

## Financial Literacy: can we really impact student outcomes?

De' Arno De' Armond  
West Texas A&M University

### ABSTRACT

Recently, due in part to popular press, governmental findings, and academic study, financial literacy on college campuses has been a hot topic. Americans, at all ages, struggle with sound financial decisions. Providing access to detailed personal finance information for students has been met with both accolades and criticisms. In response to this conundrum, academics has turned an inquisitive eye on the potential impact financial literacy courses can have on students. This study utilizes the AFI Assessment Instrument, a widely available financial literacy exam, in effort to understand if a financial literacy course taught over a regular sixteen-week semester can actually impact individual student scoring outcomes, particularly with respect to credit, financial services, and tax financial literacy topic areas. Pretest and posttest data for this study was collected over two years within an introductory personal finance course (2013-14). To compare pretest and posttest (paired) scores of individuals, a paired samples t-test was utilized to analyze the data respectively. Results indicate individual AFI exam scores on credit, financial services, and tax questions were positively impacted by those completing the course.

Keywords: Finance Curriculum, Course Content, Personal Finance, Financial Literacy, Financial Planning, Financial Information Systems

## INTRODUCTION AND LITERATURE REVIEW

Educators strive to present information that will impact the lives of our students in some meaningful way. This is especially true given the nature of personal finance and financial literacy information; arguably information on topics that can indeed impact lives. This study focuses on financial literacy, specifically, can financial literacy in the form of a personal finance course impact individual student outcomes as measured and compared on a common financial literacy assessment exam. This manuscript is organized in the following sections, introduction and literature review, data and methodology, analysis and results, and discussion and conclusion that provide a background of current literature, an overview of the data and methodology relative to the study, a detailed examination of the AFI Assessment Instrument exam used in the study, results of the study, and discussion of the findings. A literature review on the topic has been conducted according to the main contributions included in the body of literature in the field of higher education (Schuchardt et al., 2009; Pinto, 2012, 2013; Garcia, 2010, 2011; Centobelli et al., 2017a, 2017b; Xiao and Porto, 2017; Dodaro, 2011; Slawomir & Matysiewicz, 2015, LaBorde, 2013; Way, 2014).

The global financial crisis of 2008 was a wakeup call for the world launching international and political spotlight attention on financial education (Pinto 2013). The United States Government Accountability Office (GAO) issued a report in 2011 indicating that citizens are in need of financial literacy, governmental financial literacy programs tend to be fragmented, and a singular definition of financial literacy is difficult at best to define (Dodaro 2011). The GAO lists financial literacy as a consumer's financial education and their respective behavior as related to the ability to make informed decisions regarding financial situations. Slawomir & Matysiewicz (2015) provide an outstanding definition of financial literacy as 'the ability of the consumers to function independently in the monetary economy.' This definition is particularly applicable in that individuals are consumers first, oftentimes long before the thought of financial literacy enters the mind. Pinto (2012) indicates financial literacy can further be examined in terms of gender, as different genders interact with financial literacy processes in different ways. Regardless, if one does not move independently of the monetary economy, it can be posited that one becomes a potential victim of the monetary tide and the ebbs and flows of financial vulnerability therein. Thus, decision making regarding monetary issues is critical for individuals in an effort to stabilize these ebbs and flows, providing a potential plan, implementation, and control of the application of financial literacy, or what is often referred to as financial planning.

Financial literacy as a core information component among college students is lacking at many different levels (LaBorde 2013). For the most part, financial planning as a field of study has been at a crossroads with regard to outcomes regarding behavior. Schuchardt, et al.,(2009) indicate financial education, whether formal or informal in nature can affect financial behaviors and even socialization of individuals. The principle point of indifference centers to what degree gaining financial literacy knowledge and human capital impacts retained financial knowledge, thus potentially behavior. Way (2014) posits that financial education programs are often rooted in an assumption that as more knowledge of financial literacy is gained, behavioral outcomes of a financial nature will increase in the positive; people will save more, spend less, use credit wisely, avoid excess debt, think about and plan for their respective futures without much regard as to why educational interventions might hold true. Xiao, et., al. (2014), examined early financial literacy and late financial behavior of college students along objective and subjective knowledge over a three-year time period. When looking at risky borrowing and paying

