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The International Journal of Management Education

journal homepage: www.elsevier.com/locate/ijme

An exploratory study of financial literacy training for accounting and business majors

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ARTICLE INFO

Article history:

Received 27 July 2015

Received in revised form 27 October 2015

Accepted 30 November 2015

Available online xxx

Keywords:

Financial literacy

Training model

Millennial generation

Business education

ABSTRACT

Consumer financial literacy remains a subject of intensive discussion within academic, business, and governmental policymaking communities. This study considers learning outcomes associated with teaching basic financial literacy concepts to undergraduate accounting and business students enrolled in the principles of accounting sequence. The study was conducted at a small mid-western university utilizing a full-time, Master of Business Administration student to develop and deliver financial literacy training workshops to students enrolled in the target courses. This single source for training materials and pedagogical delivery removed any potentially confounding effects that would be associated with engaging more than one person. A statistical assessment of the pre-test and post-test outcomes was conducted within a matched-pair, repeated measures statistical evaluation framework. The findings suggest that a parsed approach to teaching financial literacy, as opposed to a single personal finance course, represents a potentially effective method for addressing the basic financial literacy needs of undergraduate accounting and business students. Further, these results suggest that it may be possible to expand the training model in a cost effective and efficient way so that financial literacy training could be provided in a reasonable manner to all undergraduate students regardless of their major area of study.

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1. Introduction

Consumer financial literacy persists, some seven years following the beginning of the great recession in the United States, as a subject of fascination and considerable discussion within the academic, business, and governmental policymaking communities. The ongoing debate remains both informative and constructive leading in many cases to calls for action and initiatives specifically designed for and directed at addressing the perceived lack of knowledge among the broad group of consumers. Concurrently, an important consumer sub-group of consumers is represented by the cohort of young adults (16–22 years of age) – budding consumers who arguably have immediate and unquestionably will have substantive long-term and lasting impacts on the aggregate economy. It is within this distinct consumer base that the greatest opportunity exists for educators and educational institutions to play a role in this important debate and the ultimate identification and implementation of an effective, efficient, and timely solution to address this fundamental literacy issue.

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Secondary educational institutions, formative environments that are clearly and certainly intended to be and are instrumental in developing the overall knowledge base of younger adults (16–18 years of age), have recently faced broader demands for mandatory financial literacy education in high school curricula ([Jump\\$tart Coalition for Personal Financial Literacy, 2010](#); [National Association of State Boards of Education, 2006](#); [President's Advisory Council on Financial Literacy, 2008](#); [U.S. News & World Report, 2009](#)). Many schools and states have responded in a proactive manner by requiring, and in some cases mandating, such an educational focus within their curriculums. These efforts have generally involved a free-standing course in personal finance or economics. What is clear and central to the discussion is that this group of younger adults (16–18 years of age) likely represents the correct target for such efforts as it includes the broadest coalition of persons fitting the definition of young adults. This is a factual statement because while most young adults attend and graduate from high school, many do not take advantage of post-secondary educational opportunities. As a result, financial literacy efforts exclusively directed at vocational and college students hold a reduced probability of influencing a significant portion of the young adult cohort. Yet, empirical assessments of secondary school financial literacy over the past decade have provided mostly discouraging results indicating that these efforts leave considerable room for improvement ([Jump\\$tart Coalition for Personal Financial Literacy, 2010](#)).

Post-secondary educators and academic institutions find themselves faced with both an issue and an opportunity. The issue, of course, is financial literacy for young adults (18–22 years of age – the millennial generation) while the opportunity is represented by the chance to make a difference, to educate, to teach, to have a long-lasting impact on our students – the goal of faculties and institutions of higher learning. To be clear, respected business leaders, concerned business organizations, and highly regarded government policy-making officials have reflected at length on the many issues presented by financial literacy educational gaps and omissions relative to young adults (16–22 years of age). These deliberations have identified significant educational gaps and omissions that have served and will continue to serve to feed a portfolio of important and pervasive financial issues including, but not limited to, personal bankruptcies, credit card debts, excessive personal borrowing, household foreclosures, stock market losses, and sub-prime mortgages failures ([Bernanke, 2008](#); [Johnson, 2010](#)). Ultimately, these knowledgeable and interested stakeholders have concluded that an overwhelming need and demand exists for focused educational efforts that will develop an immediate and long-term ability in the educational subjects to make good financial decisions that will benefit their own economic welfare while concurrently providing correct and positive stimuli to the aggregate economy.

