

Workplace Financial Education Facilitates Improvement in Personal Financial Behaviors

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Based on the life-cycle theory of consumption, this quasi-experimental study of 995 employees examined changes in financial behaviors following employee-needs-driven workplace financial education. Repeated-measures ANOVA compared participants and non-participants on perceived financial wellness and savings ratios; main effects indicated that both groups improved pretest-to-posttest on both variables ($p < .001$). A Wilcoxon signed-rank test determined that frequency of negative financial behaviors declined for participants ($p < .001$). Logistic regression determined likelihood of performing specific financial activities following financial education programming. Participants were 1.8 times more likely than non-participants to budget, 1.9 times more likely to undergo asset allocation assessment, and 1.6 times more likely to increase retirement contributions ($p < .001$). Results lend support to workplace provision of both basic financial education and retirement planning programming.

Key Words: workplace financial education, financial wellness, financial behaviors, life-cycle theory, retirement savings

Introduction

Throughout their lives, Americans experience levels of living based on their incomes and the consumption and savings decisions they have made over time. The goal, according to the life-cycle theory of consumption, is to balance the consumption and saving functions during the working years such that the desired level of living remains stable throughout the lifespan, including during retirement (Modigliani & Brumberg, 1954). There seems to be a disconnect between the theory and reality, however, with respect to consumers' ability to achieve this balance. A recent study of stress in Americans, for example, revealed that money worries are the primary cause of stress (American Psychological Association, 2014). For some, the problem may not be inadequate income, but rather a lack of both financial management knowledge and the skills needed for appropriate allocation of resources available for consumption and saving. Since Americans spend approximately 56% of their waking hours at work (Bureau of Labor Statistics, 2009; 2010) in pursuit of resource acquisition to support their households, the workplace is a logical place to offer financial education to help employees become more effective in the allocation of such resources.

There has been increased employer interest in recent years in the promotion of financial well-being and financial literacy

of employees through the provision of workplace financial education. Many employers provide financial education about retirement planning and investing, but far fewer offer education about personal financial management strategies. Such programs, targeting basic financial concepts such as spending plans, saving, insurance, and estate planning, in addition to retirement planning and investing, could improve the personal financial management skills and financial wellness of employees.

The purpose of the current study of employees of a major publishing company in the United States was to examine whether financial education would influence financial behaviors that help people balance consumption and savings to maximize utility over the lifespan. Specifically, financial education participants and non-participants were compared on perceived financial wellness, savings ratios, frequency of negative financial behaviors, and the likelihood of performing specific financial activities, including budgeting, reviewing asset allocation strategies, retirement contributions, obtaining or updating life insurance plans, and obtaining or updating estate planning documents.

The current study has three unique aspects that differentiate it from many past studies about workplace financial education.

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First, the study was theory-driven, with the choice of variables based on the life-cycle theory of consumption (Modigliani & Brumberg, 1954). This approach helped frame the study within the larger context of consumption and saving behaviors over the lifespan. Second, the study used a quasi-experimental design that included a comparison group of employees who did not participate in the financial education program. This design helped us state with greater confidence that the changes in participants' financial behaviors were due to the educational programming and not merely to chance. Third, the programming was employee-needs-driven rather than provider-driven and used results of a needs assessment to determine the financial topics to be covered. It is likely that this facet of the educational programming increased interest in and completion of the financial education programs.

Theoretical Framework

A theory that has been central to economic analysis for over half a century is the life-cycle theory of consumption (Modigliani & Brumberg, 1954). Providing a framework for empirical studies at both the microeconomic and macroeconomic levels, the life-cycle theory of consumption implies that consumers strive to maintain stable levels of living over the lifetime (Deaton, 2005). That is, while income and consumption behaviors vary over the lifespan, individuals attempt to balance earnings, spending, and saving to maximize utility in the long run. The theory suggests that younger consumers begin by saving little, as they must consume more in an effort to provide for current household needs. Middle-aged consumers save more because they earn more, and retired consumers spend down savings (dissave) to support post-retirement consumption needs (Deaton, 2005).

Modigliani and Brumberg (1954) have made it clear that the greatest motivation for saving is to provide for consumption needs in retirement, given the absence of wage income. Ideally, consumers retire when the level of savings accumulated matches the levels of consumption and leisure needs anticipated in retirement. In reality, this point may be complicated. Some retirees may not be able to maximize utility in retirement due to the inability of the stream of pension payments to support desired levels of consumption and leisure (Hamermesh, 1982), and many sell off unneeded assets (e.g., downsizing the home) to provide for their consumption and leisure needs during retirement (Deaton, 2005). Some may have provided inadequately for retirement, as pension contributions throughout the working years may have underestimated the pension wealth needed in retirement. Others may have found that underperformance of retirement

investments has resulted in deterioration of anticipated retirement nest eggs. Consequently, such individuals may face a lower level of living than desired when they retire.

In the original conceptualization of the life-cycle theory of consumption in the early 1950s, Modigliani and Brumberg (1954) pointed out that it was not possible to predict how people would behave when facing the uncertainties of the future. Over the past half century, however, economists have developed rigorous methods to deal with uncertainty and formulate expectations about the future (Deaton, 2005). For this reason, financial educators and practitioners now can help consumers better predict retirement contribution levels appropriately in order to support consumption needs during retirement.

Interestingly, testing of the theory has revealed that the predicted pattern of balancing consumption and saving during the working years with the result of maintaining a stable level of living during retirement has not been supported completely. What some researchers have found is that saving for retirement does not begin in earnest until middle age, so not enough pension wealth is accrued by retirement age, restricting consumption during retirement (Banks, Blundell, & Tanner, 1998). When one considers the power of compound interest in accruing pension wealth over time, it becomes clear that providing mechanisms to facilitate the early onset of saving appropriately for retirement has merit, as behavioral economists Thaler and Benartzi (2004) and Beshears, Choi, Laibson, and Madrian (2009) have pointed out.

At the same time, retired individuals tend not to dissave (spend down their pensions) as quickly as the theory predicts. This practice originally was thought to be due to "precautionary saving," or spending less, presumably based on the anticipation of living longer than originally expected, necessitating conservation of funds (Banks et al., 1998; Bernheim, Skinner, & Weinberg, 2001). Hurd and Rohwedder (2005), however, have concluded that instead of the reduction in consumption being due to a miscalculation of the amount of resources needed in retirement, it represents a reduction in work-related expenses and the substitution of home production for the marketplace purchase of goods and services. Hurd and Rohwedder (2005) interpreted these consumption changes as a normal and expected part of the plan for retirement.

Another explanation for frugality during retirement could be the desire to leave bequests to children (Kotlikoff, 1998), a motive originally recognized by Modigliani and Bromberg

(1954). Such considerations as the desire to leave bequests, then, should be taken into account by financial education providers and practitioners when working with those planning for retirement.

For the current study, the selection of variables to include was based on the life-cycle theory of consumption (Modigliani and Brumberg, 1954). The variables chosen and the basis for the selection of each are detailed below.

Perceived financial well-being, or individuals' feelings about their current personal financial condition (Prawitz et al., 2006a), can be thought of as a measure of current maximization of utility. Perceived financial well-being can change over time based on perceived income adequacy in meeting current consumption needs as well as savings and investment goals to ensure a secure financial future. This variable was chosen to serve as a gauge for individuals' perceptions of their financial situation prior to and following the delivery of financial education.

Within the context of the life-cycle hypothesis, budgeting prior to retirement can be conceptualized as planned spending to help facilitate minimization of debt accumulation and maximization of income adequacy, while keeping in mind the long-term financial goal of building pension wealth. The likelihood of starting or updating a budget based on participation in financial education programming, then, was tested in this study.

