

Motivation and financial literacy

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Abstract

This paper examines the hypothesis that low financial literacy scores among young adults, even after they have taken a course in personal finance, is related to a lack of motivation to learn or retain these skills. The research is based upon the latest national Jump\$tart survey of high school seniors and uses financial literacy scores after controlling for socioeconomic, demographic, and aspirational characteristics that have historically predicted these scores. We analyze the relation of financial literacy scores to responses to three questions designed to measure motivation to be financially literate. We found that the motivational variables significantly increased our ability to explain differences in financial literacy. © 2007 Academy of Financial Services. All rights reserved.

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1. Introduction

The financial service industry has become increasingly complex and continues to change, revolutionizing the financial markets. Within this framework, experts recognize the importance of consumer finance and understand that basic finance relationships are key to modern financial security. In recent years the Federal Reserve has focused on the importance of financial education and literacy in the functioning of the financial markets [e.g., see Morton (2005), Greenspan (2003, 2005), Hilgert, Hogarth & Beverly (2003), and Braunstein & Welch (2002)].

Despite the importance of financial literacy, surveys demonstrate that American youth and

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adults do not possess the basic knowledge needed to make good financial choices [see Chen & Volpe (1998) and Volpe, Chen & Liu (2006) for a review]. A 2001 Harris poll of graduating seniors found that only 8% of college seniors believed that they were “very knowledgeable” about investing and financial planning. In contrast, about half believed that they were “not very” or “not at all” knowledgeable. This lack of basic financial literacy often results in poor financial decision making. Murray (2000) demonstrates students have serious issues with credit card use. Citing a Nellie May report, he states 25% of undergraduate college students have four or more credit cards and about 10% carry outstanding balances between \$3,000 and \$7,000.

Garman, Leech and Grable (1996) and Joo and Grable (2000) find that in addition to adversely affecting individuals, poor financial decisions negatively influence productivity in the workplace. Volpe et al. (2006) surveyed corporate benefit administrators and identified basic personal finance as a critical area in which employee knowledge is deficient. They recommend that educational programs should focus on improving knowledge of basic personal finance. However, educational programs are beneficial only if they are successful at improving financial literacy.

This study analyzes data from the national Jump\$Start survey, a large-scale, biennial survey of financial literacy among high school students that assesses various factors relating to financial literacy. The analysis is important in that it is based on questions reflecting a variety of financial literacy issues and avoids the issue of limited focus mentioned by Volpe et al. (2006). The analysis is also important in that it analyzes changes in financial literacy over a period of time and allows a more in-depth understanding of the changing state of financial literacy in the U.S. Our results indicate that student aspiration or motivation is a key characteristic of financial literacy. Thus, successful programs must focus on relating the importance of understanding basic financial literacy to the students’ ability to reach and potentially exceed their level of aspiration.

Consistent with expectations and goal setting theories of motivation, the Jump\$Start survey results show that level of aspiration is one of the most important determinants of financial literacy. Students bound for a four-year college, a professional job or a higher starting salary consistently outscore students who are less highly motivated. Among demographic variables, family income and gender are *not* determinants of financial literacy although race and region are determinants (Mandell, 2004). Because little, if anything can be done to affect student demographics, the brunt of the responsibility for improving financial literacy has fallen upon the secondary educational system.

2. Literature

Motivation has long been recognized as a key driver of individual behavior. Starting as early as Tolman (1932) and Lewin (1938), expectancy theory ties perception to behavior. Since then, extensive academic research has been focused on developing our understanding of motivation. Both the force model (Vroom, 1964) and the utility model (Samuelson, 1967), provide a theoretical grounding for explaining the motivational influences underlying human behavior as a function of expectancy, instrumentality, and valence or utility. Expectancy

relates to the expectation or likelihood that specific actions will yield a certain outcome, alternately that performance is based on effort. Instrumentality relates to the relation between performance and reward, alternately that outcome is based on performance. Valence and/or utility relates to the value or importance the individual places on the perceived outcome. Based on these theories, individuals are motivated by things that can successfully lead to valued outcomes. According to Pinder (1998) expectancy and valence theory is the most widely accepted expectancy theory in research on work motivation.