behaviors, subjective knowledge, or knowledge gained from self-assessment of information over time, proved to have a larger impact on behavior as opposed to objective (in the classroom, tested) knowledge for that same time period. While an argument can be made that information gained over time will be more relevant to the decision-making process due to experience, it is interesting to ponder if the same can be said for information gained in a shorter time period of immersive information, say a sixteen-week financial literacy course.

Within the United States, the lack of financial literacy evident among individuals piqued the U.S. Congress to pass the 'Assets for Independence Act,' whereby resources are directed at the general public in an effort to increase overall financial literacy. An observable issue with financial literacy and planning topics taught in an educational classroom environment is all too often the information presented may not be goal compatible with the current life cycle stage of the audience leaving meaningful information lost to communication noise. Financial literacy refers to information and knowledge an individual may possess that guides and leads to sound decisions of matters concerning one's finances. Thus, a lack of financial literacy may potentially lead one to make decisions not in the best interest of one's own finances. To a certain degree financial literacy has been touted as a potential economic 'save all.' As the literature above and the moves by policy makers stresses, financial literacy and its potential impact is an important topic to explore. The aim of this study is to determine whether there is statistical evidence that mean differences between paired observations of individual student scores on a widely available financial literacy assessment tool, the AFI Assessment Instrument exam, exists for students who successfully complete a personal finance (financial literacy) course. The primary aim of this study is to examine if taking a personal finance course (an immersive financial literacy vehicle) in college makes a difference for individuals enrolled in the course; moreover, can financial literacy education impact individual student outcomes in a positive way.

## DATA AND METHODOLOGY

The data utilized within this study were gathered via a survey instrument developed by the U.S. Department of Health and Human Services entitled the 'AFI Assessment Instrument.' This widely utilized assessment instrument is an exam that consists thirty brief questions within six distinct sections (categories): financial attitudes, credit knowledge, financial services knowledge, tax knowledge, demographic information, and two optional behavioral questions respectively. The instrument is an ancillary resource of the Assets for Independence program and targeted toward individuals desiring to test and learn more about financial literacy (Assets for Independence 2013). The first seventeen questions, or the first four sections of the instrument, are designed to measure knowledge in the key content areas established by the AFI Core Competencies for Financial Education: developing goals, managing a budget, credit management, financial services, taxes, and saving for the future (Asset Initiative 2013). Twelve questions are true/false and five of the questions are Likert questions. Independent tests of reliability and validity of the assessment instrument were not conducted given the widely-held availability and usage by the U.S. Department of Human and Health Services. Each section is briefly reviewed below.

Section one, financial attitudes, of the instrument consists five questions: 1) I could find the money to pay for a financial emergency that costs about \$1,000, 2) I believe it is necessary to carefully track how I spend money, 3) I believe that it is important to save money from every paycheck, 4) I rarely worry about being able to meet normal monthly living expenses, and 5) I do

not measure my family's financial success by our ability to match spending to our friends and neighbors. Respondents were to score their level of agreement from 1 (do not agree at all) to 5 (agree completely) along the Likert scale continuum. Section two, credit knowledge, questions 6-10, consisted of the following true/false questions: 6) When you borrow money, you are really borrowing from your future income, 7) As long as you make your minimum payment each month, maintaining a balance on your credit cards has no effect on your credit score, 8) You are entitled to a free credit report from each of the three credit bureaus every 12 months with no obligation, 9) A credit score is used by banks and other lenders to decide whether or not to provide you a loan, and 10) Lenders are required by law to offer you the lowest interest rate available for a loan.