Savings ratios, or the percentages of current income saved, reflect the efficiency of a consumer's estimation of perceived future consumption needs. Part of the concept underlying a plan for personal savings is acceptance that there is uncertainty about what life will bring—hence the term, “emergency savings funds,” often applied to such accumulations of savings for unspecified goals. Use of such funds when needed can help consumers avoid unplanned debt, including requests for loans against retirement savings that could prevent timely achievement of long-term financial goals. The change in savings ratios based on participation in financial education programming was tested in this study.

One of the fundamental steps in the process of wealth accumulation over the lifetime is a plan for improving goal-inhibiting financial behaviors by substituting more appropriate financial management practices. An example might be establishing a routine for consistency in paying bills on time and as agreed. As part of an overall spending plan, attention

to such practices helps consumers control current consumption in order to meet long-term personal financial goals that include building pension wealth. Changes in the frequency of negative financial behaviors based on participation in financial education programming were tested in the current study.

If goals for pension wealth and wealth transference later in life are to be met, consumers attempting to maximize utility over the life cycle must begin giving serious attention to such goals during the working years. Important facets of such planning include accurate estimates for retirement contributions to support a comfortable lifestyle and a periodic review of asset allocation, life insurance planning, and estate planning. Changes in retirement contributions and performance of a review of asset allocation, life insurance plans, and estate plans were tested in this study based on participation in financial education programming.

Review of Literature

Financial Literacy

Increasing financial literacy is the primary goal of financial education programming, but researchers have defined financial literacy in a number of different ways. Huston (2010) summarized different conceptualizations of financial literacy in the research literature, and concluded that financial literacy can be thought of as having two dimensions: a) understanding financial concepts and ways to manage financial resources effectively, and b) applying financial knowledge and skills in the allocation of resources. That is, financial literacy implies both knowledge and application of sound financial management practices (Huston, 2010). This conceptualization mirrors the definition set forth by the JumpStart Coalition for Financial Literacy (2012), which includes the idea of having the capability to use financial information and skills to allocate resources appropriately, thus assuring a lifetime of financial well-being. Similarly, the Executive Order, which created the President's Advisory Council on Financial Capability in 2010, defined financial capability as, “...the capacity, based on knowledge, skills, and access, to manage financial resources effectively” (President's Advisory Council on Financial Capability, 2010).

Influence of Financial Education on Financial Knowledge, Perceptions, and Well-Being

Researchers have found that financial knowledge increases after employees take part in financial education programming. For example, Edmiston and Gillett-Fisher (2006), and Edmiston, Gillett-Fisher, and McGrath (2009) noted that the employees they surveyed had more advanced financial

knowledge if they had participated in financial education. Collins and Dietrich (2011) measured the financial knowledge of credit union employees following workplace financial education and found that financial knowledge increased for participants in the areas of interest and loans, credit scores, stocks and bonds, and retirement investments. The effects endured over time, and six months later, were still evident in all four knowledge areas (Collins & Dietrich, 2011).

While positive changes in financial knowledge are important, researchers also have been interested in whether increased knowledge leads to changes in perceived financial well-being and confidence in one's financial management abilities. Perceived financial well-being, or perceived financial wellness, refers to individuals' subjective appraisal of their personal financial condition, which focuses on perceptions of and feelings about their financial situations rather than on income or other assets (Prawitz et al., 2006a). The construct can be conceptualized as a continuum extending from overwhelming financial distress/lowest financial well-being to no financial distress/highest financial well-being (Prawitz et al., 2006a).

A number of scholars have tested the effects of financial education on participants' perceptions of their financial situation. Prawitz, Kalkowski, and Cohart (2011), for example, found that financial education positively changed participants' perceptions about their ability to handle financial matters and achieve financial goals. In addition, participants reported increases in both perceived financial wellness and hopefulness for their financial futures following eight weeks of financial education (Prawitz et al., 2011). Researchers have found that workplace financial education participants subsequently reported greater satisfaction with their ability to accumulate personal and retirement savings (Garman, Kim, Kratzer, Brunson, and Joo, 1999; Joo & Grable, 2005). DeVaney, Gorham, Bechman, and Haldeman (1995) found that those with more financial education reported greater confidence in their ability to make financial decisions. Overall, then, past research indicates that financial education improves perceptions about the ability to handle one's financial affairs.

Financial Education and Financial Behaviors

Improvements in financial knowledge and perceived financial wellness represent important changes, but what interests researchers and practitioners more is whether greater financial knowledge makes a difference in how people behave. Past researchers have investigated relationships among financial literacy, financial wellness, and personal financial behaviors.

The literature has demonstrated that consumers who reported greater frequency of negative financial behaviors (e.g., paying bills late) also reported less perceived financial wellness (O'Neill, Prawitz, Sorhaindo, Kim, & Garman, 2006). For these same consumers, however, participation in a debt management plan that included financial education improved both financial behaviors and perceived financial wellness. Garman et al. (1999) determined that workplace financial education participants were significantly less likely than non-participants to report reaching the maximum limit on credit cards or having had to cut living expenses. Hilgert, Hogarth, and Beverly (2003) found that consumers with more financial knowledge were more likely to report paying their bills on time. Bell, Gorin, and Hogarth (2009) found that soldiers who participated in a financial education program were less likely to pay their bills late or to pay overdraft fees. Of note is that, in general, those who participated in credit counseling programs (which typically include an educational component) or in workplace financial education improved their overall financial behaviors (Bernheim & Garratt, 2003; Collins & Dietrich, 2011; Elliehausen, Staten, & Lundquist, 2007; Kim, Sorhaindo, & Garman, 2003; O'Neill et al., 2006; Sorhaindo, Kim, & Garman, 2003) and reported greater perceived financial wellness (Edmiston et al., 2009; Garman et al., 1999; Holland, Goodman, & Stich, 2008; Kim, 2004; Kim et al., 2003; O'Neill et al., 2006; Sorhaindo et al., 2003).

Financial Education and Budgeting

Having a budget, or written spending plan, is an important aspect of successful financial management (Garman & Fogue, 2012), and researchers have noted that financial education can facilitate this practice. Collins and Dietrich (2011), for example, found that those participating in financial education were more likely than non-participants to use a written budget, and this effect persisted six months following the financial literacy intervention. Kim (2004, 2007) found that university employees reported significant increases in the use of weekly or monthly budgets following 8-hour, 4-week courses in financial management. Bell et al. (2009) noted that military personnel who participated in a financial education program were more likely to have a longer planning horizon than non-participants, but were more likely to use an informal rather than a formal spending plan.

Financial Education and Saving Behaviors

With respect to changes in specific financial behaviors following financial education, the majority of researchers have reported positive findings. In a review of selected past studies on the effectiveness of financial literacy efforts on the saving

behaviors of Americans, for example, Gale, Harris, and Levine (2002) concluded that workplace financial education improved levels of savings, but there was much variation in the impact of such programming. Nevertheless, results with respect to saving behaviors due to increased financial literacy have been positive. Those with higher levels of financial knowledge have reported more savings overall (Edmiston et al., 2009) and more appropriate levels of emergency funds (Edmiston & Gillett-Fisher, 2006; Edmiston et al., 2009). Hilgert et al. (2003) noted that consumers with more knowledge about saving practices were more likely to accumulate personal savings.

Researchers also have studied differences in personal saving behaviors based on availability of financial education in the workplace. Garman et al. (1999) found that, compared with non-participants, workplace financial education participants reported greater levels of personal savings. Likewise, Bernheim and Garrett (2003) found that household savings (including savings other than for retirement) were greater when workplace financial education was available. Bell et al. (2009) reported that military personnel who took part in financial education programming were more likely to report saving on a regular basis.

