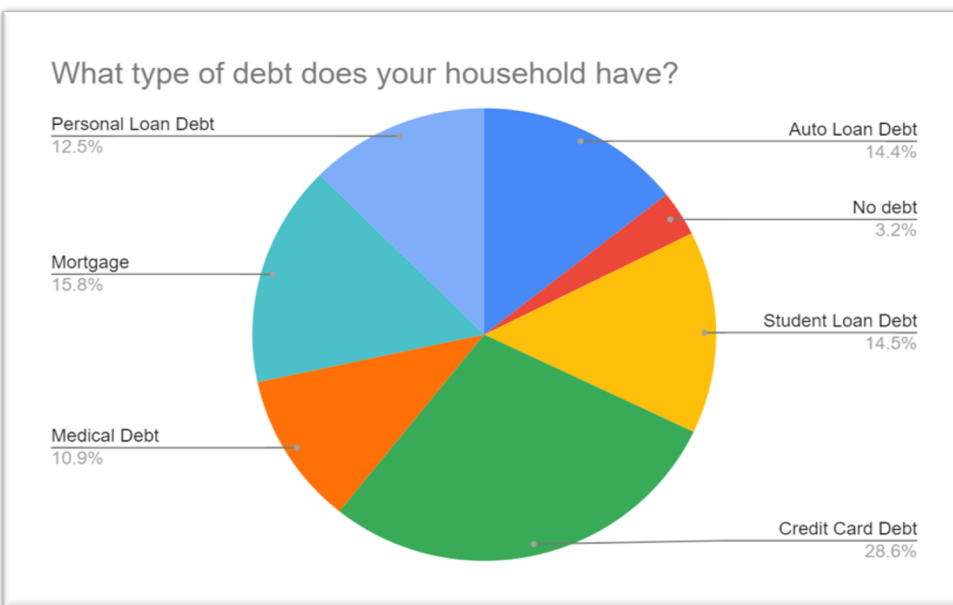| Types of Debt	
No debt	49
Credit Card	434
Auto	218
Personal	190
Student	219
Mortgage	241
Medical	165

Table 6. "Types of debt." This table shows a breakdown of types of debt that adult survey respondents have. Keep in mind that some respondents selected up to six forms of debt. Only 49 respondents had no debt, out of over 800. The 773 respondents who had debt had a total of 1,467 debts. This does not include the fact that respondents could have, for example, multiple mortgages.