Section three, financial services knowledge, consisted the following four true/false questions: 11) If you bounded checks in the past, you may be listed in a database that keeps you from opening a new checking account, 12) There is no point in shopping around for a checking account because all banks and credit unions charge the same fees for their accounts, 13) If someone has financial problems there are free counseling services available that can give advice on how to handle financial issues, and 14) If someone knows your date of birth and Social Security number they could steal your identity. Section four, tax knowledge, consists the following 3 questions: 15) When someone else does your taxes for you they are responsible for any mistakes on the forms, 16) A W2 form is an annual statement of your earnings, taxes paid, and other information necessary for completing your tax return that is provided by your employer, and 17) The Earned Income Tax Credit (EITC) is a tax benefit that reduces taxes owed or provides a tax refund for eligible people who are employed.

Section five, demographic and about you information, consists eleven questions: 18) As of today, how much money do you think you have in savings (not including any retirement savings you might have) whereby answer choices ranged the following, \$0, \$1-\$100, \$101-\$500, \$501-\$1000, \$1001-\$2500, more than \$2501, and don't know, 19) As of today how much do you think that you have in total debt (not including any home mortgage you might have) whereby answer choices ranged the following, \$0, \$1-\$2500, \$2501-\$5000, \$5001-\$10,000, \$10,001-\$15,000, \$15,001-\$20,000, \$20,001-\$30,000, more than \$30,000 and don't know. Question 20 asks the respondent to state their age range with the following answer ranges available, 18-25, 26-35, 36-45, 46-55, 56-64, and 65 or older. Question 21 asks the respondent to identify their respective ethnicity: White, Black or African American, Latino or Hispanic, Asian or Pacific Islander, Native American, and other. Question 22 asks the respondent to indicate their highest level of education completed with the following ranges available, less than high school, high school or equivalent, some college, 4-year college degree or more. The respondent is asked their current housing status in question 23 with the following answers available, own, rent, other respectively. Question 24 states, 'thinking about last month, which comes closest to your total take-home income from all sources (include job, child support, unemployment, or side jobs, after taxes and deductions are taken out) and provides the following answer response ranges, less than \$400, \$401-\$800, \$801-\$1200, \$1201-\$1600, \$1601-\$2000, \$2001-\$2400, \$2401-\$2800, \$2801-\$3200, more than \$3200, and not sure. Question 25 asks the respondent to indicate their current marital status as either, married, separated, single (never married), divorced, live with domestic partner, widowed, other. Question 26 and 27 ask the respondent to indicate (write in) how many adults (age 18 or older) are in their household and how many children (under 18) are in their household respectively. The last question in the demographic section, question 28 asks respondents to indicate their gender.

Section six of the instrument consists a series of thirteen subset and optional behavioral questions. The first question stating ‘currently do you...’ is followed by nine additional yes/no/unsure type question answers as follows: have a checking account, have a savings account, have a credit card, use a prepaid or stored value card, have a retirement savings account, have your savings or investment set up to automatically put in money at least once a month, have money to pay at least three months’ expenses set aside for a rainy day fund, find it difficult to pay any of your loans or debts, and lastly, use a written budget to plan your spending. The last question of section six, stated ‘in the last 3 months, how often have you...’ contains the following four question subsets to be answered in the following manner, 3 plus times, 2 times, 1 time, or, never. The subset question stems are as follows: used a check cashing store, taken out a pawn shop loan, received a call from a bill collector, paid a late fee on a bill.

The primary research question of this study can be stated as follows: does taking a personal finance course have an effect on the comparison of individual pretest and posttest scores of the AFI Assessment Instrument exam. Said another way, does taking a financial literacy course impact the individual section scores of the AFI Assessment Instrument exam when measured before and after a student completes a sixteen-week personal finance (financial literacy) course?