All of these points of view provide a foundation upon which a compelling argument for action can be articulated, built on the belief that the financial literacy of our young adults (16–22 years of age – the millennial generation) holds the very key to prosperity for coming generations. These citizens will soon form a significant portion of the foundation upon which the United States and the global economic environments will be built; to the extent that they are ready and able to participate in an informed and positive manner, these economies will have great potential for success – to the degree that they are not ready, no more needs be stated and the outcome is quite predictable.

2. Financial literacy – A working definition

Financial literacy, from a purely monetary perspective, has been defined as “the ability to make informed judgments and to take effective actions regarding the current and future use and management of money” ([U.S. Department of Treasury, 2008](#)). The true concept, however, is much broader and more pervasive. Financial literacy, for purposes of this research, refers to the ability of young adults to make informed and well-reasoned economic and financial decisions in their own best interests across time ([Mandell, 2009](#)). It includes a wide and divergent variety of economic and financial actions, behaviors, and decisions including, but not limited to, effective money management strategies; the ability to understand financial choices; a knowledgeable and reasoned approach to developing and planning for asset acquisitions and liability assumptions; to prepare for life's events – both good and bad; to put in place insurance to protect assets, provide for family members, and to satisfactorily resolve liabilities should the need for such funding ensue; and to plan for and save for retirement.

3. Literature review

[Chang and Hanna \(1992\)](#) found that individuals with high levels of financial knowledge appeared to make more efficient decisions when contrasted with those possessing lower levels of financial knowledge. [Chen and Volpe \(1998\)](#) studied 924 college students examining their financial literacy and interrelationship amongst a limited group of demographic characteristics. They found that the subjects answered approximately 53 percent of the questions correctly while non-business majors and younger students tended to score lower. In a well-known and widely reported study, [Bernheim, Garrett, and Maki \(2001\)](#) considered high school education in personal finance and reported a positive relationship between the receipt of such training and higher levels of savings decades later. [Hilgert, Hogarth, and Beverly \(2003\)](#) argued that financially literate consumers are more likely to formulate and implement economic decisions in a fiscally responsible manner. [Avard, Manton, English, and Walker \(2005\)](#) assessed the financial literacy of 407 college students enrolled in a freshman English class reporting literacy levels widely dispersed from scores of zero to 80 percent with an average of 34.8 percent correct responses. [Perry and Morris \(2005\)](#) found that individuals deemed to be financially literate are inclined to behave in a more responsible manner saving, budgeting, and planning for the future to a greater extent. [Norvilitis et al. \(2006\)](#) compared the financial literacy, as measured by the Jump\$tart survey, of college students to high school cohorts reporting only marginally higher

knowledge in favor of college students. Peng (2008) provides solid evidence that trained teachers employing a well-structured, mandated curriculum have a positive impact on financial literacy.

In March 2008, the Jump\$tart Coalition for Financial literacy conducted a survey of high school seniors and college students. The survey instruments were identical for both groups collecting information on their knowledge of financial concepts as well as a limited amount of demographic data for each respondent. For the high school students, this effort represented a continuation of a biennial effort first undertaken in 1997. Since their inception, the analysis of responses following each administration has consistently failed to show that students exposed to a semester-length course in financial management are any more financially literate than other seniors (Mandell, 2006, 2009). For the 2008 college student group, the survey was the first such effort directed at them by this organization. An advantage to studying college-aged students is that they are legally responsible adults who must make and be accountable for many, if not all, of their own financial decisions. However, the college student findings with respect to financial literacy were only marginally more attractive than those reported for high school seniors. In fact, both of these surveys provide evidence that there is a considerable gap in the financial literacy of young adults even when the respondents have been exposed to specific training through mandatory or elective course schoolwork.

Borden, Lee, Serido, and Collins (2008) studied a peer-taught, financial education seminar targeting college students. Using a pre- and post-testing process to evaluate the impact of their intervention, they found a positive impact on knowledge and attitudes. Eitel and Martin (2009) study the financial literacy needs associated with first generation female college students. They conclude that a need exists “for financial literacy education as an integrated component of higher education, as well as a need for professional personal financial planners to ensure future financial stability and success for those who graduate and those who do not.” Mandell (2009), in assessing the results that flow from the ongoing Jump\$tart surveys of high school and college students, states that the current body of research has revealed little support for full-time courses in personal finance either in high school or in college. Further, and importantly, he asserts that few college students elect to take a personal finance class within their undergraduate studies, even when this option is made readily available to them.