One interesting set of data to track is the level of education each respondent has, and how many forms of debt they have. See Figure 16 for the breakdown of education in the adult respondents. The two respondents with 6 forms of debt, both had at least started college. One of the six forms was a student loan. One of the two finished college. Of the 19 respondents with 5 forms of debt, only 2 didn't have a mortgage. All had at least started college, had student loan debt, and most had auto loans and medical debt. Of the 48 respondents with 4 forms of debt, all had at least started college, some completed college, and some started or completed grad school. This was a well-educated group of responders, 51.6% graduated from college, and 7.4% only graduated from high school. The rest have some college or graduate school. Regarding education for respondents with three forms of debt, everyone had started college, except for 6 who did not continue beyond high school. Of respondents with two forms of debt, 6 of had not completed college, and 26 have not started any college. Only 49 respondents have no debt.
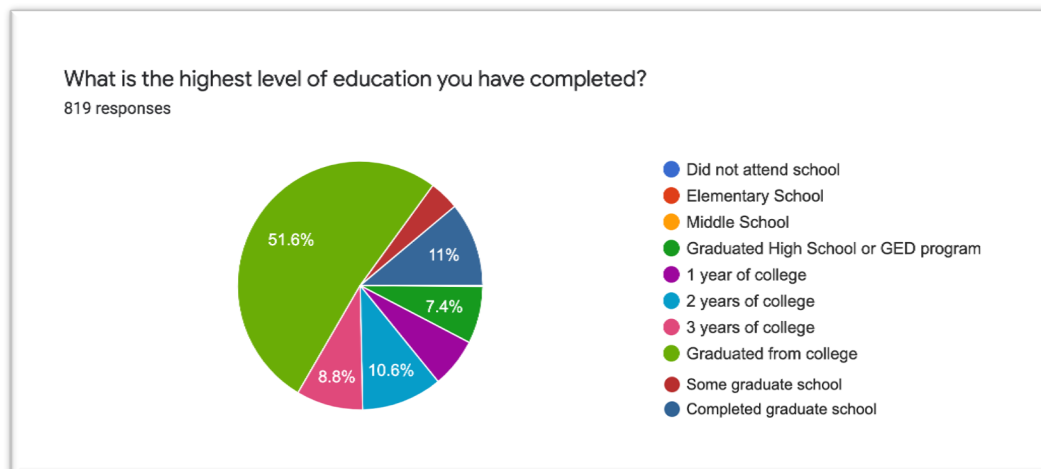
Figure 16. "What is the highest level of education you have completed?" The chart shows the breakdown of adult respondent education level.
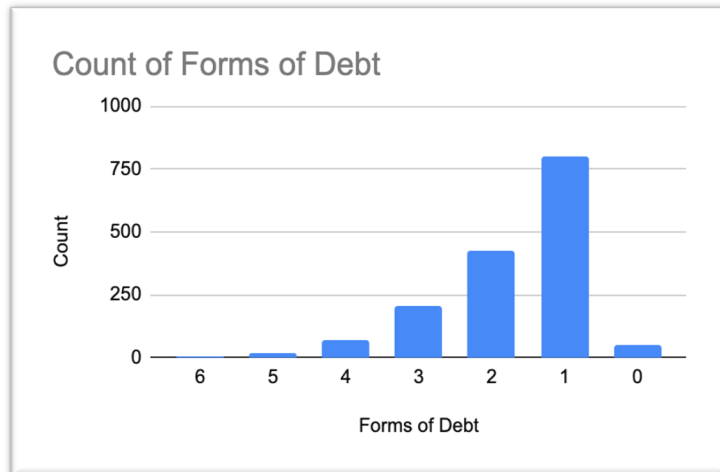
Figure 17. "Count of Forms of Debt" The chart shows the breakdown of how many different forms of debt each respondent has, of the listed option in Figure 15.

Different Forms of Debt	Count of Respondents
0	49
1	378
2	218
3	136
4	48
5	19
6	2

Table 7. "Count of Respondent Forms of Debt" This table shows the breakdown of how many different forms of debt each respondent has, of the listed option in Figure 15. It can be viewed as a chart in Figure 17.

As you can see in Figure 17, most respondents, by a wide margin, had either one or two forms of debt. Table 7 shows that 136 respondents had three forms, and 218 responders have two. In Table 7, 378 respondents had one form of debt, making it the most common answer. That is 44% of all respondents.

| Forms of Debt	Count of People at Level 1
0	2
1	32
2	30
3	18
4	3
5	0
6	0
Forms of Debt	Count of People at Level 2
0	6
1	62
2	36
3	32
4	12
5	5
6	1
Forms of Debt	Count of People at Level 3
0	10
1	104
2	47
3	35
4	15
5	6
6	0

Forms of Debt	Count of People at Level 4
0	30
1	94
2	72
3	43
4	9
5	3
6	1
Forms of Debt	Count of People at Level 5
0	3
1	32
2	30
3	33
4	9
5	2
6	0

Table 8. "Forms of Debt by Literacy Level." This table shows the breakdown of how many different forms of debt each respondent has, per their self-ranked literacy level. This can also be viewed more comprehensively in Figure 14.

The respondents had the opportunity to mention how they think they could improve their savings and reduce their debt. To support their ranking people quoted terms on the literacy sheet, stating confidence that they can perform that ability. Almost 100% of Level 5 self-ranked literacy respondents mentioned they either studied or worked in business or math. The comments are very similar to the student survey responses. People often mention their major or their plans for a future in financial services or related industries. One respondent claimed that they are a lottery winner and therefore have plenty of money, so their financial security is the claimed reason for their literacy. This person may use their lottery success to explain that they have no debt. However, if they do not invest or allow it to compound, they fail to maximize future monetary success. This respondent represents someone who has money but is not financially literate.