Stahl and Harrell (1981) and Harrell and Stahl (1986) use a behavioral decision model approach to test expectation theory on individual decision making. Their findings demonstrate that motivational decision making is an additive process rather than Vroom's multiplicative process. This implies that motivation can still be significant even when expectations of success are small if the value or utility of the outcome is large.¹ In some cases, individual behavior may not result in the optimal outcome. A limited number of options may be considered (Wanous, Keon & Latack, 1983), information processing may be suboptimal (Bowen & Qiu, 1992; Park, 1978), or individuals exhibit behavior that is satisfying or simply "good enough" (Wabba & House, 1974).

More recently, expectancy theory has been integrated with goal setting theory (Hollenbeck & Klein, 1987). Goal setting theory is grounded in the belief that conscious goals and intentions drive results. Based on goal setting theory of motivation, Locke (1968) and Locke and Latham (1990) find that individual goals are likely to determine how well they perform related tasks. Specifically, clearly defined and more challenging goals yield higher performance than vague, easy or do-your-best goals. To be effective, goal setting theory assumes that individuals must be committed to the goal, must get feedback and must have the ability to perform the task. Based on motivational and goal setting theory, financial literacy programs should be more effective when they are motivated by perceptions and concerns about financial well-being later in life.

Motivational theory suggests that measures of financial literacy should be related to financial behavior that is in the consumer's best interests. Hilgert et al. (2003) formed a "Financial Practices Index" based upon (self-benefiting) behavior in cash-flow management, credit management, saving and investment practices. When they compared the results of this index with scores on a financial literacy quiz, they found a positive relation between financial literacy scores and Financial Practices Index scores. Their results suggest that financial knowledge is related to financial practices.

Although financial behavior seems to be positively affected by financial literacy, the long-term effects of financial education on financial behavior are less certain. Bernheim, Garrett and Maki (2001) found that those who took a financial management course in high school tended in middle age to save a higher proportion of their incomes than others. On the other hand, Mandell (2006a) found little positive impact of a well-regarded high school personal finance course on post high school financial behavior from one to five years after taking such a course. In addition, as Table 3 shows, every Jump\$Start survey since 2000 found that high school seniors who have completed a full-semester high school course in money management or personal finance are no more financially literate than students who have not taken such a course.

The ineffectiveness of high school classes that teach financial literacy to measurably

increase literacy levels among students that have taken such classes stands in stark contrast to the current efforts to *mandate* such classes throughout the U.S. This article suggests that students retain little of what they learn in personal finance and money management classes because they do not perceive that it is relevant to their lives. In his book *Engaging Minds: Motivation & Learning in America's Schools*, David Goslin (2003) states that the perceived relevance or irrelevance of the subject matter is an important determinant of whether a learner will “become engaged and stay engaged in any learning task.”

3. Methodology

In conjunction with the national Jump\$tart Coalition for Personal Financial Literacy, a survey of financial literacy has been administered biannually to a stratified, random sample of public high school seniors since 1997. The multiple choice survey questions were designed by a committee of financial educators to evaluate financial literacy in the following four areas: Income, Money Management, Spending and Credit, and Saving and Investing. The samples have been drawn from a list provided by the U.S. Department of Education that includes all public schools in the U.S. Geographic representation is insured through stratification by state. The sample is designed so that a school's probability of selection is proportional to its number of seniors. Public high schools within states were rank ordered by numbers of seniors and school selection was based on a random start and a predetermined national sampling interval. This method of selection allows schools of all sizes a chance of selection. To minimize content knowledge bias, each sampled school was requested to administer the Jump\$tart survey to students in a senior English or Social Studies class excluding honors and Business or Economics classes. In the event that multiple sections fit the criteria, the class closest to 10 a.m. was chosen. Participating teachers were rewarded with a U.S. Savings bond until 2004 and were given a gift certificate to Staples in 2006.