Carlin and Robinson (2010) employ a quasi-experimental design to study the effects of a high school financially literacy course finding that students who attended training were generally better at making financial decisions. Grimes, Rogers, and Smith (2010) found that high school students taking economics and business courses possessed greater knowledge of economic concepts as adults. Walstad, Rebeck, and MacDonald (2010) assessed the impact of a DVD-based curriculum on high school students. The training encompassed saving, money management, banking, credit and debt, and investing concepts over six hours of instruction. Students who participated revealed significant gains in financial knowledge (as measured by pre- and post-testing scores) when compared to students in a matched control group. Delaune, Rakow, and Rakow (2010) utilize Beta Alpha Psi accounting majors to teach financial literacy concepts within a service-learning model targeting undergraduate students. They find positive impacts for both the presenters and the audience.

Ludlum et al. (2012) surveyed undergraduate students across several campuses respecting financial literacy and credit cards. Their findings indicate that issues of financial literacy relative to credit cards are pervasive and wide spread amongst this group regardless of campus location. Boyland and Warren (2013) address financial literacy in domestic and international students finding that deficiencies exist across both groups and are greater for the latter group.

The Second Annual Child and Youth Finance Summit held in Istanbul, Turkey conducted in May 2013 highlighted the international concern and need for financial literacy initiatives across the world.¹ Representatives from the US, UK, Turkey, Philippines, Chile, Nigeria, Egypt, Ghana, Nepal, Macedonia, Spain, and the United Nations offered insight into the work being undertaken and the accomplishments flowing from these efforts. Indeed, it is clear that the need for financial literacy training is both international and broad-based encompassing many target age and economic groupings including university students.

Fernandes, Lynch, and Netemeyer (2014) undertake an exhaustive study of the body of literature surrounding financial literacy with a focus on developing a measure of financial literacy. They identified 10,650 articles published from 1969 to 2013 and included 168 papers from 1987 to 2013 in their analysis procedures. An interesting finding is that brief interventions (limited in time) close to the financial decision point have similar impacts to those that accompany more intensive and longer interventions conducted at a great distance from the ultimate financial action. In other words, short duration, just-in-time training is not only effective, it may in fact represent a preferable pathway to successful decision-making especially if costs represent a constraining factor. This finding is particularly important and relevant for the current study as the targeted subjects are subjected to a short-term intervention that is likely very close to, if not at the point of, their making critical financial decisions (e.g., acquire or use a credit card, borrow for school) that will certainly impact their short and long-term financial well-being.

4. Methodology

This paper describes outcomes associated with the delivery of a series of four one-hour financial literacy-training workshops to undergraduate students enrolled at a small, mid-western university. The primary objective of the training workshops was to increase the financial literacy for test subjects – the millennial generation - with the training sessions focusing attention to ten financial literacy domains (discussed below). All pedagogical devices and methods – lessons,

¹ See www.childfinanceinternational.org/program-2013/summit-program-overview-2013.

exercises, and classroom materials – utilized for the training sessions were developed and delivered by a full-time, Master of Business Administration graduate student. Using a single trainer brings internal validity to the study by removing any impacts that may be associated with using a group of trainers possessing various backgrounds and capabilities. Subjects were enrolled in one of 11 comparable sections of the principles of accounting sequence taught by six different instructors. These two accounting courses are core classes and prerequisites for admission to the College of Business Administration. Each of the target classes covers content and topics that would be similar, but perhaps not identical, to introductory accounting courses traditionally afforded to students at other post-secondary institutions offering undergraduate accounting and business programs of study.

Three time-ordered, data collection processes were completed to develop the data necessary for statistical evaluation: (1) administration and scoring of a pre-test; (2) delivery of financial literacy training sessions; and (3) administration and scoring of a post-test. The pre-test and post-test instruments were identical. They encompassed 25 multiple-choice questions surrounding the ten financial literacy domains (described below). The test instrument was an adaptation of the financial literacy survey originally developed and administered to high school and college students by JumpStart Coalition.² It has been used for several administrations and assessments of young adult financial literacy and is believed to be a reliable measure of financial literacy. While study questions were selected from that test instrument, not all of the questions on the JumpStart survey were utilized.³ Following administration of the pre-test, subjects were not advised of the source for the questions, the scores obtained at either the individual or group levels, or access to an answer key. This closed examination methodology ensured the integrity of the post-test administration and ultimately the statistical evaluation processes. Similarly, no subjects were advised or had access to test scores, group performance data, or individual answers at any time following completion of the data collection process. Students who did not partake in all activities – pre-testing, both training sessions, and post-testing were eliminated from further consideration. Participation in the study was encouraged by some, but not, of the instructors by offering bonus points for completing all phases of the study.