In response to the survey question "What do you think would improve your ability to save money?" 487 people of all industries and interests said they would improve spending and reduce debt if they made more money. Some even said it was a stupid question! Most of these respondents could save smarter. Having credit card debt can be crippling at times, and smarter credit decisions can aid in the pursuit of savings. Level 5 respondents were more likely to credit their qualifications than Level 4 people. Level 4 people had more passive statements like, "It accurately describes my level," or "Level 4 suits the abilities of my household." Level 4 people were more likely to work multiple jobs. They were more critical about their debt, stating that credit card debt is the biggest burden of their finances.

Level 3 responders said that the information present in the table was incredibly helpful to classify their own knowledge. Level 3 was one of the highest sets of respondents. Many of the Level 3 self-rank respondents chose it because it was in the middle and they felt like they have medium level literacy accomplishments. They had comments like, "it felt right to me," or "it fit my level of literacy." They did not support their knowledge or qualifications like the respondents who were higher on the list. They also often pointed to the fact that they could personally improve their spending habits to elevate to a Level 4, as opposed to making more money or blaming their job.

Level 2 respondents tended to mention their confidence when spending. They are most likely to feel uneducated in the concepts or misguided. They attempt to save however they struggle with ways to make smarter decisions.
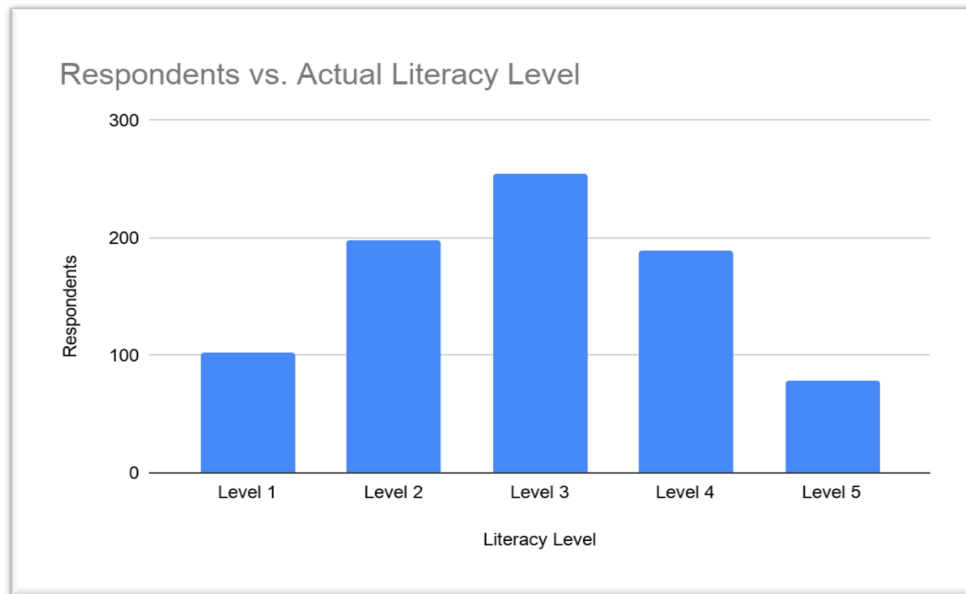
Figure 18. Panel A. "Respondents per Actual Literacy Level" is a chart depicting the actual literacy levels of the adult respondents.
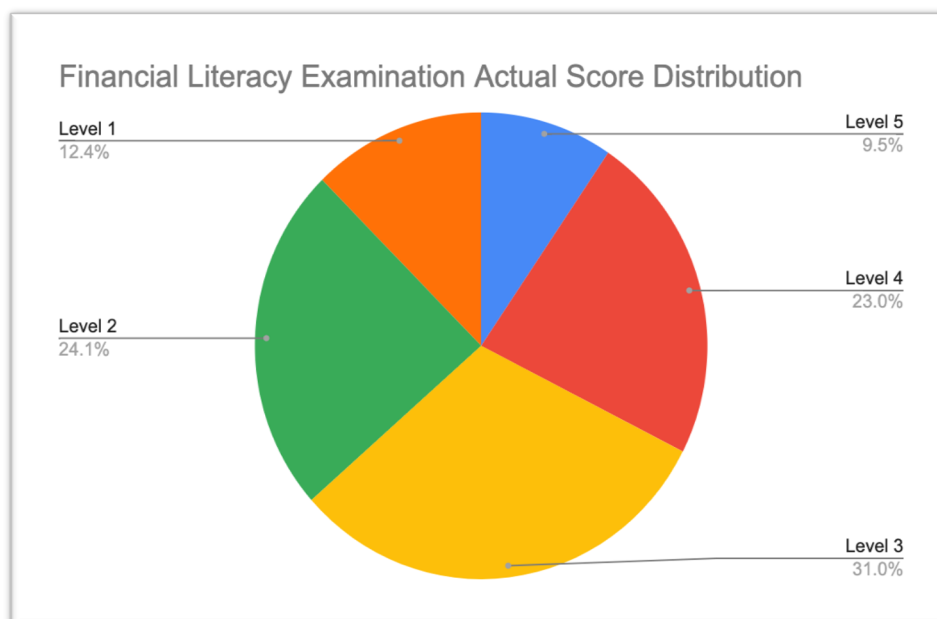