Collins and Dietrich (2011), in a study of financial education of credit union employees, found positive relationships between financial wellness and both saving for long-term goals and having a 3-month emergency fund. More importantly, those who participated in financial education reported an increase in savings for long-term goals and in maintaining an emergency fund (Collins & Dietrich, 2011).

Financial Education and Planned Changes to Retirement Goals and Asset Allocation

One would expect that participation in retirement education programming would result in changes to unrealistic retirement goals, such as a relatively low projected retirement age, or an underestimate of the amount of contributions needed to achieve a comfortable retirement, and researchers have found this to be so. Clark and d'Ambrosio (2003), for example, reported that, following participation in financial education, women, those with higher incomes, and those with defined benefit plans were more likely to increase their targets for retirement income levels to assure a comfortable retirement. Edmiston and Gillett-Fisher (2006), in a workplace study of the relationships between financial literacy and financial behaviors, concluded that those who were more financially literate made better decisions regarding retirement savings.

With respect to the probability of increasing contributions to a supplemental retirement plan, Clark and d'Ambrosio (2003) found that post-financial-education programming, women, those who were younger, and those who held clerical or service positions were more likely to indicate they planned such changes. Follow-up surveys three months after financial education seminars, however, indicated a lack of follow-through in the intended behaviors (Clark & d'Ambrosio, 2003).

Another important aspect of retirement planning involves reviewing one's asset allocation strategy, or the diversification of one's investment portfolio. Appropriate asset allocation involves decisions about the proportions of one's investment portfolio devoted to different categories of assets based on one's time horizon. Financial experts recommend rebalancing one's assets at least once a year, based on one's age and income, along with other factors such as risk tolerance and retirement plans, as this will help control one's exposure to risk (Garman & Forgue, 2012).

Limited research has been conducted to determine whether people had made plans to review their asset allocation following financial education. Anderson, Uttley, and Kerbel (2006) noted that in a study of financial education participants, at pretest, 39% reported that they had analyzed the diversification of their financial assets, and 46% said they had compared the allocation of their financial assets. Following financial education, those who analyzed the diversification of their assets increased by 28%, and those who reviewed their asset allocation increased by 21%. Garman et al. (1999) found that 70% of the workplace financial education participants in their study reported that they had changed their investment strategies by diversifying.

Clark and d'Ambrosio (2003) also found that, following financial education, some individuals intended to reallocate the distribution of assets in their investment portfolios. Changes within defined contribution plans, or within supplemental retirement plans, or within both were indicated by some participants. Specifically, women were more likely than men to plan changes to their supplemental plans, and married individuals were more likely to make changes to both plan types. New seminar participants were more likely than seasoned participants to intend to make such changes (Clark & d'Ambrosio, 2003).

Financial Education and Retirement Plan Participation and Contributions

A number of researchers have studied the effects of workplace financial education on retirement plan participation and contributions. Bernheim and Garrett (2003) reported that workplace financial education improved retirement saving for low savers and moderate savers. Similarly, Lusardi (2003) found that participation in retirement seminars stimulated saving for retirement, especially for those not predisposed to save. Joo and Grable (2005) noted that those who participated in workplace financial education were more likely to save for retirement and to be more confident that they were contributing enough for a financially secure retirement. Bayer, Bernheim, and Scholz (2009) provided evidence that participation in employer-sponsored retirement seminars made a positive difference in whether employees participated in retirement plans, as well as in levels of contributions to such plans. Bell et al. (2009) also reported that military personnel who participated in workplace financial education were more likely to report having a retirement savings plan.

Edmiston et al., in a 2009 study of workplace financial education participants, found that nearly half (48%) of those considered to have advanced financial knowledge were among the highest retirement savers. The majority (69%) of those with little financial knowledge were in the group who saved the least for retirement. Edmiston et al. (2009) concluded that the most financially literate employees make the most prudent decisions regarding retirement savings.

Wealth Transference Planning

Wealth transference may be thought of as tending to the financial aspects of long-term matters with an unknown time frame, including such issues as life insurance and estate planning (Chieffe & Rakes, 1999). While wealth transference needs change over the life span, they are usually of more concern to those who are older, who have assets, and who have dependents (Chieffe & Rakes, 1999). For example, in a study of older adults, Goetting and Martin (2001) examined factors that contributed to the likelihood of having a will, an important component of estate planning. One crucial factor was the respondent's assessment of the likelihood of leaving a financial bequest. As the chances of being able to leave a bequest increased, so did the likelihood of having a legal will (Goetting & Martin, 2001). Similarly, Palmer, Bhargava, and Hong (2006) found that older adults who experienced a positive change in assets were more likely to adopt a will. Such findings suggest that older adults with greater assets are more likely to plan for wealth transference. Experts

recommend, however, that planning for the transference of the wealth accumulated over a lifetime should begin when one is young, and should be updated over time (Garman & Fogue, 2012). In fact, research has shown that those who are financially literate and who can be considered planners arrive at retirement with higher levels of wealth than those who are non-planners (Lusardi & Mitchell, 2007). Presumably, such individuals also will have more wealth available in their estates for transference as bequests. Kotlikoff (1998) has suggested that frugality during retirement may be motivated by the desire to leave bequests, so attention to wealth accumulation for this purpose represents an important retirement planning education topic.

The research on wealth transference planning that includes the updating of insurance and estate plans following financial education programming has been sparse. In a study evaluating a workplace financial education program, Kim, Bagwell, and Garman (1998) determined that 36% of participants indicated interest in future seminars about life insurance planning, and 31% wanted to learn about estate planning. Kim (2004, 2007) found significant improvement in self-reported risk management (insurance plan) evaluation by university employees following four weeks of financial management education. Due to the paucity of research about the important topic of wealth transference planning following financial education, this study included items to measure subsequent actions taken to update life insurance and estate plans.

Objectives and Hypotheses

Based on the life-cycle theory of consumption (Modigliani & Brumberg, 1954) and studies of financial behaviors in retirement framed by this theory (e.g., Kotlikoff, 1998), specific variables were expected to change following the delivery of financial education programming. The overall objective of the study was to determine whether workplace financial education would facilitate changes in financial behaviors that help people balance consumption and savings to maximize utility over the lifespan. Specifically, we were interested in changes in employees' perceptions about their current financial condition, and their behaviors related to consumption practices as well as to savings and investments, including retirement contributions. The specific objectives of the study were to determine whether, following financial education,

1. Perceived financial wellness would change;
2. Savings ratios would change;
3. Frequency of negative financial behaviors would

change; and

4. Likelihood of performing the following financial actions would change: budgeting, reviewing asset allocation strategies, retirement contributions, obtaining or updating life insurance plans, and obtaining or updating estate planning documents.

Based on the past literature, the following hypotheses were developed:

- H1: Perceived financial wellness will improve from pretest to posttest, with financial education participants showing greater improvements than non-participants.
- H2: Savings ratios (percentage of income saved) will improve from pretest to posttest, with financial education participants showing greater increases than non-participants.
- H3: Frequency of negative financial behaviors will decrease from pretest to posttest, with financial education participants showing greater decreases than non-participants.
- H4: Financial education participants will be more likely than non-participants to report taking specific financial actions following financial education.

Methods

Participants

The study was approved by the Institutional Review Board of Northern Illinois University prior to data collection. The project was quasi-experimental, with a non-equivalent control-group design that included both pretesting and posttesting. Employees of a large publishing company were invited to participate in the study by completing an online survey questionnaire, and, if desired, any number of financial education program options. Participation in financial education programming was voluntary and open to all employees. For this reason, while a comparison could be made of financial education participants and non-participants, random assignment of employees to a test group (financial education) and comparison group (no financial education) was not possible. Consequently, the quasi-experimental, non-equivalent control-group design was used.