To examine this research inquiry, data was collected over a period of two years in 2013 and 2014 respectively. In the fall semester of 2013, and then again in the fall semester of 2014, the AFI Assessment Instrument exam was given in paper format, in class, to seventy-two total students in a Freshmen level financial literacy (personal finance) course at a medium sized southwestern 4-year university. The students were asked to complete the survey at the start of class day one (pretest) and then again on the last day of the sixteen-week semester (posttest). Respondent participation was voluntary and no penalties or incentives were incurred or utilized. The pretest consisted of the entire AFI Assessment Instrument including the demographics section. The posttest did not include the demographic section. Pretest and posttest panels for each respective course were scored and matched via a confidential numbering schema and respondent identity was unknown to the researcher. At the completion of the semester, data were gathered, coded, edited, tabulated with all non-representative, non-substantial (missing data, student withdrawal, non-response, etc.) cases deleted. A final combined student sample of 60 was observed for purposes of this study.

Data were examined in two primary ways, in the aggregate by comparison, before and after, where mathematically applicable, e.g., when considering levels of debt, savings, etc. and statistically where applicable with regard to questions of a true/false nature, e.g., sections two, credit knowledge, three, financial services knowledge, and four, tax knowledge. Because this study utilizes before-and-after observations of the same respondents, a paired samples test statistic was utilized to examine sections two, three, and four respectively given the applicable repeated measures design with the intervention of education, having taken a financial literacy course. Wilcox (2001) sets forth parameters regarding the assumptions of the paired samples test statistic, followed within this study. As an example, data are assumed to be normal, paired-independent, and the sample size is thirty or greater (60 for purposes of this study) providing valid p-values. With regard to the variables of statistical testing interest in this study, sections two, three, and four of the collected data, mean difference scores were created via the coding scheme treatment of the true/false questions, with the answer ‘true’ being associated with the number 2, and the answer ‘false’ being associated with the number 1, else 0 or for an answer of ‘unsure.’ Additionally, a *d* statistic was utilized to examine the effect size of the difference in

pretest and posttest mean magnitude. All data were analyzed via SPSS, and those questions of the respective sections mentioned above specifically indicating a significant mean difference are further examined below.

## ANALYSIS AND RESULTS

The data set of sixty respondents ( $n=60$ ) were 54% male and 46% female. Respondent age was predominantly 18 to 25 years old, as 98% of the sample indicated this as their respective age range. The remaining 2% indicated their age range to be 26-35 years old. Ninety-eight percent of respondents indicated their marital status as single, never married. In regards to ethnicity, 70% of respondents indicated they were White, 20% Hispanic, 5% Black or African American, and 5% Other. All respondents reported having a high school or equivalent certificate and or some college or an associate, two-year degree (17%) prior to enrollment in the financial literacy course. Almost 70% (68.3%) of respondents indicated their incomes to be less than \$1200 per month.

### Section Two, Credit Knowledge

A paired samples  $t$  test was conducted to evaluate student response scores to the AFI Assessment Instrument pretest, before taking a financial literacy course, and posttest, having completed a financial literacy course with respect to questions six through ten, credit knowledge. The results indicated the following, and are summarized in Table 1 (Appendix). The mean of the pretest for question six of the instrument, 'When you borrow money, you are really borrowing from your future income,' ( $M = 1.62$ ,  $SD = .72$ ) was significantly less than the posttest mean ( $M = 1.83$ ,  $SD = .42$ ),  $t(59) = -2.27$ ,  $p < .05$ . The standard effect size index,  $d$ , was  $-.29$ . The 95% confidence interval for the mean difference between the two ratings was  $-.41$  to  $-.03$ . The mean of the pretest for question seven of the instrument, 'As long as you make your minimum payment each month, maintaining a balance of your credit cards has no effect on your credit score,' ( $M = .97$ ,  $SD = .74$ ) was significantly less than the posttest mean ( $M = 1.73$ ,  $SD = .52$ ),  $t(59) = -7.15$ ,  $p < .01$ . The standard effect size index,  $d$ , was  $-.92$ . The 95% confidence interval for the mean difference between the two ratings was  $-.98$  to  $-.55$ . The mean of the pretest for question eight of the instrument, 'You are entitled to a free credit report from each of the three credit bureaus every 12 months with no obligation,' ( $M = .78$ ,  $SD = .89$ ) was significantly less than the posttest mean ( $M = 1.43$ ,  $SD = .72$ ),  $t(59) = -5.28$ ,  $p < .01$ . The standard effect size index,  $d$ , was  $-.68$ . The 95% confidence interval for the mean difference between the two ratings was  $-.90$  to  $-.40$ . Question nine pretest and posttest means did not indicate significant difference. Lastly for the credit knowledge question set, the mean of the pretest for question ten, 'Lenders are required by law to offer you the lowest interest rate available for a loan,' ( $M = 1.03$ ,  $SD = .80$ ) was significantly less than the posttest mean ( $M = 1.65$ ,  $SD = .69$ ),  $t(59) = -4.73$ ,  $p < .01$ . The standard effect size index,  $d$ , was  $-.61$ . The 95% confidence interval for the mean difference between the two ratings was  $-.88$  to  $-.36$ .