Figure 18. Panel B. "financial Literacy Examination Actual Score Distribution" is a pie chart depicting the actual literacy levels of the adult respondents.

Literacy Level	Respondents	Percentage
Level 1	102	12.41%
Level 2	198	24.09%
Level 3	255	31.02%
Level 4	189	22.99%
Level 5	78	9.49%
Total	822	100.00%

Table 9. "Actual Literacy Levels of Adult Respondents." This is the table of all respondents' real literacy levels. This data is also in Figure 18.

Maximum Expected Achievement by OECD	
Level 1	95.20%
Level 2	84.70%
Level 3	61.80%
Level 4	31.60%
Level 5	9.70%

Table 10. "Maximum Expected Achievement by OECD" is a selection of Table 1 which was inserted for your ease when comparing data to the OECD's expected distribution breakdown. As a reminder, the OECD's numbers are shown in a waterfall, where 95.2% of people would be able to achieve Level 1 literacy, but only 9.7% of people would be able to achieve Level 5.

The actual results of the respondents do fit within the outlined predicted percentages that are present in Table 10 that contains explanations of every level of literacy (Table 1). Table 9 shows that only 9.49% of respondents actually achieved a Level 5 literacy score. 12.41% of respondents received a Level 1. The self-ranked data however, in Batch 1 13.29% of respondents self-ranked Level 5 literacy, and in Batch 2 9.31% self-ranked Level 5. Using Table 5, together Batch 1 and Batch 2 had 11.3% of respondents' self-rank Level 5. Using the OECD standards in Table 1, it was predicted that only 9.7% of respondents would be able to achieve the highest level, and this data falls under that predicted range. Of the 822 respondents, only 9.49% were able to achieve Level 5 literacy.

Limitations

This research was limited by the breadth of the pool of survey participants. Survey one was carried out by college students who are of a similar level of educational success and are all aged 18-24. These findings are only relevant to this age group and to comparable educational background.

There are fewer limitations of the adult surveys because of the larger pool of respondents, and the greater variety in their demographics. Eighty-five percent of the respondents were from all over the country, and a small percent were global. All were aged from 18-65+. The survey was created and distributed using Amazon Mechanical Turk, which finds its workers through a database, and workers can be required to have a track record of quality results. There was a monetary reward for completing the survey, and if a respondent did not give an acceptable response or the proper responder code at the end they would not be paid for their time. This metric improves the quality of results. However, bias is always present. The respondents were 60.5% male, which can skew the quality of the results as more applicable to males than the general population. There was a large percent of respondents from certain industries, such as roles related to electronics and education. This could present biases of those results. In general people who answer surveys tend to be more opinionated and represent the more dramatic population. Most of these concerns are mitigated by the fact that over 800 respondents were involved in the survey and because Amazon vets their responders, however it is important to consider this when analyzing data and results.

Discussion

Speaking with professionals across multiple industries confirmed the importance and benefits of being financially literate in everyday life. These mentors with whom I spoke take their wisdom with them out of the office. They consider every expenditure in their life to be an investment. They also believe the earlier you learn that money is fungible, the more comfortable you be when making financial decisions. Money is fungible, meaning, every dollar you spend is a dollar you are not investing in your future. Money found is just as important as money earned. It all should be included in your investment plan.

The overwhelming reason for divorce is financial issues, so the health of the stock market can even equate to the health of your most important relationships. Last year, TD Ameritrade found that "41% of Gen Xers and 29% of Baby Boomers say their marriage ended due to disagreements about money."[5] Financial stability leads to financial freedom. Once you are making smart decisions you are investing in your own prosperous future. Stability is reached by investing money properly, not spending beyond your means, and properly budgeting.