The Jump\$tart surveys focus on high school seniors for two reasons. First, high school is the last time students, in general, can be compelled to study any particular subject. As a result, a number of states have mandated high school courses in personal finance in an attempt to produce more financially literate adults. Second it provides a setting in which a large number of randomly sampled students can be given a lengthy evaluation instrument (test).

Over the years the Jump\$tart survey included questions relating to commonly held ideas of imparting financial literacy. However, the survey results indicate that commonly held ideas of imparting financial behaviors do not positively influence financial literacy. For example, the 2000 survey found that young adults who spend a lot of time discussing finances with parents are no more financially literate than those who spend little such time and students who receive a regular allowance from their parents tend to be *less* financially literate than those who are paid for doing chores or who receive no regular allowance (Mandell, 2001). The 2006 survey found that students who own stocks in their own name do not know any more about investments than students who own stocks in their parents' name or who do not own stocks and students who do not have credit cards know more about credit than students who do have credit cards (Mandell, 2006c). In short, even though it is

intuitively appealing, neither parental involvement nor most types of experience appear to make a significant improvement to the financial literacy of high school seniors. Even “just-in-time” education, taken by students close to the time that they make important financial decisions, such as choosing automobile insurance that they pay for or choosing a credit card, does not seem to improve knowledge in these decision areas (Mandell, 2006b).

To more fully analyze the lack of financial literacy, the 2006 JumpStart survey introduced questions to determine the relevance of understanding basic concepts of personal finance. Perhaps apathy concerning their own finances is based upon an incomplete understanding of life in 21st century America where some important safety nets, such as welfare programs, defined benefit pensions and personal bankruptcy laws have been weakened, replaced or eliminated, placing far greater responsibility on individuals to take responsibility for actions and insure their own future (Lerman & Bell, 2006). Absent these concerns, it is hypothesized that students may lack the intrinsic motivation to learn and retain concepts of personal financial management.

4. Results

The five successive national surveys demonstrate that young adults consistently have low levels of financial literacy and despite the recent attention to the importance of financial literacy, the scores have not improved.² This problem is by no means confined to the U.S. The Organization for Economic Co-operation and Development’s report *Improving Financial Literacy* (Organisation for Economic Co-operation and Development, 2005) found the lack of financial literacy to be widespread, affecting Australia, Japan, and Korea, as well as the U.S.

Table 1 presents the demographic control variables of parents’ education, race and region. Although data on parents’ income and the gender of the student were collected, they were not significantly related to financial literacy scores and are not included in the regression. Aspiration variables of education, planned occupation, and expected full time income are significant determinants of financial literacy and are included in Table 2.

The belief that financial literacy is related to financial behavior that is in the consumer’s best interest is supported by the 2006 JumpStart survey’s finding that the probability of bouncing a check varied strongly and inversely with financial literacy scores. Educational variables are described in Table 3. These results provide limited support to the belief that financial knowledge is related to financial practices. Playing a stock market game is consistently related to higher literacy scores, presumably because the fun and interactivity of playing such a real-time game provides the intrinsic motivation necessary for learning. With respect to expectancy and financial outcomes, the survey included questions relating to the importance of major financial situations and the individuals’ ability to control their future. The question and responses are given below. Score gives the mean score for the overall financial literacy test by students who provided each response. Proportion shows the percentage of students giving the specific answer for the question.

Question 48 was designed to see whether students believe financial difficulty results from their own actions or was largely out of their control.