### Section Three, Financial Services Knowledge

A paired samples  $t$  test was conducted to evaluate student response scores to the AFI Assessment Instrument pretest, before taking a financial literacy course, and posttest, having

completed a financial literacy course with respect to questions eleven through fourteen, financial services knowledge. The results indicated the following, and are summarized in Table 2 (Appendix). The mean of the pretest for question eleven of the instrument, 'If you bounced checks in the past, you may be listed in a database that keeps you from opening a new checking account,' ( $M = .93$ ,  $SD = .88$ ) was significantly less than the posttest mean ( $M = 1.42$ ,  $SD = .72$ ),  $t(59) = -3.95$ ,  $p < .05$ . The standard effect size index,  $d$ , was  $-.51$ . The 95% confidence interval for the mean difference between the two ratings was  $-.73$  to  $-.24$ . The mean of the pretest for question twelve of the instrument, 'There is no point in shopping around for a checking account because all banks and credit unions charge the same fees for their accounts,' ( $M = .168$ ,  $SD = .73$ ) was significantly less than the posttest mean ( $M = 1.98$ ,  $SD = .13$ ),  $t(59) = -3.13$ ,  $p < .01$ . The standard effect size index,  $d$ , was  $-.41$ . The 95% confidence interval for the mean difference between the two ratings was  $-.49$  to  $-.11$ . The mean of the pretest for question thirteen of the instrument, 'If someone has financial problems there are free counseling services available that can give advice on how to handle financial issues,' ( $M = 1.49$ ,  $SD = .86$ ) was significantly less than the posttest mean ( $M = 1.75$ ,  $SD = .66$ ),  $t(59) = -2.38$ ,  $p < .05$ . The standard effect size index,  $d$ , was  $-.30$ . The 95% confidence interval for the mean difference between the two ratings was  $-.47$  to  $-.04$ . Question fourteen pretest and posttest means did not indicate significant difference.

#### Section Four, Tax Knowledge

A paired samples  $t$  test was conducted to evaluate student response scores to the AFI Assessment Instrument pretest, before taking a financial literacy course, and posttest, having completed a financial literacy course with respect to questions fifteen through seventeen, tax knowledge. The results indicated the following, and are summarized in Table 3 (Appendix). Questions fifteen and sixteen pretest and posttest means did not indicate significant difference. The mean of the pretest for question seventeen of the instrument, 'The Earned Income Tax Credit (EITC) is a tax benefit that reduces taxes owed or provides a tax refund for eligible people who are employed,' ( $M = .88$ ,  $SD = .99$ ) was significantly less than the posttest mean ( $M = 1.37$ ,  $SD = .92$ ),  $t(59) = -3.05$ ,  $p < .01$ . The standard effect size index,  $d$ , was  $-.39$ . The 95% confidence interval for the mean difference between the two ratings was  $-.80$  to  $-.17$ .