Mentorship is the best way to get guidance and become fully financially literate. Finding someone who can guide you in the right direction and expand your knowledge can be as simple as socializing outside of your major, or as calculated as sending cold emails to someone in an industry that interests you. Either way, find someone who exudes wisdom and has the knowledge you seek. A coffee date can lead to a lifelong conversation and enrich your knowledge of a new subject matter.

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[5] Hill, C. (2018, January 10). *This common behavior is the No. 1 predictor of whether you'll get divorced.*

The lack of FinIQ in both the college student and adult demographics aligns with the concerns Niall Ferguson explained in *The Ascent of Money*. I have personally seen college students make mistakes with grave effects on their bank accounts due to lack of basic FinIQ. An example is a college student overpaying the government in taxes due to a mistake in filling out their tax form.

Non-business students shy away from concepts they perceive belong in the business school. In reality, FinIQ could benefit everyone. There are intelligent people all across college campuses. Regardless of major, they shy away from any discussion pertaining to FinIQ, citing it's not their area of interest. The knowledge of the state of the economy is important regardless of your pursuit of excellence. Students who do not engage in FinIQ or feel these concepts are out of their comfort range, are quite literally leaving money on the table.

Adults behave similarly, but they understand their connection to the financial world, because of their financial responsibilities. Adults in the survey were asked how they could improve their saving. They mostly wrote that it was a stupid question or obviously would save more if they earned more money. This was the exact type of answer I expected people to say, however there are many ways to save money. Passive investing is a very basic way to allow your dollars to grow with the market movements. In addition, many adults increase their spending in proportion to any pay increase they have. So, saying that they could save more by earning more money is often not true. In addition, if adults had increased literacy on what the effects of their many forms of debt are, they could make more educated decisions on how to use the income they do have. Investing and paying off debt are two ways to drastically change the economic position of someone who has income.

Quick Guide to Investment Decisions

There are three easy and important concepts that could help any family improve their savings. The first is compounding, the second is the three investment rules, and the third is rebalancing.

By compounding you can put a little bit of money away while you are young and have much more money when you are older. The amount of pleasure you will forgo by putting away this money now will not affect your present lifestyle, but the benefits of the money's growth will greatly change your life for the better, in years to come.

When you are investing it is reasonable to expect a return in the stock market of 7-8% on an annualized basis, based on the last 60 years. With the effect of compounding growth, every dollar invested today will probably grow 10-fold over the next 30 years. With stock market growth the effects could be even greater.

Sadly, the interest that many Americans pay, especially young people, for loans and credit card debt over the long term will place an undue burden on you as a potential investor over your lifetime. This is because interest rates you are paying, will tend to be higher or about the same as what you can expect to earn on your investments. Therefore, the money you save should be put toward paying down your debt as quickly as possible. You should always start with paying off your highest interest rate debt first and work your way down to your lowest interest rate debt. Once you are debt free, you should start saving 10-15% of your income towards your future. Remember to keep 3 to 6 months' salary in cash reserves in case you get laid off. Now you are ready to invest.

The three most important rules of investing are:

1. Maximum diversification
2. Low-cost
3. Tax-efficient

Diversification. Diversification is allocating your capital across as many different securities and asset classes as is practical. It is really as simple as the old cliché, do not put all of your eggs in one basket. No one can predict the future, and the investing world is rife with stories of "sure-things" or "safe bets" that ended disastrously. The great news about diversification is that it is incredibly easy to achieve, and practically free. Our modern stock market is blessed with many products that allow for even the smallest investor to construct a portfolio of literally thousands of securities with only a few thousand dollars. The two most common products used to create this cheap efficient diversification, are mutual funds, and exchange-traded funds (ETFs). Anyone over the age of 18 can go online with great firms such as Vanguard, quickly open an account, and get started by purchasing a mutual fund or an ETF. The most popular one at Vanguard is VOO, an ETF that tracks the 500 largest US companies. These 500 companies give even the smallest investor the appropriate amount of investing in each of the stocks and together they comprise 75% of the domestic stock market.

