Does a University Financial Literacy Course Change Financial Behavior?

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A financial literacy course was established five years ago at a small Midwestern university to improve the financial management habits of its students. This study is a program review of the course using Jacobs' 1988 five-tiered evaluation model, as modified by Fox, Bartholomae and Lee in 2005. Current and past students of the course, along with a control group of students were surveyed. Quantitative and qualitative analysis results revealed an increased student awareness of some positive financial behaviors and a decrease in the number of students having difficulty managing money from the beginning to the ending of the course.

BACKGROUND

The need for financial education for all ages is important now more than ever. It is especially important for young people (ages 18-25) to learn how to wisely manage their spending and savings. According to the United States Department of Agriculture's Cooperative State Research, Education and Extension Services in 2001:

Many young people are unskilled in managing their personal finances, yet this crucial life skill will greatly affect their future economic well-being… [Youth financial education] helps America's youth understand the basics of money management and develop sound financial habits to expand their opportunities for the rest of their lives (1).

Colleges and universities have responded to the need for financial education by using many different approaches. These approaches range from providing money management instruction to campus groups and peer financial counseling (Texas Tech University) to posting personal spending in journals (Ailey School of New York) to an online financial literacy course (Boise State University) to elective academic courses (Supiano, 2008).

The Financial Literacy course at a small Midwestern University differs from programs at other colleges because it is a combination of several approaches used by universities. This elective two-credit-hour course is offered once a week in the evening during the last half of each semester. The emphasis of the course is on experiential and service learning. Students learn about: (a) wise spending, (b) the proper use of debit and credit cards, (c) credit scores and reporting, (d) saving in the short-term and long-term and (e) types of investments. They also learn about income taxes and insurance. These topics are covered by experts in the financial education field: bankers, financial advisors and consumer finance counselors, who deliver in-class lectures. Outside of class, students participate in an online discussion in which they comment on what they have learned from the course each week. They also use online financial educational software which reinforces their learning in class and requires them to develop their own financial goals, make decisions on how to fund them and to prepare a personal budget and statement of

net worth. Class participants must also post all of their personal spending in a journal and attempt to keep their daily spending within a certain amount based on their budget. Students research online money management resources and report their findings on a particular money management topic in an in-class group presentation. Besides learning from their own experiences, the students also participate in service learning by presenting financial literacy lessons provided by Junior Achievement to middles school students. They write a written reflection on what they have learned at the end of the course. Class participants receive points for (a) class participation, (b) posting comments in an online discussion, (c) preparing assignments from an online financial education course, (d) participating in the Junior Achievement presentations, and (e) for the written reflection.

The purpose of this study was to examine the effectiveness of the Financial Literacy course on the money management habits of its students. The research question addressed in this paper is: What is the relationship between the completion of the university's Financial Literacy course and significant improvement in the students' money management skills? The study was conducted as a program review due to the relatively small number of respondents (25 students had taken the course each semester since the course began five years ago). The program review was completed using Jacobs' 1988 five-tiered approach to program evaluation as modified by Fox, Bartholomae and Lee (2005) for measuring the effectiveness and accountability of financial education programs.

F.H. Jacobs originally developed the five-tiered approach in order to determine the effectiveness of small, less expensive programs and to assess a program's responsiveness to the needs of all of its stakeholders, including the impact on its participants. Another objective of Jacobs' evaluation approach is to find the reasons for the effectiveness of the programs. Fox, et al. (2005) adapted Jacobs' model in order to provide guidance about how to develop and deliver financial education and how to measure effectiveness and accountability of these programs. They believed that the main advantage of using Jacob's approach is the fact that evaluation is incorporated into each stage of the program, from its development to its conclusion. In the first tier (needs assessment), Fox, et al. (2005) recommended testing the participants' financial literacy knowledge and using the scores to identify deficiencies to be corrected in the program. In the accountability tier (Tier Two), they advised the collection of registration data and exit surveys which are used to (a) rate the instructor, (b) express the clients' satisfaction with the course, and (c) indicate any increase in financial literacy knowledge. For the program clarification tier (Tier Three), the three researchers advised using pre- and post-test scores as a more rigorous measurement of any changes in the participants which occurred as a result of the program. At this point, they recommended that any significant changes in the participants be tied to the best practices of the program. In Tier Four (progress towards objectives), a common method of measuring progress was to follow up with participants on an on-going basis to discover any actions they were taking towards achieving the goals of the program. In Tier Five (program impact), the researchers recommended using control groups in a formal experimental or quasi-experimental approach. The researchers also pointed out that educators can use both a formative evaluation (to improve the program) and summative evaluations (used to discover the impact of the program on participants' financial behavior, levels of knowledge or financial confidence) (Fox, et al., 2005).