The pre-test was administered to the subjects during a scheduled weekly meeting of their respective accounting course. Those students not in attendance for the pre-test and desiring to be included in the study were given an opportunity to take the pre-test outside of class prior to the training workshops. A total of 299 students completed this phase of the study. However, 85 of these students subsequently did not attend one or more sessions of the financial literacy training workshops or did not take the post-test instrument. These individuals were eliminated from the study and thus 214 test subjects were included in the statistical evaluation processes representing 71.57 percent of the pool of potential participants.

Financial literacy training was offered at several out-of-class times in order to provide maximum flexibility for test subjects. Delivery of the four, 90-min training sessions was completed over a four-week period. The workshop sessions were interdependent requiring the subjects to attend sessions in their respective temporal order. Following completion of the training, the subjects were administered the financial literacy post-test during a scheduled weekly meeting of their accounting class. A total of 273 students completed the post-test instrument. As with the pre-test, 59 students did not complete all of the necessary data collection phases and were therefore eliminated from further consideration. This resulted in 214 subjects being included in the statistical evaluation process representing 78.39 percent of the potential pool of subjects.

5. Findings and discussions

During the pre-test administration process, an opportunity was provided for students to offer select demographic information. The subjects included 121 males (54.3 percent) and 101 females (45.7 percent) distributed across the undergraduate and graduate years with 64 self-identifying as freshman (28.7 percent), 105 sophomores (47.1 percent), 43 juniors (19.3 percent), and 11 seniors or graduate students (4.9 percent).⁴ Subjects were asked to specify their current expected major area of study with their responses revealing that 33 students selected accounting – finance (14.8 percent), 2 classified as double business majors (.9 percent), 2 indicated economics (.9 percent), 18 identified marketing (8.5 percent), 26 selected management (11.7 percent), 16 indicated non-business (7.2 percent); and 125 identified undeclared – no major selected at this time (56.1 percent). This later finding related to no major currently declared is consistent with students at the test

² <http://www.jumpstart.org/survey.html> “When the JumpStart Coalition first began measuring financial literacy in 1997, the term was literally unknown. Over the next decade, JumpStart’s Survey of Financial Literacy Among High School Students became one of the most widely referenced resources in understanding what young people know—and don’t know—about personal finance. The JumpStart Survey ... was written by Lewis Mandell, Ph.D., currently of the Aspen Institute and the University of Washington. He conducted the first survey of high school seniors on behalf of the JumpStart Coalition in 1997, and then repeated it biennially between 2000 and 2008. In 2008, he administered the survey to college students, as well.”

³ Six subject matter questions were not utilized, as they did not fit into the ten financial literacy domains under consideration. For example, questions that addressed income or sales taxes, while clearly a financial literacy concept, were not considered as tax concepts were not addressed in the training. The remaining 25 questions directly mapped to and surrounded the topical areas targeted for financial literacy training during the treatment phase. In addition, none of the 18 demographic classification questions was used as most addressed information of no relevance to the research question. These were replaced with demographic questions of interest that pertained to this group of subjects.

⁴ In the United States, university level students generally study for eight full-time semesters to complete their undergraduate degree. They are classified as freshman (1–2 semesters), sophomore (3–4 semesters), junior (5–6 semesters); and senior (7–8 semesters) based upon how far into their undergraduate studies they are at a given point in time. Graduate students have completed an undergraduate degree and are currently pursuing a post-bachelor’s degree.

Table 1
Pre-test and post-test summary statistics.

	Pre-test	Post-test	Difference
N	223	223	
Mean	17.51	20.39	2.8879
Median	18.00	21.00	3.0000
Std. Deviation	3.10	2.95	2.1416

university as students are normally not admitted to the College of Business Administration until the Principles of Financial Accounting and some other business courses have been completed.