Table 1 Test results by background

	1997	2000	2002	2004	2006	2006	2006	2006
	Mean score	Proportion of students	Percent C or better	Percent failing				
	57.3%	51.9%	50.2%	52.3%	52.4%	100.0%	6.9 %	62.0%
Parents' income								
Less than \$20,000	55.2	46.3	45.7	49.5	48.5	8.0	2.9	74.2
\$20,000 to \$39,999	58.2	52.0	50.7	51.3	50.8	17.0	5.6	67.3
\$40,000 to \$79,999	59.6	57.2	52.3	54.1	53.7	29.1	8.1	57.5
\$80,000 or more	59.0	55.0	52.7	55.9	55.6	27.0	10.5	52.0
Highest level of parents' education								
Neither finished H.S	51.4	47.0	43.7	44.6	44.5	6.4	0.4	82.7
Completed H.S.	57.1	49.7	47.5	51.5	50.6	24.6	4.5	66.7
Some college	55.8	53.8	51.7	52.6	51.8	21.0	6.4	63.2
College grad or more	59.3	55.1	53.5	55.4	55.6	43.7	10.1	53.4
Sex								
Female	57.9	51.6	50.7	52.2	52.3	53.1	4.9	62.6
Male	56.9	52.2	49.8	52.4	52.6	46.6	9.3	60.8
Race								
White	60.9	54.5	53.7	55.5	55.0	71.3	8.9	54.6
African-American	50.4	47.0	42.1	44.0	44.7	10.1	1.6	79.8
Hispanic American	55.1	45.3	44.8	48.3	46.8	8.6	2.0	79.6
Asian-American	55.8	53.5	50.6	48.3	49.4	4.4	2.2	71.9
Native American	48.8	38.6	45.5	46.7	44.1	1.5	5.1	86.6
Region								
Northeast				56.5	53.8	20.0	6.7	59.5
Midwest				52.4	54.2	29.2	7.5	56.4
South				49.9	49.9	37.8	5.1	67.9
West				52.2	52.8	13.0	10.9	61.3

48. Which of the following do you feel is the greatest cause of serious financial difficulty, where families can't pay their bills?

Score	Proportion	
49.0	8.6	a) Bad luck, such as unexpected illness or job loss.
48.1	9.4	b) Not enough savings.
55.0	28.9	c) Buying too much on credit.
53.8	28.9	d) Not following a financial plan.
50.6	24.0	e) Not being able to earn enough money.

(1)

Only 8.6% of the students felt that financial difficulty was totally out of their control and that bad luck was the greatest cause of financial difficulty. Two other responses may be interpreted as beyond the individual's immediate control (not being able to earn enough money and not enough savings).³ The two most common responses (buying too much on credit and not following a financial plan) relate to poor decision making and clearly indicate that financial difficulty is because of actions or inaction by the consumer. Additionally the average financial literacy scores for students who link poor decision making to financial difficulty were above the scores of those who chose other responses.

Table 2 Test results by aspirations

	1997	2000	2002	2004	2006	2006	2006	2006
	Mean score	Proportion of students	Percent C or better	Percent failing				
	57.3%	51.9%	50.2%	52.3%	52.4%	100.0%	6.9%	62.0%
Educational plans								
No further education	43.8	39.7	32.2	41.9	37.9	2.0	2.7	91.5
2-year or junior college	53.8	43.3	46.4	48.0	47.5	14.7	1.7	76.6
4-year college	60.0	54.5	53.5	55.0	54.9	70.9	8.8	55.3
Planned occupation								
Manual work	45.5	38.7	39.4	40.0	41.0	2.7	1.4	87.9
Skilled trade	55.7	43.6	45.7	47.1	47.8	6.2	4.0	71.4
Service worker	54.4	41.3	43.3	49.0	49.5	10.6	5.6	67.4
Professional worker	59.6	55.0	53.1	55.2	54.9	50.3	8.9	54.9
Expected full-time income								
Under \$15,000	47.4	40.6	39.0	45.1	42.5	2.8	1.4	82.2
\$15,000 to \$19,999	53.3	41.7	46.6	48.8	46.4	6.1	2.4	78.8
\$20,000 to \$29,999	58.5	53.4	50.3	51.3	51.6	13.5	5.7	63.7
\$30,000 or more	59.5	54.4	52.6	53.8	53.9	20.4	6.9	58.8
\$40,000 or more				54.1	54.1	41.4	9.3	57.5

Question 49 assesses student perceptions on seriousness of insufficient financial resources.