In the remainder of this paper, research methods are described, followed by descriptive findings, conclusions and implications. In the Descriptive Findings section, the results of quantitative and qualitative analyses were incorporated into Jacobs' 1988 five-tiered approach to program evaluation as modified for financial programs by Fox, et al. (2005). Each evaluation tier is described, along with the results for the Financial Literacy course. The conclusions and implications in this study are based on evaluating the Financial Literacy course with this model.

METHOD

The research question in this study was examined using a mixed methods program evaluation approach. Quantitative analysis was performed to indicate the existence of a relationship between completion of the course and any improvement in the students' money management behavior. Qualitative

analysis helped to explain the details of the relationship and how components of the course contributed to the relationship.

The main survey instrument used was the Financial Management Behavior Scale (FMBS) (Dew and Xiao 2011). The scale consists of ten questions about the frequency of financial behaviors in the areas of cash management, credit management, savings and investments and insurance. This survey instrument was chosen in order to ask the students about a variety of money management behavior and to correspond with the topics discussed in the Financial Literacy course. However, Dew and Xiao created the Financial Management Behavior Scale for consumers of all ages, not specifically for the college student population. A few questions from the Financial Fitness Questionnaire (Cude, Lawrence, Lyons, Metzger, LeJeune, Marks, and Machtmes, 2006) were also included in the survey. Cude et al. created the survey to ask college students about the frequency of ten financial behaviors. Questions from the Financial Fitness Questionnaire were added to this study in order to ask participants about the financial behaviors not addressed by the Dew and Xiao, but included in the topics of the Financial Literacy course. Both survey instruments required participants to indicate the frequency of their money management behavior on a Likert scale. A rating of "1" indicated "never" and "5" indicated "almost always."

Demographic data was also collected from the survey in order to identify any factors other than the Financial Literacy course that were related to the participants' financial behavior. Students in the Spring 2012 course were surveyed twice-once at the beginning of the course (March 2012) and once at the end of the course (May 2012) to see if there were any differences in their responses. The responses of students in the Financial Literacy course were compared to responses from a control group of students in a political science course. This course had a similar student population and size. Comparison with a control group of students was completed in order to isolate the effect of the Financial Literacy course on the financial behavior of the students. Past students of the Financial Literacy course were also surveyed to discover any longitudinal effects of the course on financial behavior.

Qualitative data for the study was taken from the weekly online discussions of the current students and their written reflections at the end of the term. During the weekly discussions, students were asked to describe their reactions to class presentations and assignments and encouraged to share stories of their successes and failures in managing their money and any changes in their financial behavior. The electronic records of these discussions and the written reflections completed by the Financial Literacy students at the end of the Spring 2012 course were analyzed qualitatively to identify emerging themes. All student responses (both quantitative and qualitative) were not identified by name when the data was analyzed to preserve anonymity.

DESCRIPTIVE FINDINGS

30 students responded at the beginning of the Spring 2012 Financial Literacy course (March 2012) and 28 responded in May 2012 (the end of the course). 30 students from the control group (political science course) responded in March 2012 and 28 students responded in May 2012. 15 participants responded to the online survey of past participants in the Financial Literacy course. The survey was mailed to 125 past students, resulting in a 12% response rate.

Tier One: Pre-Implementation of a Financial Program
In Tier One of the Jacobs (1988) five-tiered approach for program evaluation, the need for the program is assessed. Program developers must identify the target audience for the program and the program's intended benefits. Items documented in this stage include (a) who will be served by the program and how, (b) possible effects on the participants, and (c) program benefits (Jacobs 1988). Fox, et al. (2005) tailored Jacobs' evaluation model to financial programs by recommending testing the participants' financial literacy knowledge and using the scores to identify deficiencies to be corrected by the program. Adams (2006) suggested examining the student loan default rate on campus and the characteristics of students who have defaulted. Adams also suggested identifying the graduation and retention rates, academic success, age and other factors of defaulting students. This information could be

used to decide who needed financial literacy education and when it should be offered. In the case of the Financial Literacy course in this study, the course was directed towards all students. The specific needs of the university's students for financial education were not identified prior to designing the course as recommended in Tier One. Instead, anecdotal evidence of college students' checking account overdrafts and credit card payment problems were the driving forces for creation of the course.