5.1. Aggregate pre-test to post-test comparison

The aggregate pre-test and post-test scores were visually assessed revealing a trend towards higher correct response totals for the post-test when compared to the pre-test. The mean aggregate pre-test score was 17.51 (70.04 percent correct) with scores ranging from ten to 25. For the aggregate post-test score the results included a mean of 20.39 (81.56 percent correct) with scores traversing a range from nine to 25. These findings indicate an average subject improvement of 16.45 percent between the tests (Tables 1 and 2).

A matched pairs, repeated measures assessment was completed to evaluate the pre-test and post-test scores. From a statistical perspective, the null hypothesis was that subjects would obtain, on average, equal aggregate scores on the pre-test and post-tests. The reported t-statistic is 20.137 ($p = .000$) which is statistically significant.

Taken together, the visual, directional, and statistical assessments provide evidence that there was a difference between the pre-test and post-test means across their respective scoring distributions. These findings support an assertion that the financial literacy-training workshop had a positive impact on student learning with the average subject's aggregate financial literacy score improved substantively across the financial literacy training experience.

There were no statistically significant differences in either pre- or post-test performance with respect to gender or self-selected major area of study. With regard to gender, this finding was not unexpected as male and female students have traditionally performed comparably in the principles of accounting class at this university. For major area of study, most of the subjects (as indicated by the large number reporting undecided as a major), have not made a final determination of the focus point for their studies. Any statistical differences on this metric would be open to considerable question and lacking in validity. As such, no additional assessment procedures were conducted with respect to major area of study for the financial literacy domains.

5.2. Financial literacy domain comparisons

The pre-test and post-test each contained 25 questions (or problems) with between two and three questions (or problems) directed at each of ten distinct financial literacy domains. The ten domains included in this study were Income Sources, Spending Instruments, Credit History, Credit Cards, Interest Charges, Resolving Credit Issues, Saving Vehicles, Risk Management, Automobile and Life Insurance, and Retirement Planning. These categories were decided during the development process for the testing instrument and before the administration of the two tests procedures. Specific topical coverage was identified through a comparison of the subjects covered in a cohort of widely utilized personal finance textbooks.⁵ Not every topic that is commonly afforded coverage within the personal finance course was subjected to assessment in order to keep the test instrument to a reasonable length (i.e., number of questions (or problems)) and to maintain the financial literacy training sessions within their respective time constraints.

A comparison of the pre-test and post-test outcomes for the study group with respect to each of the financial literacy domains was conducted. A visual assessment of the scoring pattern for the ten domains revealed a trend towards higher correct response totals associated with post-testing. Repeated measures procedures for each domain were performed to extend the analysis in a statistical manner. From this perspective, the null hypothesis was that subjects would obtain, on average, equal aggregate scores on the pre-test and post-tests for each domain (Table 3).

With respect to the individual domains, while the findings are not statistically powerful given the limited number of questions for each domain, using the t-values as a comparison measure, the greatest improvement was in Domains 4 and 6 that address consumer credit. These findings suggest that the financial literacy workshops tended to improve knowledge about credit cards and the responsible use of these financial instruments while also suggesting positive impacts on the test subject's knowledge surrounding the practices and procedures needed to resolve credit issues. While it is unquestionably important that a person not get into credit problems, it is also very true that many people do face these types of financial issues during their lifetime; therefore, it is critical for everyone to have a clear understanding of the methods and techniques

⁵ For example, Kapor, J., *Personal Finance* (9th Edition), McGraw-Hill Publishing Co., 2008; Gitman, L. and Joehnk, M., *Personal Financial Planning* (11th Edition), Thomson Learning, Inc., 2008; Bajtelsmit, V., *Personal Finance: Skills for Life*, Wiley, 2006.

Table 2
Pre-test and post-test frequencies.

Score	Pre-test frequency	Percent	Post-test frequency	Percent
9	0	.0	1	.4
10	3	1.3	0	.0
11	5	2.2	1	.4
12	8	3.6	2	.9
13	11	4.9	1	.4
14	9	4.0	1	.4
15	13	5.8	6	2.7
16	33	14.8	8	3.6
17	27	12.1	15	6.7
18	28	12.6	19	8.5
19	25	11.2	28	12.6
20	25	11.2	22	9.9
21	18	8.1	36	16.1
22	6	2.7	26	11.7
23	7	3.1	19	8.5
24	3	1.3	25	11.2
25	2	.9	13	5.8
Total	223	100.0	223	100.0

Table 3
Paired samples T-Tests.