49. How bad do you think it is for families who don't have enough money to pay their bills?

Score	Proportion	
43.2	8.5	a) Not so bad, a lot of families go through this.
53.5	49.0	b) Pretty bad, it is painful to experience.
52.9	42.5	c) Very bad, it is one of the worst things that can happen to a family.

(2)

Table 3 Test results by money management education

	Mean	Mean	Mean	Mean	Mean	Proportion	Percent C	Percent
	1997	2000	2002	2004	2006	2006 of	2006 or	2006
	score	score	score	score	score	students	better	failing
All students	57.3%	51.9%	50.2%	52.3%	52.4%	100.0%	6.9%	62.0%
Classes in H.S.								
Entire course, money mgt./personal finance		51.4	48.2	53.5	51.6	16.7	6.8	62.4
Portion of course, money mgt./personal finance		52.9	49.8	52.7	53.4	29.3	7.3	59.7
Entire course, economics		51.0	49.8	53.0	53.2	38.1	7.8	59.9
Portion course, economics		52.1	51.1	53.2	53.0	27.4	7.9	60.0
Stock mkt. game in class		55.1	52.4	55.8	55.0	27.7	10.0	55.0

The results suggest that students realize that insufficient funds are a serious problem. Over 90% of the responses were split between responding that not having enough money was “pretty bad” or “very bad.” Only 8.5% of the responders indicated that not having sufficient funds to meet your financial obligations “isn’t so bad” and these students had very low financial literacy scores.

The final question was designed to see how knowledgeable students were about the importance of saving for retirement.

50. What do you think happens to older people when they retire if they haven’t saved much money and don’t have a good pension from their former jobs?

<i>Score</i>	<i>Proportion</i>	
39.9	7.5	a) <i>They live pretty well on Social Security.</i>
50.4	42.3	b) <i>They get by on Social Security by keeping their expenses down.</i>
56.0	50.1	c) <i>They find it tough to live on Social Security</i>

(3)

Here only 7.5% of respondents felt that people could live pretty well on Social Security and the average literacy scores of those students was just 39.9%, about the lowest identifiable subgroup found in the survey. Just over half the students felt that it was tough to live on Social Security and their average score was 56%. Thus, the greater the belief that savings is an important addition to social security, the higher the financial literacy score.

5. The importance of motivation

To test the relative importance of motivation as a determinant of financial literacy, we regressed the 2006 financial literacy scores on the motivation variables as well as a set of control variables known to affect these scores. Table 4 presents the regression results. Column 2 includes the coefficient for non-motivational control variables and indicates that these variables explain 15.7% of the variability in financial literacy scores. Column 3 adds the three motivational variables to the regression model. Each motivational variable was introduced at one time to see the separable effects as well as to eliminate the data mining that results from the use of stepwise regression techniques. All of the motivational variables are significant at the one percentage level and in the anticipated direction and the explanatory power increased 28% (from 15.7% to 20.1%). Thus, the students’ belief that financial difficulty results from poor decision making, the important of having enough money to pay bills and the greater motivation to save for retirement are significantly related to financial literacy scores.