One way to identify students' needs and create the best financial education programs is to develop them in a collaborative manner by working with student and resident life programs, freshman-year programs and graduate programs (Adams 2006). When creating the Financial Literacy course of this study, the recommendations of financial literacy program experts were followed. The dean of student life and dean of academic success were instrumental in planning the course, along with (a) a financial literacy expert, (b) the dean of the college which housed the course, and (c) the instructor/creator of the course.

When program creators make decisions on which audiences to direct their programs to, they should consider the teachable moments occurring at various points in the participants' life cycle (Xiao et al. 2010). Robb and Sharpe (2009) agreed. They believed that students should be presented with targeted financial education at the point at which they were ready to learn it. By timing the education at particular teachable moments for students, more positive financial behavior would result (Robb and Sharpe 2009). The curriculum for the Financial Literacy course was designed to address the teachable moments with topics that were the most relevant to college students. The course creator and the financial literacy expert felt that the students of the course were ready to learn more about (a) credit and debit card usage, (b) credit scores, (c) insurance, (d) debt payment, (e) saving and investment, and f) budgeting and spending before they graduated and entered the real world.

Tier Two: Accountability of a Financial Program

In the Level Two tier, the accountability of the program must be assessed in order to justify its funding (Jacobs, 1988). The (a) number of participants, (b) their characteristics, (c) a program description and (d) program costs are reported (Jacobs 1988). Fox, et al. (2005) advised the collection of registration data and exit surveys which are used to (a) rate the instructor, (b) express the clients' satisfaction with the course, and (c) indicate any increase in financial literacy knowledge in the Level Two tier. However, they did not specify any particular instrument to use to measure an increase in knowledge. When Huston (2010) studied the types of measures used in the last 10 years to indicate the amount of financial literacy achieved, he discovered that there were no standardized instruments available.

To assess the accountability of the university's Financial Literacy course, the survey based on the FBMS and FFQ questionnaires was administered at the end of the course (May 2012), which corresponds with the advice of Fox, et al. (2005) for an exit survey. In addition, the survey addressed the four major categories of financial literacy as identified by Huston (2010): (a) basic knowledge; (b) borrowing, (c) saving and investing, and (d) asset protection. The survey questions addressed changes in financial behavior rather than increases in financial knowledge. Behavioral measures were selected because four of the five goals of the Financial Literacy course are based on behavior: (a) developing and funding financial goals, (b) creating a budget, (c) tracking spending, and (d) sharing financial literacy knowledge.

The study also included subjective measures to assess the course. The subjective measure was the qualitative analysis of students' comments on a weekly basis as they progressed through the course and their reflections at the end. The subjective measures were included in part to add explanations to the results of the quantitative questionnaire.

Tier Three: Program Clarification

According to Jacobs (1988), in the Level three tier (program clarification), providers of the program rely mostly on their own judgment to decide on ways to improve the program. They attempt to discover which services are the most valuable for their clients and to document the program for future replication (Jacobs 1988). In the Level Three tier, Fox, et al. (2005) advised that the evaluators connect any high levels of success (identified by pre- and post-test scores) to the best practices of the financial program. In

order to identify best practices, it is necessary to critically examine the components of the program, i.e. the methods and pedagogies used to deliver them.

Presentation of in-depth research on effective financial education curriculum and the results of this study relating to the effectiveness of the Financial Literacy course components on the money management habits of its students will be presented in a future article by this author.

Tier Four: Progress Towards Objectives

In the Level Four tier, the emphasis is on how the program affects the participants' progress instead of on the program itself. The evaluators in the Level Four tier strive to determine the effectiveness of the program by comparing short-term objectives with behavioral indicators of achievement. The behavioral indicators of achievement must be measurable and related to each objective (Jacobs 1988).

Although the literature on evaluation of financial programs did not reflect an agreement on using behavioral measures to evaluate financial program effectiveness, it has been recommended by some researchers as the best method (Fishbein and Ajzen 1975; Danes, Huddleston-Casa and Boyce 1999) and it is the one used by this researcher. However, not every financial expert believes that measuring behavior is a good method to evaluate effectiveness. Some researchers feel that there is no link between financial education and behavior because of other factors that influence an individual's actions in this area. In 2004, the Comptroller General of the United States issued a report called "The Federal Government's Role in Improving Financial Literacy." In it, the government stated that because there were so many factors that affected consumer behavior, researchers should be careful before attributing long-term changes in financial behavior to financial education. Other factors that influence financial behavior of college students include prior financial management experiences (Bernheim, Douglas, Garrett, and Maki, 2001, Bell, Gorin and Hogarth 2009, Robb and Russell 2009); individual's savings patterns (Fox, Bartholomae, and Lee 2005); parents' financial behavior and differences in culture (Xiao et al. 2010); and students' grade point averages, year in college, ethnicity, credit card ownership, marital status of their parents (Cude et al. 2006). Vitt, Danes, Hogarth, O'Neill, Tatom and Walstad (2010) recommended that researchers control for these variables in order to isolate the effects of financial education on behavior.