The overall sample consisted of 995 employees who completed both pretests and posttests; of these, 339 participated in financial education and 656 did not. For this study, “participated in financial education” meant completion of at least one of the financial education program offerings,

and henceforth, this group will be referred to as *participants*. The group who completed pretests and posttests, but did not participate in financial education programming, will be referred to as *non-participants*.

Whenever non-randomized groupings are used, as in the study described here, a self-selection bias may exist. Those employees who chose to participate in financial education may have been different from non-participants. For this reason, for any characteristics that were not *identical* across groups, statistical tests for equivalency were conducted. There were no statistical differences in demographic characteristics between participants and non-participants other than age (43 years versus 41 years, respectively), and no statistically significant differences in perceived financial wellness, savings ratios, or negative bill-paying behaviors at pretest. See Table 1 for a statistical comparison of demographics and other key characteristics of the two groups at pretest. A description of the demographic characteristics of the participants and non-participants and their comparison with the demographics of company employees overall are presented in the following paragraph.

Company-wide ($N = 1,310$), the gender distribution was 37% male and 63% female, and the subsamples of financial education participants and non-participants mirrored this gender split. The mean age company-wide was 41 years, and the same was true for non-participants; financial education participants were slightly older with an average age of 43 years. Employees company-wide, as well as the subsamples of participants and non-participants, reported identical average educational backgrounds of four-year college degrees. Company-wide, the median income was \$64,850. The median income for participants was \$63,000, and non-participants had a similar median income of \$62,950. With the exception of age, these data indicate that the groups of participants and non-participants were equivalent with respect to demographics, and they represented the overall makeup of the company.

Needs Assessment

As an incentive to motivate participation in the study, the employer offered *Wellness Points* toward an insurance premium discount for completion of the pretest survey questionnaire. Included as part of the pretest was a needs assessment to determine financial topics of interest to employees. Following administration of the pretest, the data were summarized to identify topic areas of most interest across the workforce. Based on the results, the employer worked with the financial education provider to develop a year-round

Table 1. Comparison of Characteristics of Company Employees, Participants, and Non-Participants at Pretest

Characteristic	All Company Employees (N = 1,310)			Participants (n = 339)			Non-Participants (n = 656)			Group Equivalency Testing Test Statistic
	Freq(%)	M	Median	Freq(%)	M	Median	Freq(%)	M	Median	
Gender										NA ^a
Male	477(37)			124(37)			242(37)			
Femal	830(63)			213(63)			410(63)			
Age in years		41			43			41		3.64 ^{b**}
Edu (yrs. of college)		4			4			4		NA ^c
Median income			\$64,850			\$63,000			\$62,950	0.00 ^d
PFW™ Scale score		6.08			6.08			6.08		NA ^e
Savings ratio (% of income)		9			9			9		NA ^e
NBPB Scale score		1.37			1.52			1.30		-1.80 ^e

^aPercentages of males and females identical across groups, so no statistical test of differences performed

^bBased on independent t test

^cMeans for groups identical, so no statistical test of differences performed

^dBased on independent samples median test

^eBased on Mann-Whitney U test

*p<.001

calendar of initiatives to address the areas of greatest need and interest among employees. Participants who completed the pretest received a personalized report with a *Financial Wellness Score* and a customized action plan based on their responses and the workplace financial education programming planned as a result of the needs assessment. Employee financial wellness committees at each workplace location collaborated with the Health and Financial Wellness Program Manager to offer site-based initiatives for participation in the educational programming.

The financial education program offerings were tailored specifically to meet the needs pinpointed by the pretesting of the potential participants. The identified topics fell into two distinct categories: basic financial management and retirement/investment strategies. A distinguishing feature of the initiative that differentiated it from financial education programming typically offered in the workplace was that it was employee-needs-driven rather than provider-driven, and so it included options for education about basic financial management topics as well as retirement planning.

Program Delivery

Onsite and online financial workshops were offered as part of a comprehensive wellness program that provided financial education on a variety of topics within the two identified categories of need: basic financial management and retirement/investment strategies. Specifically, the Foundation Series consisted of courses from the EDSA Group including *Money Basics* (6 hours, typically four 90-minute workshops), *The Magic of 401(k)* (2 hours), and *Retiring Easy* (3 hours). The Spotlight Series consisted of 10 60-minute courses from Money Management International that focused on reducing debt, improving credit, building savings, and avoiding fraud. Courses were offered during the workday and after hours to accommodate a variety of employee schedules and family situations. All online workshops were available through a secure online portal and were compatible with mobile devices so employees could participate at work, at home, or while traveling.

Program Participation Incentives

Incentives were offered for participation in financial education workshops. After completing a course, employees received between \$10 and \$50 in *Wellness Bucks* (depending on the course) that could be used for reimbursement on purchases that fit within the context of the Health and Financial Wellness Program, such as athletic shoes and apparel, fitness equipment, therapeutic massage, and additional financial

counseling. In addition, employees completing one or more financial education courses were offered an annual one-on-one consulting session with the financial education instructor to clarify what they had learned as it pertained to their specific financial situations.

Data Collection

Pretest data were collected in April and May, 2010, and posttest data were collected April through August, 2011, after all available courses had ended. Online survey questionnaires were implemented during both data collection periods. A year-round calendar of financial education programming offerings was available between the two testing periods. Nearly all participants (N = 330, 97%) completed financial education workshops focused on retirement, and 68% of the participants (N = 232) completed financial education workshops that covered basic money management concepts, with approximately two thirds completing both types of programming.

Instrumentation

The pretest survey questionnaire consisted of items to determine the financial education needs and interests of the potential participants. Items were included on both pretests and posttests to measure perceived financial wellness, savings ratios, frequency of negative financial behaviors, and likelihood of taking specific financial actions. Demographic information for gender, age, and income was provided by the employer; level of education was self-reported on the survey.

To determine employees' feelings about their current financial condition, perceived financial wellness was measured using the 8-item Personal Financial Wellness Scale™ (PFW™), formerly called the InCharge Financial Distress/Financial Well-Being Scale (Prawitz et al., 2006a). The instrument is a subjective self-report measure of financial distress/financial well-being and has been tested multiple times for validity and reliability (Prawitz et al., 2006b). Scores computed from the average of summed responses to the eight individual indicators represent a continuum from 1.0 = *overwhelming financial distress/lowest financial well-being* to 10.0 = *no financial distress/highest financial well-being* (Prawitz et al., 2006a). For the national population of adults in the United States, the average PFW™ score has been reported as 5.7 in 2004 (Prawitz, 2006a) and 5.2 in 2012 (Prawitz & Cohart, 2013).

For this study, two exploratory factor analyses were conducted for the items making up the PFW™: one for the perceived financial wellness items pretest and one with the same items

posttest. At pretest, all eight items loaded on a single factor, which explained 71% of the variance in financial wellness. Factor loadings ranged from .75–.91. The Cronbach's alpha for the instrument's eight items at pretest was $\alpha = .94$, indicating high internal consistency. Factor analysis results at posttest were very similar, also with factor loadings of .75–.91, and all eight factors loading on a single factor that explained 72% of the variance in perceived financial wellness. The Cronbach's alpha at posttest also was $\alpha = .94$. These results were consistent with the original testing of the instrument (Prawitz et al., 2006a), in which all items loaded high on one factor and explained 79% of the variance (see Tables 2a and 2b). Recent testing of the instrument with a nationwide sample of adults produced similar high loadings on one factor, explaining 74% of the variance in perceived financial wellness (Prawitz & Cohart, 2013). During the original testing of the instrument, Prawitz et al. (2006a) reported a robust Cronbach's alpha score of $\alpha = .965$; in the 2012 study, Prawitz and Cohart (2013) reported a similar Cronbach's alpha of $\alpha = .95$.

