

How To Improve Financial Knowledge, Attitudes, And Behaviors Among Consumer Science Constituencies

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Consumer science educators, especially those involved in personal financial management education, are the first to acknowledge that poor personal financial knowledge, attitudes, and behaviors can lead to lower financial wellness (e.g., O'Neill, 1996). Although consumer science educators already know that proactive financial education is effective in changing knowledge, attitudes, and behaviors, little empirical evidence exists to substantiate the argument that "financial education works."

It has been widely reported that Americans lack the necessary financial preparedness to meet many short- and long-term financial objectives such as retirement and other financial events (Atchley, 1998; Joo, 1998). This weakness in financial preparedness is a growing concern for consumer science educators and their constituencies, because while the concern is well documented, viable solutions are often expensive and untested. The question that still remains to be thoroughly answered is "how can financial knowledge, attitudes, and behaviors be changed?"

The purpose of this paper is to answer this basic question by moving beyond pure theory development or the simple presentation of descriptive statistics relating to financial education by presenting the statistical results of a study designed to quantify whether financial education has a positive impact in changing financial knowledge, attitudes, and behaviors. Specifically, five research questions were developed and tested. These questions included: (a) what impact does financial education have on financial knowledge? (b) what impact does financial education have on financial risk-taking attitudes? (c) does the effect of education on risk-taking attitudes dissipate when changes in knowledge are accounted for? (d) what impact does financial education have on economic expectations? and (e) what impact does financial education have on the intent to change saving and investment choices? This paper adds to the growing body of literature that argues for increased financial education directed at all Americans, regardless of age or gender to help improve financial wellness through changing financial knowledge, attitudes, and behaviors.

Background Review

It is widely reported in the literature that increased educational levels are associated with an increased awareness of financial issues (Haliassos & Bertaut, 1995; Sung & Hanna, 1996; Zhong & Xiao, 1995). Additionally, researchers continue to find that increased levels of financial knowledge lead to increased confidence in risk taking and financial planning behaviors (e.g., Grable & Joo, 1997; Sung & Hanna). It has been argued by some that the best way to improve someone's level of financial knowledge, attitudes, and behaviors is through financial education — either formal training or through professionally developed and presented workshops. For example, Bernheim, Garrett, and Maki (1997) concluded that high school curriculum mandates that required financial education for public school children significantly increased exposure to financial education and elevated the rates of savings and wealth accumulation of students over time above those students who were not subject to mandatory financial education. Bernheim et al. argued that "education may be a powerful tool for stimulating personal saving" (see web site at <http://www.econ.stanford.edu/econ/wprkp/swo97012.html>).

The potential effects of financial education are substantial. However, there is still a lack of empirically based inferential research that has examined evidence of the effects of financial education. The need exists for focused research aimed at examining the effects of financial education on financial knowledge, attitudes, and behaviors.

Methodology

The intent of the present study was to expand on Bernheim et al.'s (1997) findings by examining the possible effects of financial education on financial attitudes, especially risk tolerance, financial knowledge, and the intention to save and invest. A quasi-experimental design method, as defined by Pedhazur and Schmelkin (1991) (i.e., non-random selection and assignment of participants and no control group), was used to assess the impact of education on financial knowledge, attitudes, and behaviors. The participants ($N = 75$) were 50 female and 25 male students enrolled in a 15 week financial planning course taught by a Certified Financial Planner. Participants' ages ranged from 18 to 54 ($M = 21$ years of age). Participants who took part in the study volunteered as an in-class exercise. The participants were given extra credit for their participation and treated in accordance with the "Ethical Principles of Psychologists and Code of Conduct" (American Psychological Association, 1992).

Procedure

At the beginning of the course, participants were to be asked to voluntarily participate in a pre-test experiment by completing a questionnaire developed to assess a respondent's financial knowledge, risk tolerance, economic expectations, and savings/investing behavior (See Grable (in press) and Grable & Joo (1997) for general descriptions of questionnaire items). No specific mention of the results of the pre-test were provided to the class, and no special effort was made to "teach to the test" during the term of the course. During the last day of class a post-test was delivered to participants. The post-test contained the same questions, in the same order, excluding demographic assessments.