Demographic questions (Table 1) and questions about students' previous financial background and experience (Table 2) were included in the survey in this study. The researcher compared differences between the three groups' (current students, former students and control group students) in order to attempt to control for some of these variables. There were several differences between the student groups in terms of demographics. The student groups were more similar in terms of their background in personal finance.

TABLE 1
DEMOGRAPHICS OF PARTICIPANTS
MARCH 2012 (WEEK 1)

	Financial Literacy Students n=30	Control Group n=30	Former Financial Literacy Students n=15
Gender			
Male	62.1	43.3	26.7
Female	34.5	40.0	73.3
Chose not to report	3.4	16.7	---
Age			
18	26.7	16.7	---
19	30.0	16.7	---
20	6.7	23.3	33.3
21	20.0	23.3	6.7
22	3.3	13.3	20.0
Over 22	13.3	6.7	40.0
Ethnicity			
White	54.8	58.1	53.3
Black or African American	19.4	---	6.7
Asian	9.7	38.7	6.7
Hispanic or Latino	9.7	3.2	33.3
Chose not to report	6.5	---	---
Employment			
Not employed	56.7	26.7	20.0
Part-Time (less than 35 hours)	36.7	70.0	46.7
Full-Time (over 35 hours)	6.7	3.3	33.3

Note: Amounts shown are in percentages.

TABLE 2
FINANCIAL BACKGROUND OF PARTICIPANTS
MARCH 2012 (WEEK 1)

	Financial Literacy Students n=30	Control Group n=30	Former Financial Literacy Students n=15
Sources of Financial Information [a]			
Parents	90.0	90.0	93.3
Friends	26.7	46.7	46.7
Online or written materials	23.3	16.7	26.7
Prior financial literacy course	13.3	23.3	13.3
Other	13.3	10.0	---
Never received information	6.7	---	---
Reasons for Taking Financial Literacy Course [a]			
For credit hours for degree	93.3	N/A	N/A
To learn how to manage money	53.3	N/A	N/A
Past financial experiences	10.0	N/A	N/A
Other	13.3	N/A	N/A
Personal Finance Experience [a]			
Checking account	89.7	90.0	93.3
Debit card	86.2	83.3	93.3
Savings account	79.3	70.0	86.7
Credit card	34.5	46.7	73.3
Investment account	13.8	23.3	20.0
Other	3.4	---	---

Note: Amounts shown are in percentages. [a] Multiple response questions.

Chi square tests were run to see if there were significant associations between the demographic and background data and the financial behavior of the participants as measured from the survey. These tests were rerun based on consolidation of scale points. Unfortunately, the tests were not valid because there was insufficient data, so the researcher was not able to isolate the effects of the financial literacy course from the effects of other factors on participants' financial behavior.

In evaluating the value of financial programs, most researchers used either a post-test or a retrospective pre-test followed by a post-test. Pre- and post-tests and follow-up surveys were not as common. Pre- and post-tests were recommended in order to attempt to control for outside variables (Fox et al., 2005) and were used in this research. Students in the Financial Literacy course were given the same survey at the beginning of the course (March) and at the end (May). The results of the survey (see Table 3), indicate an increased awareness of the students of 10 of the 16 financial behaviors because fewer students felt that the behaviors were not applicable from March (the beginning of the course to May 2012 (the end of the course).