#### DISCUSSION

This study seeks to find insight as to if a personal finance course (financial literacy) as an intervention impacted individual student response mean scores on the AFI Assessment Instrument exam. Three primary sections, section two-credit knowledge, section three-financial services knowledge and section four-tax knowledge of the AFI Assessment Instrument exam yielded statistical significance. This study is not without limitations. While the sample size of the current study was a respective size, a larger, more diverse sample could provide additional quality of information informing analysis. The data were gathered from a widely held, preexisting instrument, which may, or may not have deployed the rigor of academic attention to instrumentation. Further, parts of the data are self-reported which may somewhat bias results. These limitations provide acknowledgement that further study is warranted. These limitations exist due to the availability of financial literacy course offerings, the time that it takes to collect data for comparison, and the current lack of preexisting quality financial literacy assessment tools in general. Given these limitations, in all, eight of the twelve total questions of the topic

sections examined within this study indicated a statistically significant difference between individual pretest and posttest means scores respectively, and are discussed below.

The use of credit may be a difficult application for many students as they have had relatively short time horizons for deployment of credit in their daily lives. Borrowing money, making payments, understanding credit scores and reporting, as well as the lending process is a new concept for many young adults. Further, financial services knowledge, or how processes and procedures function within the marketplace as well as some of the intricacies of the tax code, is something most adults have limited experience. While overall credit use may be lacking somewhat for this particular sample, it is evident that most of the respondents have access to use of and experience with credit in some format. At the time of this survey, the pretest data indicated 64% of respondents did not have a credit card, with 36% indicating they did have a credit card compared to 59% and 41% respectively sixteen weeks later. Ninety-seven percent of the respondents indicated, at the completion of the course, they had never received a call from a bill collector within the last three months.

Question six posits that when borrowing money, an individual is actually borrowing from oneself, which the respondents indicated having learned from the pretest to the posttest as true. The perspective of borrowing from yourself could be a potential behavior modifier in that a different attitude toward risk may be exhibited if the individual considers the borrowed funds as an opportunity cost of total funds available for future use. Individuals may feel that borrowing money from a bank, credit union, or other entity is just borrowing from some source, not their own potential funds. Additionally, an understanding that there are only so many dollars that can be borrowed in total as the more that is borrowed, the more one is limited from future borrowing until all funds are repaid. Question seven asks for the respondent to consider minimum monthly payments and the individual's credit score effect if only minimum payments are to be made leading to a revolving balance. The reality is, having a balance on one's credit card does indeed affect an individual's credit carrying capacity which may, in turn, impact overall credit score at some threshold. Given over ninety percent of the respondents of this survey indicated having credit cards, the large effect size in the change of the pretest and posttest means is a very positive indication that the respondents learned a great deal here with respect to credit carrying balances and the potential impact on credit scores. Question eight asked respondents if they were aware that every year, they are entitled to free credit reports from the three major credit reporting agencies. The moderate effect size of the difference of the means indicates the respondents were unaware of this prior to taking the financial literacy course. Additionally, question nine, regarding credit scores being used as a tool by banks and lenders to loan money seemed to be more common knowledge in that no statistical significance was noted here. This would make sense given the general knowledge that exists in today's marketplace regarding credit scores as an instrument of loan application. What is good at this point and a key take away of these two questions is now, students will know they can check their respective credit score standings once per year with the three major credit reporting agencies for no cost. Question ten presented information that lenders were required by law to offer the lowest interest rate available on a loan. The modest effect size in the difference of the means indicates for many respondents, they thought this might actually be the case. Lenders will work with the individual, however, are not bound by law to provide the best available rate on any particular loan as this is a function of many other risk factors of the individual applicant. A key take away here is this overall knowledge learned throughout the course and an additional understanding that loans can differ significantly by individual and lender. With regard to the four specific AFI Assessment



Instrument questions in section two, credit knowledge, statistical significance was found on questions 6, 7, 8, and 10, indicating the potential that the course intervened and educated the students with regard to the particulars of the questions, respectively.