Savings ratios were computed based on monthly income. Respondents were asked to indicate the amount they saved and invested each month over and above retirement savings and investments. Annual gross incomes (using figures obtained from the employer) were divided by 12 to obtain monthly income figures. Monthly savings amounts were divided by monthly incomes for each respondent. Savings ratios were expressed as percentages and were interpreted as follows: 1%–5% = *low*, 6%–10% = *moderate*, and >10% = *high*.

A total of 15 items were included on the survey questionnaire to measure frequency of negative financial practices within the past 12 months. Response choices included 0 = *never*, 1 = *once*, and 2 = *more than once*. Of the 15 items, four yielded enough variation in responses for testing as potentially useful measures of negative financial behaviors. The four items indicated the incidence of each of the following during the past 12 months: a) receiving an overdue notice from a creditor, b) paying one or more bills late, c) receiving a phone call about a past due bill, and d) paying rent or mortgage late. The first three items had been adapted from O'Neill et al. (2006), and the final item was developed for this study.

Two exploratory factor analyses were conducted for the four negative financial behavior items, one analysis for the items pretest, and one posttest. A single factor solution with high factor loadings for both time periods explained 63% of the variance at pretest and 61% of the variance posttest. (See Tables 3a and 3b.) This implied that the

scale was unidimensional, and it was termed the Negative Bill-Paying Behaviors (NBPB) scale for this study. The Cronbach's α for the items was $\alpha = .80$ at pretest and $\alpha = .78$ at posttest, indicating relatively high internal consistency, and suggesting that the scale was measuring an underlying construct. Results of the factor analyses and the coefficient of reliability procedures indicated that scores could be computed to measure the construct; this was done by summing the responses for each of the items. Possible scores could range from 0–8.00, with higher scores indicating higher frequency of negative bill-paying behaviors.

Items were included to measure the likelihood of taking specific financial actions, including a) starting or updating a spending plan (budget), b) reviewing asset allocation strategies, c) increasing retirement contributions, d) obtaining or updating life insurance plans, and e) obtaining or updating estate planning documents. Each of these items had dichotomous response choices (i.e., yes/no).

Data Analysis

Three statistical procedures were selected to test the hypotheses. Repeated-measures analysis of variance (ANOVA) was chosen to determine whether financial education participants were more likely than non-participants to improve financial wellness and savings ratios. The repeated measures procedure is used when the same continuous variable measurement is made more than once for each of the subjects in two or more groups (Hand & Taylor, 1987). Use of this statistic allowed for simultaneous testing of both between-groups effects (financial education participation) and within-subjects effects (pretest-to-posttest).

Due to the non-normality of the distribution of scores for frequency of negative financial behaviors, it was determined that the repeated measures ANOVA could not be used to test changes in this variable. The non-parametric related-samples Wilcoxon signed-rank test was selected as a more appropriate statistic for testing changes in the frequency of negative financial behaviors pretest to posttest for each of the two groups, as the Wilcoxon test does not assume normality (Siegel & Castellan, 1988).

Multivariate logistic regression was used to predict the odds of participants versus non-participants taking the following specific financial actions: starting or updating a budget, increasing retirement contributions, obtaining or updating life insurance plans, reviewing asset allocation strategy, and obtaining or updating estate planning documents. The

Table 2A. Factor Loadings for PFW™ Scale Items (Pretest)

Item #	Item description	Factor loading
1.	What do you feel is the level of your financial stress today?	.791
2.	How satisfied are you with your present financial situation?	.863
3.	How do you feel about your current financial condition?	.870
4.	How often do you worry about being able to meet normal monthly living expenses?	.872
5.	How confident are you that you could find the money to pay for a financial emergency that costs about \$1,000?	.749
6.	How often does this happen to you? You want to go out to eat, go to a movie or do something else and don't go because you can't afford to.	.824
7.	How frequently do you find yourself just getting by financially and living paycheck to paycheck?	.850
8.	How stressed do you feel about your personal finances in general?	.912
	Eigenvalue	5.680
	Percentage of variance explained	.709

Table 2B. Factor Loadings for PFW™ Scale Items (Posttest)

Item #	Item description	Factor loading
1.	What do you feel is the level of your financial stress today?	.829
2.	How satisfied are you with your present financial situation?	.857
3.	How do you feel about your current financial condition?	.885
4.	How often do you worry about being able to meet normal monthly living expenses?	.854
5.	How confident are you that you could find the money to pay for a financial emergency that costs about \$1,000?	.750
6.	How often does this happen to you? You want to go out to eat, go to a movie or do something else and don't go because you can't afford to.	.812
7.	How frequently do you find yourself just getting by financially and living paycheck to paycheck?	.864
8.	How stressed do you feel about your personal finances in general?	.908
	Eigenvalue	5.725
	Percentage of variance explained	.716

Table 3A. Factor loadings for NBPB Scale Items (Pretest)

Item #	Item description	Factor loading
1.	Received an overdue notice from a creditor	.861
2.	Paid one or more bills late (beyond the due date)	.876
3.	Received a phone call about a past due bill	.849
4.	Paid rent/mortgage late	.659
	Eigenvalue	2.515
	Percentage of variance explained	.629

Table 3B. Factor loadings for NBPB Scale Items (Posttest)

Item #	Item description	Factor loading
1.	Received an overdue notice from a creditor	.853
2.	Paid one or more bills late (beyond the due date)	.775
3.	Received a phone call about a past due bill	.844
4.	Paid rent/mortgage late	.632
	Eigenvalue	2.439
	Percentage of variance explained	.610

Table 4. Logistic Regression Predicting Likelihood of Starting or Updating a Budget

Predictor	<i>B</i>	Wald χ^2	<i>p</i>	Odds Ratio
Financial Education	0.60	15.95	<0.001	1.82
Age	-0.02	14.32	<0.001	1.02 ^a
Gender	0.24	2.65	0.104	1.27
Income	0.00	0.00	0.948	1.00
Education	0.03	0.56	0.453	1.03

Note. N = 914

^aOdds ratio inverted for easier interpretation

Table 5. Logistic Regression Predicting Likelihood of Reviewing Asset Allocation Strategy

Predictor	<i>B</i>	Wald χ^2	<i>p</i>	Odds Ratio
Financial Education	0.63	17.84	<0.001	1.87
Age	0.05	50.47	<0.001	1.05
Gender	0.04	0.06	0.805	1.04
Income	0.00	2.31	0.129	1.00
Education	0.05	1.57	0.210	1.05

Note. N = 914

following demographics were controlled for in the models: age, gender, income, and education. Logistic regression was chosen because it is appropriate for predicting odds ratios for dichotomous variables when a mix of continuous and categorical independent variables is used (Menard, 2001).

Results

Descriptive Statistics

Financial wellness was measured using PFW™ scores computed for those who completed the PFW™ at both time periods (*N* = 995). Possible scores could range from 1.0–10.0, with higher scores indicating greater financial wellness. At the start of the study, overall scores and scores for both groups

Table 6. Logistic Regression Predicting Likelihood of Increasing Retirement Contributions

Predictor	B	Wald χ^2	<i>p</i>	Odds Ratio
Financial Education	0.49	11.31	0.001	1.63
Age	-0.00	0.15	0.702	1.00
Gender	0.15	1.05	0.306	1.17
Income	0.00	1.73	0.188	1.00
Education	0.00	0.00	0.975	1.00

Note. N = 914

Table 7. Logistic Regression Predicting Likelihood of Obtaining or Updating Life Insurance Plans

Predictor	B	Wald χ^2	<i>p</i>	Odds Ratio
Financial Education	0.08	0.33	0.563	1.08
Age	-0.01	4.79	0.029	0.99
Gender	0.13	0.89	0.345	1.14
Income	0.00	0.21	0.651	1.00
Education	-0.01	0.17	0.684	0.99

Note. N = 914

Table 8. Logistic Regression Predicting Likelihood of Obtaining or Updating Estate Planning Documents

Predictor	B	Wald χ^2	<i>p</i>	Odds Ratio
Financial Education	-0.12	0.27	0.607	0.89
Age	0.06	31.87	<0.001	1.06
Gender	0.28	1.34	0.248	1.33
Income	0.00	0.14	0.707	1.00
Education	0.07	1.76	0.184	1.07

Note. N = 914

were 6.08, indicating moderate financial distress/moderate financial well-being (Prawitz et al., 2006a). At posttest, overall PFW™ scores had improved to 6.58 (low financial distress/good financial well-being) (Prawitz et al., 2006a). For financial education participants, PFW™ scores improved from 6.08 to 6.62, and for non-participants, scores improved from 6.08 to 6.56.