TABLE 3
APPLICABILITY OF FINANCIAL BEHAVIORS - CURRENT
FINANCIAL LITERACY STUDENTS
(MARCH VS. MAY 2012)

Not Applicable	March 2012 n=30	May 2012 n=28	t
Maxed Out Credit Limit	40.0	46.4	1.000
Paid Credit Cards on Time	50.0	53.6	.527
Saved Money from Every Paycheck	33.3	35.7	.328
Comparison Shopped	3.3	3.6	.000
Made Only Minimum Payments	56.7	53.6	.000
Contributed to an IRA	23.3	25.0	.000
Invested in Bonds, Stocks, Mutual Funds	30.0	21.4	-.528
Saved Money for Long-Term Goal	20.0	14.3	-.626
Paid Bills on Time	46.7	39.3	-.721
Wrote an NSF Check	16.7	7.1	-.812
Balanced Checkbook Monthly	33.3	21.4	-.902
Avoided Spending	3.3	---	-1.000
Stayed Within Budget	16.7	3.6	-1.362
Began/Maintained Emergency Fund *	36.7	10.7	-2.000
Kept Record of Expenses **	13.3	---	-2.121

Note: Amounts shown are in percentages. * $p<.05$; ** $p<.10$

In addition to comparing the current students' opinion of the applicability of behaviors between March and May, the frequency of financial behaviors was compared using a paired-samples t-test.

The mean frequency rose on 11 of the 16 behaviors listed on the survey. Two of those behaviors were unwise: maxing out their credit limit and writing an NSF check. There was a statistically significant increase in only one behavior: having no difficulty managing money. M= 3.68, SD=1.020 in March and M=4.21, SD=1.134 in May, t (27) = -2.197, and *p*<.05 (two-tailed). The mean increase in frequency was .536 with a 95% confidence interval ranging from .035 to 1.036.

TABLE 4
T-TESTS-FINANCIAL BEHAVIORS OF CURRENT FINANCIAL LITERACY STUDENTS
(MARCH VS. MAY 2012)

	Financial Literacy Students March 2012 n=28	Financial Literacy Students May 2012 n=28	p
No Difficulty Managing Money	3.68	4.21	.037[*]
Began/Maintained Emergency Fund	3.93	3.11	.143
Saved Money from Every Paycheck	4.61	5.18	.174
Maxed Out Credit Limit	3.52	4.41	.287
Comparison Shopped	4.14	4.39	.336
Contributed to IRA	2.64	3.32	.375
Avoided Spending	4.25	4.50	.447
Kept Record of Expenses	3.75	4.04	.549
Saved Money for Long-Term Goal	4.07	3.71	.549
Paid Bills on Time	5.68	5.50	.686
Wrote an NSF Check	1.86	2.04	.726
Invested in Bonds, Stocks, Mutual Funds	3.00	3.25	.735
Balanced Checkbook Monthly	3.93	4.07	.805
Made Only Minimum Payments	5.30	5.19	.828
Paid Credit Cards on Time	5.41	5.32	.899
Stayed Within Budget	4.43	4.46	.911

Note. Amounts shown are mean frequencies. [*]$p<.05$.

When studying financial behavior, national experts found that quantitative data was more commonly collected than qualitative. However, they acknowledged the importance of collecting qualitative data as a best practice in financial research. Especially important to gather were "success stories" that could be useful in marketing their programs (Lyon, Palmer, Jayaratne, and Scherpf, 2006). Qualitative methods such as written surveys with in-depth, open-ended questions or focus groups interviews could be used to create more depth and detail to the research results (Vitt, et al., 2010). In the research of this study, qualitative analysis of online discussions and written reflections was used to support the results of the quantitative analysis, providing detailed information relating to why a relationship exists (if any) between the Financial Literacy course and improved money management habits of the students. As recommended, any stories of success were also identified.

Some of the students in the Financial Literacy course had already adopted wise financial behavior before the course began. In the first week of the online discussion, some students demonstrated an awareness of good and bad spending habits and some stated that they had already started budgeting and saving their money. However, other students in Week 1 commented on their poor spending and savings habits: many could only save sporadically because of their sporadic income and some were affected by peer influences to over-spend.

By Week 4, students were halfway through the course and were asked to identify their progress in changing their money management habits per the Transtheoretical Model of Behavior Change (TTM). Way and Wong (2010) discussed the use of this model to help explain changes in financial behavior. Course participants were asked if they were in one of the following stages of the TTM: 1) Pre-contemplation-examining the pros and cons of changing financial behavior, with no intention of changing in the next six months, 2) Contemplation-becoming aware of changing financial habits and intention to

make a change in the next six months, 3) Preparation-taking action in the next 30 days, or 4) Maintenance-have changed behavior and change is becoming easier.

Out of the 34 students who were enrolled, 24 (71%) identified their stage of behavior change in the discussion. Three students (13%) identified themselves as in pre-contemplation stage, 15 (63%) identified themselves as in the contemplation stage, two (8%) identified themselves as being in the preparation stage, and three (13%) were in the maintenance stage. One student identified himself/herself as being in between the pre-contemplation and contemplation stages (4% of the respondents). Those students who were contemplating a change in the next six months said they needed to change their habits before they graduated.