Question eleven begins section three, financial services knowledge, of the AFI Assessment Instrument, and centers on how informational processing of an individual who bounces checks (writes a check for an amount that is not covered by actual funds availability) is accounted via a database system. Individuals who bounce checks consistently may be entered into a database and this information may keep that individual from opening future checking accounts. The statistical significance and modest effect size of the mean differences between the pretest and posttest indicates education on this topic was a decent intervention between the pretest and posttests respectively. Question twelve asks if the respondent thinks there is no reason to shop around for a checking account as all banks and credit unions are the same. The statistical significance of the mean differences indicates a learning intervention in the information as students learn, gaining knowledge of how to shop for checking accounts throughout the financial literacy course. Question thirteen is a knowledge question regarding free financial counseling services available in the event advice might be needed. The statistical significance of the mean differences again indicates for this question that the learning intervention of the course was helpful in that respondents did not realize there are in fact services available in the event they are needed by many governmental as well as individual institutional sources. Question fourteen did not indicate statistical significance and this may be due in part to the prevalence of identity theft information available in the marketplace and education systems today. A key take away for this section's question section is that respondents in this sample were unaware of some of the basic financial services knowledge prior to the financial literacy course.

In the fourth section of the AFI Assessment Instrument, tax knowledge, questions fifteen and sixteen did not indicate statistical significance, however, question seventeen did. Question fifteen asks the respondent to consider the responsibility of others when they (the other individual) prepares your taxes. Question sixteen specifically asks if a W2 form is the annual statement provided by an individual's employer. Both questions fifteen and sixteen may be more of a common knowledge / experience type question as the respondents mean scores did not prove statistically significant comparing pretest to posttest. Additionally, question seventeen asked specifically about the Earned Income Tax Credit (EITC), and did indicate statistical significance as well as a marginal effect size when comparing the pretest and posttest means, indicating tax knowledge within the course was positively received. A key take away is while some tax information seems to be common knowledge for respondents of this sample, more specific knowledge of such topics as the EITC was lacking and learned over the course of the semester.

While not all questions within each respective section indicate statistical significance, when taken in the aggregate, each section did show some connection between the knowledge intervention (education) of the course and the outcome of the posttest. Students who were enrolled and successfully completed the financial literacy course, as indicated by the findings of this study, should have a better understanding of credit, financial services, and taxes from a knowledge perspective.

## CONCLUSION

Financial literacy is an important topic. Educating students on financial literacy topics is paramount and can positively impact the potential for future individual financial decisions.

Credit, financial services, and tax knowledge are three primary areas of importance in that these areas interface and engage with people frequently. To toss financial literacy education to the side implies individuals and policy makers are actively subjecting individuals to the ebbs and flows of financial vulnerability. This study has shown to be consistent with the supposition of Way (2014) in that this course provided an avenue to capture data of the AFI Assessment Instrument which, when analyzed, indicated statistical significance among financial literacy knowledge components. Anecdotally, for the sample, observed savings levels increased and debt levels decreased, thus an assumption can possibly be made that these students are saving more, and spending less. Additionally, credit, financial services, and tax topic scores were shown to be positively impacted upon completion of the financial literacy course. Policymakers should be mindful if convention is to be followed, behavioral outcomes of a financial nature will increase in a positive manner as more informed individual financial decision can be made (Way 2014) and enact provisions to ensure equal access to financial literacy information for all.

There are many policy implications to be stressed from this study consistent with the current literature. Across most universities, there is no mandatory financial literacy core requirement for all students to complete, implying higher education values other core courses more. Policy makers and administrators alike should work to ensure financial literacy finds a home within the mandatory core courses. In an effort to be more inclusive, it may behoove higher education to examine and study financial literacy further in terms of gender, as individuals process the information in different ways. As Schuchardt, et al., (2009), reported, further interdisciplinary study and understanding of financial literacy and outcomes is paramount to positive financial outcomes for individuals, families, and society; we must continue to study, to learn, and to share. As educators, we must be cognizant of the importance of continued financial education, programs, and studies. We must make it known that it should not take a global financial crisis for the world to take the importance of financial literacy and study seriously. We must be prudent in our duties to ensure financial education continues to be in the spotlight of administrators, politicians, and policy makers domestically, and around the globe. As Xiao & Porto (2017) showed individuals who learn about financial information are better informed when making decisions. There are overarching implications for not only educators, but also the financial services marketplace as well, as financial services professionals interact with consumers on matters of financial education on a daily basis. For policy makers, the proposed results should be of help in identifying specific policies to support the competitiveness of universities, institutes and education service providers.