	Paired differences			t	Df	Sig. (2-tailed)
	Mean	Std. deviation	Std. error mean			
Post-test to pre-test	2.88800	2.14200	.143	20.137	222	.000
Domain 1	.21525	.67673	.04532	4.750	222	.000
Domain 2	.13004	.55030	.03685	3.529	222	.001
Domain 3	.24664	.55926	.03745	6.586	222	.000
Domain 4	.77578	.70644	.04731	16.399	222	.000
Domain 5	.16592	.76777	.05141	3.227	222	.001
Domain 6	.45291	.62693	.04198	10.788	222	.000
Domain 7	.38565	.93682	.06273	6.147	222	.000
Domain 8	.19731	.85244	.05708	3.456	222	.001
Domain 9	.18834	.76550	.05126	3.674	222	.000
Domain 10	.09417	.61153	.04095	2.300	222	.022

that can be applied to resolve credit issues should such a need arise. If these were the only two areas of financial literacy that were influenced by the delivery of this type of training to the targeted group, then a significant step in the right direction has occurred.

There were no statistically significant differences across the ten financial literacy domains with respect to gender. This finding was anticipated as male and female students have traditionally performed comparably in the principles of accounting class at this university and there would be little reason to expect a difference in performance with regard to a given subject area.

6. Conclusions, recommendations, and limitations

A reasonable and time-limited teaching approach, far short of a full semester class, was utilized to intervene in the financial literacy crisis surrounding young adults (18–22 years of age). The findings suggest that benefits accrued to the participants with respect to overall financial literacy. Further, the increased knowledge appeared to extend to several identifiable topical areas within the concept of financial literacy. These later findings must be viewed with some degree of caution, as the number of questions utilized to assess each domain was limited; however, the results are definitely encouraging. While not every possible financial literacy subject or topic was addressed, as such an extensive approach would have been well beyond the time limits available, the parsed teaching subject approach applied would seem to have great potential for addressing this significant and important issue.

This suggests that a series of limited efforts represents a pathway for future consideration. It may be possible to design an extensive, if not almost exhaustive, financial literacy curriculum for deliver across many classes within a standard undergraduate business school education. Each class would be required to invest a limited amount of time and faculty effort, perhaps two hours in a semester, with the possibility of great returns – educated members of society. Does this type of effort not satisfy a risk-reward analysis in the current economic environment? Alternatively, to extend this pontification further, perhaps a relatively simple design involving several general education classes could be deployed that would have potential to educate students beyond the confines of Colleges of Business Administration students – a more societal orientation.

Economics, history, mathematics, psychology, and sociology, along with other general education courses, may offer opportunities for the inclusion in such an approach.

The financial literacy crisis for young adults, especially college students, is real and a means to address it is both needed and demanded. All of this falls squarely within the reality that today's youth are, in many cases, freely taking on substantial financial obligations to support their education. Any member of the educational fraternity who has taken only a limited amount of time to discuss college funding with students soon comes to the stark conclusion that many students do not fully appreciate the amount of debt they are accepting or the restrictions that will accompany their future financial choices as they settle these obligations. Indeed, the authors would suggest that credit, both the acquisition and use of, is a primary building block in the foundation of financial literacy – perhaps even the most important of the building blocks. Credit, in all of its many forms, is pervasive in U.S. society and a full and complete education in this important financial literacy domain should be considered a minimal level of knowledge for any person who dares to deem themselves as college educated. Such a basic level of knowledge is essential to encouraging responsible and informed financial choices.

As with all research, particularly efforts using survey instruments, the standard portfolio of limitations applies to this study. Additionally, while the findings of this study indicate that accounting and business student's financial literacy appears to be improved through the set of intervention processes deployed, this group of young adults has self-selected to study accounting and business and may have a learning advantage in such matters. Financial literacy demands a solution that influences the broader group of young adults (16–22 years of age) and our efforts needed to be continued and expanded in the search for an efficient and effective solution or solutions to this important issue.