The students who identified themselves as being in the maintenance stage changed their spending habits by eliminating spending on small unnecessary items including food expenditures for snacks and coffee. By cutting their spending they began to notice that they had money left over. One student saved $62 in three weeks by questioning whether they were spending money on a need or a want before making a purchase.

In the last week of the course (Week 7), students in the Financial Literacy course were required to prepare a one-page written reflection about what they had learned. 29 reflections were received from the 34 students enrolled in the class. There were 36 mentions of increased awareness of their spending and savings habits and how they could change them, compared to 35 mentions of increased awareness in the Week 2 online discussion. Statements of awareness included the phrases (a) "I never knew until", (b) "I found that", (c) "It was fascinating to see", (d) "I did notice that", (e) "It made me more aware that,"(f) "I came to notice", (g) "I realized", (h) "My eyes were opened", (i) "I was able to physically see", and (j) "An alert button…". In Week 7, there were 14 mentions of the intention to change their financial behavior, compared to five mentions in Week 2. The Week 7 written reflections contained 26 mentions of actual behavioral change (an increase from 17 mentions in Week 2).

Stories of success in money management from the students included the following:

> My past and current financial habits don't necessarily reflect my current thoughts anymore. With the knowledge that I'm starting to obtain by becoming more independent and also through taking this class, I've noticed some changes that do need to be made.

> Being a success isn't determined by how much money you make, but how you use the money you have and how you save it. There isn't really any trick to it, it's just knowing how money works, having a plan. And spending less and saving more.

Tier Five: Program Impact

The final tier (Tier Five) from Jacobs' model is to evaluate the impact of the program. Evaluation reports include items such as (a) the intended audience, (b) strengths and weaknesses of program design, (c) how the program works and is implemented, (d) participant feedback, and (e) any changes relating to techniques and measures (Jacobs, 1988). This focus of this study is on part (e): any changes related to techniques and measures as supported by part (d) participant feedback. Qualitative analysis of this feedback provided support through the participants' personal stories.

In Tier Five, Fox, et al. (2005) stated that using control groups in a formal experimental or quasi-experimental approach to evaluate financial programs was recommended in order to determine the real impact of the program. The comparison of results between control and treatment groups helps to compensate for the selection bias inherent in financial education programs. Selection bias is present because these programs are voluntary and non-random samples are used in evaluation (Lyons et al. 2006). In addition, Xiao et al. (2010) contended that most financial program evaluations have not used a rigorous approach which included random assignment of participants to the studies.

Because enrollment in the Financial Literacy course was voluntary, selection bias might have been present. Therefore, a control group of students from a first-year political science course was used in this study. A key factor in using a control group is to ensure that the control group comes from the same population as the experimental group. The control group in this study was chosen with the anticipation that students in a first-year political science would have similar demographic and other characteristics

when compared to the students in the Financial Literacy course. Unfortunately, there were some differences between the control group and the current Financial Literacy students (see Tables 1 and 2). The control group students were older than the current Financial Literacy students. There were more Asian students in the control group and fewer Black students. More students in the control group were employed than in the Financial Literacy course and more of the control group had taken a prior Financial Literacy course and had started an investment account.

Table 5 indicates the differences in the applicability of financial behaviors (in the students' opinions) for each student group in May 2012 (the last week of the Financial Literacy course). Lower percentages of current students than the control group felt that wise financial behaviors such as comparison shopping, staying within budget and keeping a record of expenses were not applicable to them. However, for the remaining seven of the ten wise financial behaviors, higher percentages of current students than the control group felt that these behaviors did not apply to them. More Financial Literacy students than the control group felt that two poor financial behaviors (making out their credit card limit and paying only minimum payments on their credit cards were not applicable behaviors possibly due to the fact that a smaller percentage of them had credit cards (see Table 1).

TABLE 5
APPLICABILITY OF FINANCIAL BEHAVIORS TO STUDENT GROUPS
MAY 2012 (WEEK 7)

Not Applicable	Financial Literacy Students n=28	Control Group n=28	Former Financial Literacy Students n=15
Paid Credit Cards on Time	53.6	28.6	13.3
Made Only Minimum Payments	53.6	25.0	33.3
Maxed Out Credit Limit	46.4	25.0	13.3
Paid Bills on Time	39.3	21.4	---
Saved Money from Every Paycheck	35.7	14.3	---
Contributed to an IRA	25.0	21.4	7.1
Invested in Bonds, Stocks, Mutual Funds	21.4	7.1	7.1
Balanced Checkbook Monthly	21.4	17.9	---
Saved Money for Long-Term Goal	14.3	7.1	7.1
Began/Maintained Emergency Fund	10.7	21.4	---
Wrote an NSF Check	7.1	10.7	7.1
Comparison Shopped	3.6	7.1	6.7
Stayed Within Budget	3.6	17.9	---
Kept Record of Expenses	---	7.1	---

Note: Amounts shown are in percentages.