Savings ratios, representing the percentage of income saved and invested over and above retirement savings, were computed for those subjects for whom savings data were available at both time periods (*N* = 987). Overall, savings ratios were 9% (moderate) at pretest and 12% (high) at posttest. For financial education participants, ratios improved from 9% (moderate) to 13% (high) from pretest to posttest.

For non-participants, ratios improved from 9% (moderate) to 12% (high).

Negative financial behaviors were measured with NBPB scale scores, which could range from 0–8.00; higher scores indicated more frequent performance of negative financial behaviors. At pretest, overall ($N = 995$), mean scores were 1.37, and at posttest, they were 1.19. Average scores for financial education participants changed from 1.52 at pretest to 1.03 at posttest, a decrease of 32%. Non-participants' scores went from 1.30 at pretest to 1.14 at posttest, indicating a decrease of 16%. At pretest, relatively low scores were indicative of low frequency of performance of negative financial behaviors by the employees of this company; scores for the two groups were not significantly different at pretest (Table 1).

Pearson correlations were conducted using data from those who completed financial education to determine whether debt had increased for those who reported increased personal savings and increased savings toward retirement. The purpose was to determine whether those who saved more were offsetting these savings by, for example, increasing credit card spending. There was a negative correlation between reported increases in personal savings and debt, $r = -.16, p = .005$. There also was a negative correlation between increases in retirement contributions and debt, $r = -.13, p = .02$. That is, as financial education participants increased savings of either kind, they did not increase debt. These findings indicated that participants who reported increased savings were not compensating for the reduced amount of disposable income by increasing debt. The same was not true for non-participants—there were no correlations between savings (personal or retirement) and increases in debt for this group.

Hypotheses Testing

Hypothesis 1, that perceived financial wellness would improve over time, with financial education participants showing greater improvements than non-participants, was partially supported. There was a main effect of time (pretest to posttest), $F(1, 993) = 32.71, p < .001$, but no main effect of education (participants vs. non-participants), $F(1, 993) = 0.11, p = .74$, and no interaction effect of time and education, $F(1, 993) = 0.10, p = .75$. That is, financial wellness increased overall for employees from pretest to posttest, but the groups improved in the same way.

Hypothesis 2, that savings ratios would improve over time, with financial education participants showing greater increases

than non-participants, was partially supported. There was a main effect of time, $F(1, 985) = 61.42, p < .001$, but no main effect of education, $F(1, 985) = 1.27, p = .26$, and no interaction effect of time and education, $F(1, 985) = 1.27, p = .26$. That is, overall financial ratios improved significantly over time for both groups, but while financial education participants increased savings more than did non-participants (9% to 13% vs. 9% to 12%), this difference did not reach statistical significance.

Hypothesis 3, that frequency of negative financial behaviors would decrease over time, with financial education participants showing greater decreases than non-participants, was supported. Related-samples Wilcoxon signed-rank tests indicated that frequency of negative financial behaviors decreased significantly from pretest to posttest for financial education participants, $Z = 3.26, p = .001$, but not for non-participants, $Z = 1.94, p = .053$.

Hypothesis 4, that financial education participants would be more likely than non-participants to report taking specific financial actions at posttest, was partially supported. Analyses were conducted first to assess odds ratios for each of the five specific actions (starting or updating a budget, reviewing asset allocation strategy, increasing retirement contributions, obtaining or updating life insurance plans, and obtaining or updating estate planning documents) without controlling for demographic variables. The logistic regression models were somewhat useful in predicting the odds of taking specific actions. The models then were tested controlling for demographic variables (age, education, gender, and income). The addition of the demographic variables to each of the models significantly increased the ability of the original models to predict odds correctly, so the results of the full models are reported here.

The logistic regression model testing the effect of participation in financial education on budgeting was significant, $\chi^2(5, N = 914) = 41.37, p < .001$. The odds ratios indicated that those who participated in financial education were 1.8 times as likely as non-participants to have started or updated a budget. While the results indicated that age was significant, the odds that younger employees were more likely to budget were nearly negligible—only 1.02 times greater than for older employees (Table 4).

The logistic regression model testing the effect of participation in financial education on the review of asset allocation was significant, $\chi^2(5, N = 914) = 52.83, p < .001$. Specifically,

financial education participants were nearly twice as likely as non-participants to have reviewed their asset allocation strategies. Again, age was significant, but the odds that older employees were more likely to review asset allocation strategies was very small—only 1.05 times greater than for younger employees (see Table 5).

Logistic regression results indicated that the effect of financial education on increasing retirement contributions was significant, $\chi^2 (5, N = 914) = 91.14, p < .001$. Financial education participants were 1.6 times more likely than non-participants to have increased their retirement contributions (see Table 6).

The odds of obtaining or updating life insurance plans were not significantly different for participants and non-participants, $\chi^2 (5, N = 914) = 0.33, p = .563$. The odds of obtaining or updating estate planning documents were not significantly different for participants and non-participants, $\chi^2 (5, N = 914) = 0.27, p = .607$, although the odds were only very slightly higher (1.06) for older than for younger employees, $\chi^2 (5, N = 914) = 31.87, p < .001$ (see Tables 7 and 8).

Discussion

This study was designed to determine differences in perceived personal financial wellness and financial behaviors of employees of a large publishing company in the United States following participation in financial education programming. The findings indicate that financial education is a useful tool in the improvement of specific financial behaviors in participants who initially report only a moderate level of financial distress.

The most important contribution to the literature is that following participation in financial education, employees begin to make use of budgets and report a simultaneous building of personal savings, increase in retirement contributions, and reduction in frequency of negative bill-paying behaviors, all without increasing debt. Based on the life-cycle theory of consumption (Modigliani & Brumberg, 1954), such rebalancing of consumption and saving behaviors facilitates progression toward a more secure retirement intended to maintain a desired level of living. The findings lend support to the benefits of promoting workplace provision of employee-needs-driven education that includes basic financial management topic options as well as retirement planning strategies. The findings of the study are discussed separately, in detail, below.

Overall, at the start of the study, employees at this company demonstrated financial well-being scores that indicated moderate financial distress/moderate financial well-being. While financial wellness improved significantly over the course of the study, with increases 6% greater for participants over non-participants, the group differences were not statistically significant. Participants reported positive changes in specific financial behaviors, so higher financial wellness scores were expected. It is unclear, however, why perceived financial wellness also increased for non-participants. Since the pretest and posttest measurements for financial wellness for this project spanned more than a year, this finding could have been due simply to the gradual improvement in economic conditions nationwide following the recent economic crisis. That is, while there was significant improvement in specific financial behaviors and practices for financial education participants, and these changes appeared to be reflected in the significant increase in perceived financial wellness reported, the increase in perceived financial wellness in the non-participants indicated that factors other than these specific behavior changes also contribute to perceived financial wellness of employees.