References

- Avard, S., Manton, E., English, D., & Walker, J. (2005). The financial knowledge of college freshman. *College Student Journal*, 39(2), 321–339.
- Bernanke, B. (April 9, 2008). *The importance of financial education and the national JumpStart coalition survey*. Speech presented at the JumpStart Coalition for Personal Financial Literacy and Federal Reserve Board Joint News Conference, Washington, DC. Retrieved November 5, 2010 from <http://www.federalreserve.gov/newsevents/speech/bernanke20080409a.html>.
- Bernheim, B. D., Garret, D., & Maki, D. (2001). Education and saving: the long-term effects of high school financial curriculum mandates. *Journal of Public Economics*, 80(3), 435–465.
- Borden, L., Lee, S., Serido, J., & Collins, D. (2008). Changing college students' financial knowledge, attitudes, and behavior through seminar participation. *Journal of Family and Economic Issues*, 29(1), 23–40.
- Boyland, J., & Warren, R. (2013). *Assessing the financial literacy of domestic and international college students*.
- Carlin, B., & Robinson, D. (2010). *What does financial literacy training teach us?*. National Bureau of Economic Research Working Paper Series No. 16271 (August).
- Chang, R., & Hanna, S. (1992). Consumer credit search behavior. *Journal of Consumer Studies and Home Economics*, 16(10), 207–227.
- Chen, H., & Volpe, R. (1998). An analysis of personal financial literacy among college students. *Financial Services Review*, 7(2), 107–128.
- Delaune, L., Rakow, J., & Rakow, K. C. (2010). Teaching financial literacy in a co-curricular service-learning model. *Journal of Accounting Education*, 28(2), 103–113.
- Eitel, S., & Martin, J. (2009). First-generation female college students' financial literacy: real and perceived barriers to degree completion. *College Student Journal*, 43(2), 616–630.
- Fernandes, F., Lynch, J., Jr., & Netemeyer, R. (2014). Financial literacy, financial education, and downstream financial behavior. *Management Science*, 60(8), 1861–1883.
- Grimes, P., Rogers, K., & Smith, R. (2010). High school economic education and access to financial success. *Journal of Consumer Affairs*, 44(2), 317–335 (June 1).
- Hilgert, M., Hogarth, J., & Beverly, S. (2003). Household financial management: the Connection between knowledge and behavior. *Federal Reserve Bulletin*, 89(7), 309–322.
- Johnson, A. (2010). FICO scores and frappuccino ... Yes, there is a difference. *ABA Banking Journal*, 102(6), 6–6.
- JumpStart Coalition for Personal Financial Literacy. (2010). *Map of state requirements for high school financial literacy course*. Retrieved November 5, 2010 from <http://jumpstart.org/state-financial-education-requirements.html>.
- Ludlum, M., Ticker, K., Ritter, D., Cowart, T., Xu, W., & Smith, B. (2012). Financial literacy and credit cards: a multi-campus survey. *International Journal of Business and Social Science*, 3(7), 25–33.
- Mandell, L. (2006). *Does just-in-time instruction improve financial literacy?* Credit Union Magazine. Savingteen Supplement, 7A–9A.
- Mandell, L. (2009). *The impact of financial education in high school and college on financial literacy and subsequent financial decision making*. American Economic Association Meeting, January 4, 2009.
- National Association of State Boards of Education. (2006). *Who owns our children? Alexandria, VA*.
- Norvilitis, J., Merwin, M., Osberg, T., Roehling, P., Young, P., & Kamsa, M. (2006). Personality factors, money attitudes, money knowledge, and credit-card debt in college students. *Journal of Applied Social Psychology*, 36(6), 1395–1413.
- Peng, T.-C. M. (2008). *Evaluating mandated personal finance education in high schools* (PhD Dissertation). The Ohio State University.
- Perry, V., & Morris, M. (2005). Who is in control? the role of self-perception, knowledge, and income in explaining consumer financial behavior. *The Journal of Consumer Affairs*, 39(2), 299–313.
- President's Advisory Council on Financial Literacy. (2008). *2008 Annual report of the President*. Washington, D.C.: U.S. Department of the Treasury.
- U.S. Department of Treasury. (2008). *Financial literacy and education Commission*. Retrieved June 15, 2008, from www.MyMoney.gov.
- U.S. News & World Report. (2009). *Should schools teach money management skills?* March 29, 2009. Retrieved November 5, 2010 from <http://www.usnews.com/education/blogs/on-education/2009/03/24/should-schools-teach-money-management-skills>.
- Walstad, W., Rebeck, K., & MacDonald, R. (2010). The effects of financial education on the financial knowledge of high school students. *Journal of Consumer Affairs*, 44(2), 336–357 (June 1).