This research supports previous evidence that motivated adults benefit from targeted financial education. Elliehausen, Lundquist and Staten (2003) found that credit counseling tended to improve borrowing behavior and improve creditworthiness. Hiram and Zorn (2001) found that pre-purchase counseling programs for those about to buy a home decrease

Table 4 Regression analysis of the impact of non-motivational and motivational variables on financial literacy

Variable	Coefficient	Coefficient
Constant	0.338***	0.405***
Parent is a college graduate	0.030***	0.026***
White	0.076***	0.064***
Lives in south	-0.022**	-0.020**
Plans to attend 4-year college	0.060***	0.054***
Plans to be a professional	0.031***	0.027***
Expected starting income over \$30,000	0.020**	0.017*
Has played a stock market game	0.025***	0.023**
Financial difficulties no plan/credit		0.025***
Not so bad to not pay bills		-0.068***
Live well on social security		-0.090***
Adjusted R ²	0.157	0.201

Note: *Significant at the 0.05 level; **significant at the 0.01 level; ***significant at the 0.001 level.

delinquency rates. Bayer, Bernheim and Scholz (1996) found that employer retirement seminars increased both participation in and contributions to voluntary savings plans and Lusardi (2004) found this to be particularly true for older workers who, presumably, had higher levels of motivation. Neukam and Hershey (2003) divide motivations to save for retirement into those that are fear-based and those that are goal-based and suggest that attendees in group-based retirement intervention contexts be prescreened and separated into sessions that address unique motivational needs of each personality type.

Our analysis of the Jump\$tart data indicates that successful financial literacy is related to students' perceptions of future goals including a college degree, a professional job or a higher salary. Most financial planning starts with an analysis of goals. However, setting clear and obtainable goals and developing a deep appreciation of how basic financial literacy will allow them to reach their goals is often missing from financial literacy programs. Thus, financial literacy programs must address student expectations and challenge them to develop a financial plan that will lead to success. Programs must relate the course content to goal obtainment and demonstrate how understanding and implementing financial principles will add significant value to their lives.

6. Summary and discussion

High school classes in personal finance or money management do not tend to increase the financial literacy of students who take them. The lack of "stickiness" of courses that are both relevant and beneficial to students has long puzzled those who look to education for the solution to problems caused by financial illiteracy.

This paper examines whether the equally low financial literacy scores of those who have or have not taken relevant coursework can be partially explained by the fact that many students just don't care about their personal finances. Such apathy could result from an all-encompassing focus on consumption or it could result from a lack of knowledge of the

importance of looking out for oneself in 21st-century America. Our research demonstrates that motivation is an important driver of financial literacy. After controlling for other important determinants of financial literacy, we find that questions relating to motivation add significantly to explaining student financial literacy scores.

These results suggest an approach to teaching that places great emphasis on *why* financial literacy is important to the student and his or her future. Given the tendency, quantified by Laibson (1997), to overrate the benefits of immediate consumption and underrate the difficulty of making future payments for that consumption, it is easy to understand why consumers apply such a high discount rate to the disutility of payback. The disfunctionality and unhappiness of families with severe debt difficulties and the struggles of many elderly, who are trying to scrape by, seldom make prime time television. Nor are many students exposed to the fact that falling birthrates and longevity combine to increase the dependency ratio, placing greater burdens on them during their working years.

There is no single, silver bullet that will solve the problem of financial illiteracy. For high school students, motivation is a key factor to becoming financially literate and trained instructors who teach personal finance interactively through activities such as a stock market game or other simulations are certainly a start. In addition, as we learn in this paper, it is important for these teachers to set the stage by demonstrating to their students, perhaps repeatedly, that they are responsible for their futures and that the happiness of these futures can vary dramatically based upon their actions.

Notes

1. Harrell and Stahls' (1986) results are consistent with earlier research by Stahl and Harrell (1984), Butler and Womer (1985), and Rynes and Lawler (1983).
2. Mean scores on the standard Jump\$tart multiple choice test of important, age-appropriate concepts hit a high of 57.3% in 1997 and a low of 50.2% in 2002. The 2006 survey of 5,775 high school seniors resulted in a mean score of 52.4%.
3. In retrospect, "not enough savings" ended up somewhat ambiguous because it could be interpreted to mean that the person did not save enough or it could be interpreted to mean that a lack of income did not generate sufficient savings.

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