Low cost. Management cost is where most investors get tripped up. People hear brokerage and management fees of one or 2% and they think that is a small number. On the contrary, that is a very large number. Simple arithmetic can show you why. Seasoned investors are very satisfied with year over year returns of 8%. But if you have to give your brokerage firm 1 or 2%, now you are sad. Even the lower rate of 1% = 12.5% of what you are expecting to make on your hard-

earned savings. Paying fees of up to 2% gives the brokerage firm 25% of your expected income off of that savings. These fees are paid rain or shine, market up or down. During the bad years, you will really feel this. It is absolutely crucial then, that investors put their money in "no load" mutual funds and ETFs to avoid these heinous charges. Additionally, it's crucial that investors only use "no wrap" accounts. A wrap is a flat fee charged by the brokerage firm on the value of the account. If you buy a mutual fund with a load of half a percent, and you open an account, with a half a percent wrap, that is a total of 1% in fees and they are taking 12.5% of your investing income. Meanwhile, they take zero risk and you take 100% of the risk. They are in a great business, do not make it easy for them.

Tax efficient. Tax efficiency, although not the most common mistake investors make, it is certainly, the most costly. The government taxes gains after you sell out your stock holdings. Therefore, the investor who never trades, never pays taxes. Of course, you will need to sell some of your position later in life, so that you can meet large expenses such as buying a home or retiring. The thing to remember is that investing, and trading are two different pursuits. Once you set up your portfolio, leave it alone. You will defer literally tens of thousands of dollars in taxes over your lifetime, if not more. This is not cheating. The government doesn't want investors to act like traders and they punish you by taking your gains if you try to trade the market instead of investing in it. The only other time that it is reasonable to trade, is only when you are "rebalancing" your portfolio throughout your lifecycle, which will be dealt with in the next section.

Selecting the appropriate portfolio. How to know which type of mutual funds and ETFs to invest in, stock or bond. The answer is simply determined by the age of the investor. You take the number 110, that's the constant. Subtract from 110 the age of the investor, that number tells you what percentage of your portfolio you should invest in stocks. The rest should be invested in bonds. It is actually that simple. John Bogle, Founder and former Chairman of Vanguard developed this system.

<center>For a college student, aged 20, it would look like this</center>

<center>110-20=90</center>

Ninety percent of your investment should go into stock like the ETF VOO, and the remaining 10% should go into bonds, such as the ETF BND. As you age, you will want to adjust this portfolio. Adjusting the portfolio is rebalancing. You should rebalance every five years. The typical 55-year-old should have a portfolio that is 50% stock and 50% bonds.

If you started out by investing $1,000 at an 8% rate of return, in 30 years the investment would be worth $10,063. If you added an additional $1,000 every year, it would be worth $123,346 at the end of the 30 years. [6]

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[6] Investment Calculator. (smartasset). Retrieved from https://smartasset.com/investing/investment-calculator#58uG3FGtpk.

If you follow this system, throughout your life, only using "no load" mutual funds or ETFs, you will incur virtually no taxes, no fees, and have maximum diversification. Good luck, I hope you cannot wait to get started.

Conclusion

To conclude, when asked the question "does it matter how you save your money," it should be very obvious that if you want to save more money, you should start as early as possible taking advantage of compounding through low-cost, efficient passive investments. The best way to ensure someone is making the most out of their saving mechanism of choice is to elevate their financial literacy as early as possible. Increased financial literacy increases ability to save and therefore awards an individual with increased disposable income. Increased financial literacy is positively correlated with a solid foundation in quantitative skills.

In the US people clearly do not hesitate to use debt as a financing tool. Most people are not making smart debt financing decisions and can be crippled by these high interest rates. Only 6% of adult respondents had no debt. That is 49 out of 814 adults of all different ages and from diverse backgrounds.

The goal of this paper is to explain the lack of literacy in adults in this country, and to educate on the simple ways to increase earnings for anyone looking to improve their financial situation. To the many people in my surveys who explained that the only way to improve your savings would be to make more money, I hope you see that these easy spending methods and investment decisions are much smarter and more effective ways to improve your financial situation. Without forgoing a great deal of your earnings or quality of life, you can build a significant nest egg. And by improving your financial situation you can alleviate stress on relationships and improve your entire life.

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