While research and current literature has indicated, individuals struggle with sound financial decisions, results from this study prove positive and provide hope for future educational intervention opportunities among young adults taking college courses. A continued academic approach to financial literacy may continue to provide information from which educators can be more informed regarding what types of information should be emphasized within financial literacy courses, where available and applicable. The AFI Assessment Instrument utilized within this study provides a decent starting point at understanding the learning gaps within the respondents (college students) and is in no way an all exhaustive instrument and future study should be devoted toward this end. The financial literacy course seems to prove valuable in the educational impact of student respondents who completed the sixteen-week course. Scores between the pretest and posttest of the sections analyzed, increased significantly. It is hoped that with exposure education regarding credit, financial services, and taxes, the students will be better informed regarding future financial decisions within their lives.

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## Appendix

**Table 1**  
**Summary of Results: Section Two, Credit Knowledge**

QUESTION	Pretest Mean and Standard Deviation	Posttest Mean and Standard Deviation	<i>t</i> statistic	Effect size, <i>d</i> statistic	95% Confidence Interval
6) When you borrow money, you are really borrowing from your future income	M = 1.62, SD = .72	M = 1.83, SD = .42	$t(59) = -2.27,$ $p < .05$	-.29	-.41 to -.03
7) As long as you make your minimum payment each month, maintaining a balance of your credit cards has no effect on your credit score	M = .97, SD = .74	M = 1.73, SD = .52	$t(59) = -7.15,$ $p < .01$	-.92	-.98 to -.55
8) You are entitled to a free credit report from each of the three credit bureaus every 12 months with no obligation	M = .78, SD = .89	M = 1.65, SD = .69	$t(59) = -5.28,$ $p < .01$	-.68	-.90 to -.40
10) Lenders are required by law to offer you the lowest interest rate available for a loan	M = 1.03, SD = .80	M = 1.65, SD = .69	$t(59) = -4.73,$ $p < .01$	-.61	-.88 to -.36

**Table 2**  
**Summary of Results: Section Three, Financial Services Knowledge**

QUESTION	Pretest Mean and Standard Deviation	Posttest Mean and Standard Deviation	<i>t</i> statistic	Effect size, <i>d</i> statistic	95% Confidence Interval
11) If you bounced checks in the past, you may be listed in a database that keeps you from opening a new checking account	M = .93, SD = .88	M = 1.42, SD = .72	$t(59) = -3.95,$ $p < .05$	-.51	-.73 to -.24
12) There is no point in shopping around for a checking account because all banks and credit unions charge the same fees for their accounts	M = .168, SD = .73	M = 1.98, SD = .13	$t(59) = -3.13,$ $p < .01$	-.41	-.47 to -.04
13) If someone has financial problems there are free counseling services available that can give advice on how to handle financial issues	M = 1.49, SD = .86	M = 1.75, SD = .66	$t(59) = -2.38,$ $p < .05$	-.30	-.47 to -.04

**Table 3**  
**Summary of Results: Section Four, Tax Knowledge**

QUESTION	Pretest Mean and Standard Deviation	Posttest Mean and Standard Deviation	<i>t</i> statistic	Effect size, <i>d</i> statistic	95% Confidence Interval
17) The Earned Income Tax Credit (EITC) is a tax benefit that reduces taxes owed or provides a tax refund for eligible people who are employed	M = .88, SD = .99	M = 1.37, SD = .92	$t(59) = -3.05,$ $p < .01$	-.39	-.80 to -.17