Table 6 contains an analysis of variance of the three student groups as of May 2012 Even though there were differences in frequency means between the current students and the control group, there were no significant differences ($p < .05$) between the frequency means of the two groups on the surveyed behaviors in May 2012. The frequency means for the more general category of having no difficulty managing money were very close.

TABLE 6
ANALYSIS OF VARIANCES-MEAN FREQUENCY OF BEHAVIORS OF STUDENT GROUPS
(MAY 2012)

	Financial Literacy Students n=28	Control Group Students n=28	Former Financial Literacy Students n=15	F
Contributed to IRA	1.68*	2.00	3.23*	4.642
Maxed Out Credit Limit	1.93	1.19**	2.08**	3.771
Stayed Within Budget [c]	4.31	4.35**	3.73**	2.597
Paid Credit Cards on Time	3.38	4.35	3.77	2.129
Wrote an NSF Check	1.48	1.12	1.15	1.510
Paid Bills on Time	4.69	4.71	4.87	1.402
Invested in Bonds, Stocks, Mutual Funds	2.23	1.58	2.00	1.091
Began/Maintained Emergency Fund	2.56	3.14	3.07	.999
Saved Money for Long-Term Goal	2.91	3.48	3.23	.875
Avoided Spending	4.38	4.07	3.93	.832
No Difficulty Managing Money	4.08	4.00	3.64	.649
Comparison Shopped	4.23	4.00	4.36	.640
Balanced Checkbook Monthly	2.84	3.26	2.71	.627
Saved Money from Every Paycheck	4.17	3.79	3.71	.580
Kept Record of Expenses	3.96	3.58	3.80	.567
Made Only Minimum Payments	2.50	2.50	2.50	.000

[*]$p=.014$; [**]$p=.031$; [***]$p=.083$.

The differences in makeup of the two groups may explain some of the results of the quantitative survey (see Tables 1 and 2). In particular, more of the students in the control group were working full-time and making their own money. At this point, they were required to make more financial decisions and had more opportunities to save and invest in the course of their employment. This difference may have caused some of the differences in behavior frequencies.

According to the requirements of Tier Five, both short-term and long-term impacts are identified and the evaluation can take several years or longer (Jacobs 1988). Researchers in financial education also attested to the value of a longitudinal analysis to investigate the long-term impacts of the program (Fox, et al., 2005). The past students from the Financial Literacy course (since 2008) were surveyed in this research in order to determine whether or not actual behavior change occurred well after the program was over. The response to the survey was low (12% of 125 students). The Financial Literacy course in this study has been offered since 2008, but the participants in the online survey of past students were not asked when they had taken the course. It is possible that the students that did respond had taken the course during the past year, so the long-term impacts were not able to be identified.

If it is assumed that all of the past students who took the course completed it within the past year, it is possible to analyze the current students and past students for short-term impacts. The past students had marginally higher behavior frequencies than the current students for some behaviors and lower frequencies on others. The only significant difference in means ($p<.05$) between the former and current financial literacy students was for contributing to an IRA. The mean behavior frequency for current Financial Literacy students of 1.68 compared to the mean behavior frequency for the former students of 3.23 for contributing to an IRA (see Table 6). This difference may be explained by the fact that more of the former students were working full-time and given the opportunity to contribute at their work place (see Table 1).

WHAT HAVE WE LEARNED?

Because of the small size of the sample population, this research was designed as a program review using Jacobs' 1988 five-tiered approach as modified by Fox, et al. (2005) for financial programs. The Financial Literacy course, for the most part, followed the advice of financial education experts for four of the tiers in the five-tiered approach. The course will be examined in conjunction with the third tier (program clarification) in another article by this researcher. A control group was used in the analysis to attempt to isolate the effect of the Financial Literacy course on the financial behavior of its students. There was only one significant difference of behavior frequency between the control group and the current students. This difference might have occurred due factors other than behavior because there were several differences between the control group and the Financial Literacy students in terms of demographics. Unfortunately, the researcher was unable to control for those factors in the due to the small sample size. Therefore, it is not possible to conclude that the Financial Literacy course improved the money management habits of the students more than the existing money management habits of a control group because of the undefined effect of demographics and financial background.