Results

The participants of this research provided a useful sample for the study of educational effects on financial knowledge, attitudes, and behaviors. Approximately 67% of participants were female. The average age of participants was 21.11 years, with a median age of 20 years. Almost 97% were enrolled in school full-time, with about half (52%) being juniors or seniors and the remainder (48%) being freshmen or sophomores. The majority (92%) of participants were single while 8% were married. Income for participants ranged from zero to \$27,000 per year ($M = \$5,203$). The low mean income reported was a result of 45% of participants not being employed. Based on the pre-test results, it was determined that the average participant had a moderate amount of financial risk tolerance, a vague notion about financial terms and practices, and an expectation that the economy would perform about the same or slightly worse in the next five years.

In terms of savings, 79% of participants indicated having a savings account in their own name, while 85% indicated having a checking account. The average cash balance in participants' savings accounts was \$300. Sixty-one percent of participants indicated owning another type of financial asset, such as an EE Savings bond, mutual fund, or collectible. Results from the pre-test indicated that only 40% of participants planned to put additional money into assets besides savings and checking accounts.

Table 1 presents results from three t-tests designed to examine the impact of financial education on financial knowledge and attitudes. A significant difference was found between the pre- and post-test means for financial knowledge and risk-tolerance scores, indicating that participant's knowledge and risk tolerance increased after receiving

financial education. These findings indicated a positive relationship between (a) financial education and financial knowledge, and (b) financial education and risk tolerance. However, no significant difference was found between economic expectations scores, indicating that participants expected the economy to do about the same or slightly worse in the next five years.

Table 1. T-test Results for Pre- and Post-test Participants

	Mean Pre- Test	SD Pre- Test	Mean Post- Test	SD Post- Test	t value	Sig.
Risk Tolerance	35.77	6.40	39.48	4.98	-3.96	.001
Knowledge	2.15	.85	2.80	.74	-5.04	.001
Economic Expectations	1.89	.71	1.97	.77	-.66	.509

An Analysis of Covariance (ANCOVA) was conducted to examine the effect of financial education on risk tolerance, taking into account known changes in financial knowledge. According to researchers such as Grable and Joo (1997), a possible direct causal relationship may exist from knowledge to risk tolerance. To test for the possibility that improved financial knowledge might lead to an increase in risk tolerance the ANCOVA method removed the bias in risk tolerance scores caused by changes in financial knowledge. Results showed the main effect of financial education on risk tolerance was significant even when controlling for the possible effect of financial knowledge ($F = 4.524, p < .05$).

A chi-square was used to test the relationship between financial education and the intent to change saving and investment choices. Table 2 indicates the number of participants indicating a plan to purchase assets other than savings or checking accounts over the next year from the pre- and post-test. For participants in the pre-test, 45 (60%) indicated that they planned to make purchases in the following year while 30 (40%) did not. Results from the post-test indicated that 63 (84%) were planning to make a purchase in the upcoming year with only 12 (16%) not planning a purchase. The chi-square analysis revealed that significantly more participants planned to purchase a non-savings or checking account asset (i.e., a risky asset such as stock, bond, or mutual fund) during the upcoming year after receiving financial education ($X^2 = 10.71, p < .001$).

Table 2. Chi-Square Results of the Impact of Financial Education on Investment Plans

	Do Not Plan To Invest	Plan To Invest	Row Total
Pre-Test	30	45	75
Post-Test	12	63	75
Column Total	42	108	150

$\chi^2 = 10.71, p < .001$

Conclusions

The results of this study add to the existing body of knowledge by offering an insight into the role that financial education plays in shaping knowledge, attitudes, and behaviors. Findings showed that financial education does have a positive impact on (a) financial knowledge, (b) risk-taking attitudes, and (c) the intent to change saving and investment choices. Respondents' financial knowledge level increased significantly by financial education. Respondents' risk-tolerance level also increased significantly after financial education. However, financial education did not have an impact on the economic expectations of participants. Finally, respondents' intention to change savings and investment choices improved after financial education.

Implications

Previous research indicates that individuals who have more financial knowledge and greater financial risk tolerance tend to have a common psychological profile that enables them to make changes in their financial lives more easily than others (e.g., Sung & Hanna, 1996). Research conducted by others in the past also indicates that the single best method for increasing risk tolerance, financial knowledge, and changing financial behaviors is through carefully administered financial educational methods (Bernheim et al., 1997; Garman, 1997). The results of this study support this general theme. More specifically, based on findings from the t-tests, the Analysis of Covariance, and the chi-square analysis, one can argue that financial education does, in fact, have a positive impact on financial knowledge, risk-tolerance attitudes, and the intent to change saving and investment choices. More research is needed to examine the effects of financial education on financial knowledge, attitudes, and behaviors.

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