Past research has demonstrated the usefulness of financial literacy with respect to savings and the accumulation of emergency savings funds. Researchers have found that those with more financial knowledge have reported more savings (Collins & Dietrich, 2011; Edmiston et al., 2009) and more appropriate levels of emergency funds (Collins & Dietrich, 2011; Edmiston & Gillett-Fisher, 2006; Edmiston et al., 2009). With respect to significant changes in the percentage of income saved over and above retirement savings and investments, in the current study, financial education participants, on average, increased savings equal to 13% of their incomes, while non-participants increased to 12%. Although participants reported significantly greater savings ratios from pretest to posttest, and greater improvement than did their counterparts, the difference in the groups at posttest did not reach statistical significance.

One explanation for the increase in savings by both participants and non-participants has been offered by Duflo and Saez (2002a; 2002b). In a study of savings decisions of university employees, Duflo and Saez (2002b) observed that the decisions of employees to enroll in a retirement plan appeared to affect the financial decisions of colleagues within the same academic department. That is, employees within departments may share information about savings decisions, which in turn influences the decisions of their colleagues.

Duflo and Saez (2002a) pointed out that it was not clear whether such effects have theoretical foundations and could be attributed to a desire to conform to the group norm related to saving, as pointed out in the work of Bernheim (1994), or to learning from one another that saving is beneficial, as postulated by Ellison and Fudenberg (1993). The evidence was very suggestive, however, that there was a peer effect on savings decisions (Duflo & Saez, 2002a). That is, the saving behaviors of peers can affect the saving behaviors of their co-workers. In the current study, the financial education participants and non-participants were employees within the same company. It is possible that, since saving ratios increased for both groups, there may have been a similar peer learning effect in this study, accounting for the lack of a significant difference in increases in subsequent savings ratios for the two groups.

Some have raised the concern that increasing savings may be offset by increased borrowing in another arena (National Endowment for Financial Education, 2006). That is, consumers who increase personal savings and retirement contributions may be compensating by charging more on credit cards to compensate for the reduction in disposable income. This was not the case in the current study. Financial education participants who increased personal savings and retirement contributions were *less* likely rather than *more* likely to have increased debt. This finding supports the findings of Bernheim and Garrett (2003), that increases in retirement savings following financial education are not due to asset shifting. Our findings add to the literature by pointing out that financially literate employees not only begin increasing retirement contributions, but also are able to build personal savings while not incurring additional debt. In other words, financial education participants in the current study did not increase revolving credit debt to compensate for the additional contributions they were making to retirement and personal savings, but rather had shifted consumption behaviors such that they were able to increase savings to meet future short- and long-term goals.

It is encouraging that participants made significant progress in saving money from their incomes, moving from moderate to high levels of savings ratios, without increasing debt. Such strides will help them build emergency funds and will contribute to the achievement of financial goals. The marketplace is rife with messages that promote spending and encourage immediate gratification. That financial education participants have demonstrated consumption restraint by implementing saving behaviors instead is commendable, and

indicates they understand that such steps are needed to build financial health and security.

Improvement in the practice of the basic financial management strategy of paying bills on time and as agreed represents an important financial management practice, and employees who participated in the financial education program demonstrated significant progress in this area. While the frequency of engaging in negative bill-paying behaviors was low for employees at pretest, financial education participants reported a 32% decline in the performance of such behaviors, a change nearly double that for non-participants. Previous research (O'Neill et al., 2006) also has demonstrated that participation in financial education reduces the incidence of negative financial behaviors. The current study expands on this knowledge by demonstrating that in addition to improving bill-paying behaviors, participants also were able to increase savings and retirement contributions without increasing debt. Based on the life-cycle theory of consumption (Modigliani & Brumberg, 1954), this suggests that comprehensive financial education programs help participants learn how all parts of their financial lives fit together to provide for a comfortable level of living now and in retirement.

Participants were more likely than non-participants to engage in specific positive financial actions following financial education. For example, they were nearly twice as likely as non-participants to have started or updated a budget, an important first step in personal financial management. These findings are supportive of past research, which has indicated that financial education facilitates the recommended practice of budgeting (Bell et al., 2009; Collins & Dietrich, 2011; Kim, 2004, 2007). Budgeting empowers one to specify a designated amount of money for saving and investing on a regular basis, and to have a plan in place to implement the timely paying of bills. Progress in these practices was demonstrated by financial education participants in the current study, who reported significantly improved bill-paying behaviors from pretest to posttest. Participants also reported they increased both non-retirement savings and retirement contributions without increasing debt. This indicated that the comprehensive financial education programming was effective in facilitating a spending plan to curb current consumption and begin saving during the working years in order to meet long-term goals, particularly the ability to fund a comfortable retirement. This represents the major thrust of the life-cycle theory of consumption (Modigliani & Brumberg, 1954; Deaton, 2005).

Findings showed that those employees who participated in financial education were more than one and a half times more likely to report having increased their retirement contributions than were non-participants. This was consistent with past research, which has demonstrated that workplace financial education is effective in helping increase retirement plan contributions (Bayer et al., 2009; Bell et al., 2009; Bernheim & Garrett, 2003; Joo & Grable, 2005; Lusardi, 2003). That financial education participants were able to increase their retirement contributions as well as their non-retirement savings and investments, without incurring more debt, speaks to the power of comprehensive financial education programming. Learning about the amount of money needed for a comfortable retirement and about the time value of money is crucial if people are to make appropriate retirement investment decisions based on their stage in the life cycle. Setting financial goals, including realistic retirement goals, involves seeing one's financial future through a larger lens—one that involves comparing the outcomes of immediate gratification with the rewards of planning for a financially successful future, and adjusting the budget accordingly. Implementation of this practice, as was the case for financial education participants in this study, indicates good progress toward a sound financial future.

Sometimes, financial education participants do not follow through with their intentions to increase retirement contributions (Clark & d'Ambrosio, 2003). At a symposium featuring ways to close the gap between education and behavior change sponsored by National Endowment for Financial Education in 2005, Harvard economics professor David Laibson presented a behavioral model to help explain why people either do not contribute to their company's 401(k) program or under-contribute based on their retirement needs (National Endowment for Financial Education, 2006). Laibson suggested that a "mechanism for action" is necessary to help people translate knowledge into action. That is, financial educators need to make the action (e.g., increasing retirement contributions) easy (National Endowment for Financial Education, 2006). The company in the current study routinely makes a variety of efforts to encourage employees to enroll in the 401(k) program, maximize the company match, increase contributions, and take advantage of the over-50 catch-up contribution, but these efforts have not yielded the hoped-for increases in retirement plan participation and contributions. As part of the financial education programming in this study, then, participants were shown the ease of making such changes using the company's website. This was demonstrated to participants immediately

after they learned how to determine whether they were saving enough for a comfortable retirement. The timeliness of this demonstration likely contributed to the mechanism for action needed to transfer knowledge into behavior, accounting for the statistically significant difference in the likelihood of increasing contributions by financial education participants over non-participants.

Informed periodic reallocation of one's assets helps control risk exposure. Financial experts recommend a review of one's asset allocation annually, as income, time to retirement, and other factors change over time (Garman & Fogue, 2012). Financial education participants in this study were nearly twice as likely as non-participants to have reviewed their asset allocation strategy within the past 12 months. Increased financial literacy likely motivated participants to begin the cycle of periodic review of their investment portfolios, a step they may not have known was needed or they may not have felt confident to undertake otherwise. This finding supports the findings of past researchers who reported that financial education participants reviewed the allocation of their assets (Anderson et al., 2006; Garman et al., 1999) or intended to do so (Clark & d'Ambrosio, 2006) following financial education programming.