There was only one significant difference between the frequency of financial behaviors of the past students and the control group. Again, it was not possible to control for the demographic and financial experience differences between the past students of the course and the control group due to sample size. Accordingly, it cannot be disproved that the course had no impact on the students' spending and saving behavior in the long term.

However, it may be concluded that there was a change for the better in the money management habits of the current students as a result of the course; even though only about half of the students enrolled in the course in order to increase their knowledge (the other half took the course for credit hours). Quantitative results indicated an increased awareness of positive financial behavior from the beginning and ending of the course in two areas. There were two significant differences in the frequency of the current students who believed that a financial behavior was applicable to themselves between March 2012 and May 2012 (the number of students who thought these behaviors were not applicable decreased between the beginning and ending of the course). The two behaviors were maintaining an emergency fund and keeping a record of their expenses. In addition, there was one important change in the frequency of behavior from the beginning to the end of the course. The t-test indicated that difficulty in managing money significantly decreased in frequency for this period. Difficulty in managing money encompasses many different financial behaviors, so this is an important finding in determining the effectiveness of the course. The quantitative findings in this study support the hypothesis that the course had a positive effect on the spending and savings habits of the current students when comparing survey results from the beginning to the end of the course.

The qualitative results reinforce the conclusion from the quantitative analysis that there were improvements in students; awareness and behavior frequencies as a result of the course. Although some of the students demonstrated an awareness and ability to engage in wise financial behavior before the course began, over half of them were contemplating a change in their financial behavior in the next six months, and another 20 percent were ready or already had made a change by Week 4. The number of comments expressing an intention to change behavior increased from the second week to the end of the course, as did the comments describing the behavioral changes that were made during this time. Students described (a) cutting their spending (especially on unnecessary items), (b) paying down debt more effectively, and (c) beginning to save.

By the end of the course, students' intention to change their financial behavior had increased from five mentions of intent to change in Week 2 to 14 in Week 7, an increase of 180%. The mentions of changed behavior increased from 17 in Week 2 to 26 at the end of the course, an increase of 53%. It is important to remember when analyzing these findings that the course only ran for eight weeks, which is a short period of time in which to make changes to ones behavior. Therefore, the results can be judged to be even more positive than if the course had been offered for an entire semester. Students' stories of success

in changing financial behavior found by performing qualitative research indicated that valuable lessons were learned about financial management.

Vitt et al. (2010) advocated the need for smaller studies of financial education programs that could provide a basis for more expansive studies. This study is small and based on a convenience sample taken from the responses of current and past students of the Financial Literacy course at the university. As such, results cannot be generalized to a larger population, so the decision was made to conduct the study as a program review. Valuable insights regarding the usefulness of the course's pedagogy and components to improve students' money management behaviors at this university were received as a result of this review.

IMPLICATIONS

The findings of this study indicate that the Financial Literacy course had a positive effect on the money management behaviors of its students when comparing their behavior at the beginning of the course to their behavior at the end. After evaluating the course using Jacobs' Five Tier approach, there were a few areas in which the course can be improved. Because the specific needs of the students at the university in which this course is housed were not determined before the course was implemented, it might be beneficial if a survey of the university's students were taken with regard to their current financial behaviors. The data produced by the survey could be used to refine the course curriculum according to the level (freshman, sophomore, junior, senior) of its specific audience. Also, if indicated by the survey, it might be possible to create a course for students who are financially at-risk and one for those who are not. The financially at-risk students might benefit by adding a course component which includes individual financial counseling.

The results of the survey indicated that a significant percentage of the current Financial Literacy students (in particular) felt that over half of the financial behaviors listed were not applicable to them. The FMBS (on which most of the survey questions were based) was not created with college students in mind. The FMBS was created for consumers in general. In fact, Dew and Xiao (2011), the authors, cited the need for the scale to reflect the life cycle of the population being studied. By tailoring the survey to its audience, more meaningful results may be achieved. This researcher suggests that there is an opportunity for further study of the Financial Literacy course using a survey containing questions specifically written for college students.

In this study, there was not a large enough sample to determine whether the demographic and financial background of the students was related to the change in the students' financial behavior. If a larger study of the Financial Literacy course could be done, the researcher could discover whether or not these factors impacted the results. Comparing the current Financial Literacy students with a greater number of control groups and with a larger sample of past students would also add validity to the results.

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