No differences were found in the likelihood of obtaining or updating life insurance plans or estate planning documents following participation in financial education. This lack of activity in obtaining or updating these wealth transference documents could have been due to the age and stage in the life cycle of participants. It also may have been the case that participants either determined no changes were necessary, or underestimated the importance of such actions. While the lack of change in wealth transference plan activity at first seems inconsistent with past research (Kim, 2004; 2007), this apparent inactivity may have been due to the choice of wording on the survey rather than to a lack of evaluation of such plans. In future studies, use of the word *evaluated* rather than *obtained* or *updated* in the wealth transference items is recommended to clarify whether attention was given to these financial documents at all.

A unique feature of this study was that the financial education programming was employee-needs-driven rather than provider-driven. That is, a needs assessment component was incorporated into the pretest so that financial education programming could be customized based on the topics of interest indicated by the employees. The planning of a comprehensive menu of workshops on topics of greatest

interest to the participants may have contributed to the behavior changes observed in this group of employees whose mean financial wellness scores were above average at the onset of the study. That is, overall, financial education participants at this company were experiencing little financial distress before participating in the programming, indicating that they already were engaging in some level of effective financial management practices. Following financial education, however, their behaviors improved in a number of areas, suggesting that even those who are doing moderately well financially can make positive changes based on increased financial literacy.

The fact that participants improved bill-paying behaviors while increasing personal savings and retirement contributions lends support to the life-cycle theory of consumption, which suggests that people attempt to balance consumption and savings to provide a stable level of living over the lifespan (Modigliani & Brumberg, 1954). That is, in anticipation of a comfortable retirement, people tend to save with that goal in mind during the working years, with increased retirement saving beginning in middle age. Financial educators are positioned to assist workers in accurately predicting the amount needed to maintain their current level of living in retirement. For the participants in this study, learning this critical financial information and implementing needed changes to meet retirement goals lends support to the major premise of the life-cycle theory of consumption and to the value of comprehensive financial education programming.

Limitations

There were several limitations to the study, including sampling limited to one company, the threat of self-selection bias due to implementation of a quasi-experimental design, use of self-reported data, and inability to control timing between programming and testing periods. A discussion of each of these limitations follows, with suggested changes for future studies.

The data were based on employees of one company, and may not have been representative of the entire population of American employees. The employees of this company had education levels and median incomes higher than that of the general population; findings may have been different for groups of employees with less education and lower median incomes. For future studies, use of data from a number of different types of companies would help to increase the generalizability of the results.

A self-selection bias may exist, as implementation of a randomized controlled trial was not possible. A research design solution to overcome the threat of self-selection bias would be the incorporation of a waiting-list control group feature. In real-world cases, wherein all employees must be offered the same company-benefit opportunities, the timing of program delivery could be staggered to randomly assigned groups of employees who have indicated interest in financial education programming. That is, pretesting and posttesting could be administered to two groups of employees during Time Period 1, with delivery of financial education to only the test group. Financial education then could be delivered to the control group during Time Period 2. Although in the current study this design was not possible due to the increased programming costs for the employer, future studies with access to adequate resources could implement this type of design.

Another limitation of the study was the inability to control timing between programming and testing periods. A year-round calendar of financial education programming offerings was available between the two testing periods in the current study. While this provided an ideal situation for employees to take advantage of programming opportunities, from a research perspective, the timing between financial education program participation and pretesting and posttesting differed for individuals. That is, while all participants and non-participants were tested during the same periods prior to and following the delivery of financial education, different amounts of time had elapsed between testing and receipt of financial education for participants. It was not possible, then, to determine whether financial behavior changes endured over time for the financial education participants. Administration of a second posttest to both groups some number of months following the first posttest (e.g., 6 months) could have provided information about endurance of changed financial behaviors over time, although some sample mortality would be expected.

Most of the data reported here were self-reported. When study participants self-report about past behaviors, they may overestimate or underestimate values, or may not remember details correctly. Although attempts were made to use company data where possible (e.g., income), use of self-report data always introduces the possibility that data may not be completely accurate, limiting generalizability of the findings.

Implications for Financial Educators and Financial Education Research

Overall, in this study, workplace financial education produced significant desirable changes in specific planning (e.g., budgeting), management (e.g., bill paying), and future-oriented (e.g., saving, retirement contributions, asset allocation review) financial behaviors of employees. It is important to consider that the employees who participated in the study were experiencing only moderate perceived financial distress initially, and compared with the national average for perceived financial wellness, they enjoyed greater perceived financial well-being. Nevertheless, financial education participants reported improvements in specific financial behaviors, indicating that financial education can be useful even for those who are “doing okay” financially.

Two critical facets of this project designed to meet the financial education needs of participants were that first, a needs assessment was performed at pretest, with subsequent programming based on the needs and interests indicated by potential participants. The employee-needs-driven nature of the programming likely attracted participants motivated to learn and implement the concepts presented. A second important facet of the programming was that it provided a comprehensive menu of financial topic options, including basic financial management and retirement planning offerings. Comprehensive programming based on needs of the participants can facilitate a more complete understanding of the importance of balancing consumption and saving over the working years in anticipation of a comfortable retirement. These strategies are crucial for financial educators planning workplace educational programming.

To facilitate increases in retirement savings, financial education participants were provided with a demonstration of how to enact this behavior easily on the company website. The demonstration immediately followed a learning experience to determine the amount participants needed to save regularly for a comfortable retirement. This provided the mechanism for action needed to move knowledge to behavior change, and likely was responsible for the significant difference in the likelihood that they would increase contributions. This represents an important consideration for financial education providers working with groups of employees. While increased knowledge about personal finances is an important goal of financial education programming, financial literacy also implies behavior change. To ensure that participants follow through on intentions to increase retirement contributions, for example, providers could

help participants learn to estimate the amount needed for a comfortable retirement, then demonstrate the ease of making this change on the company website, as was done in this study. An enhancement to this strategy for onsite programming, especially when working with employees who have not yet enrolled in a retirement plan, would be to have Internet access available during the educational session so that enrollment or changes could be implemented immediately. Another approach for onsite programming would be to distribute paper/pencil forms for enrolling in a retirement plan or changing retirement contributions, and encourage completion during the educational session. Provision of such ways for people to take immediate action can help fill the gap between intention and action (National Endowment for Financial Education, 2006).

Financial education providers can use the same concept of the mechanism for action to facilitate increases in non-retirement savings. The concept of “Pay yourself first” represents a simple mechanism for action, and involves directing one’s employer to divert part of one’s paycheck each pay period to a personal savings or credit union account. Employees also can be encouraged to increase the amount diverted when they receive a raise in income and/or upon paying off a recurring debt, such as a car loan. Most consumers will find it easier to accumulate savings when the savings behavior is automatic, routine, and painless, as in the case of an automatic diversion of income to savings. This mechanism also necessitates an additional step for access to the saved funds for current consumption, providing a checkpoint for determination of whether such purchases represent needs or wants. By encouraging implementation of such financial management strategies, financial education providers can help employees make progress toward achieving their short- and long-term financial goals.

The idea of peer influence on savings and other financial decisions is an interesting concept that merits additional study. If there was a peer learning effect related to savings decisions, this implies that the role of workplace financial education may extend beyond changing the financial behaviors of only those directly exposed to the financial education programming, as suggested by Duflo and Saez (2002a). The implication for financial educators is that the implementation of improved financial management behaviors by participants in employer-sponsored financial education could have a spillover effect that influences the behaviors of non-participants within the same workplace. That is, the beneficial effects of workplace financial education could extend far beyond the acquisition of knowledge by only those directly exposed to the information.

This phenomenon was not studied in the project reported here, but future studies can incorporate the aspect of peer influence on the financial decisions and behaviors of co-workers by including items to determine key sources of financial information that have influenced specific financial decisions (Duflo & Saez, 2002b). Such studies would add to the scant body of knowledge surrounding peer influence on financial decisions of employees within the same workplace.

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