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Behavioral Finance Research Digest
for plan sponsors and their advisors

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DO EMPLOYEES KNOW ENOUGH TO SELF-MANAGE THEIR SAVINGS?

Over the last couple of decades, we have seen a shift from defined benefit plans to defined contribution plans. With that shift, the responsibility for retirement planning has transferred from the employer to the employee. One of the implicit assumptions underlying the transfer of responsibilities is that employees are financially literate. Put differently, we assume employees know enough to self-manage their retirement savings. However, is this assumption true?

In a 2006 paper with several colleagues, we reported the percentage of plan participants who understand some of the basic concepts of investing. One of the questions participants were asked is whether they understand what a money market fund is. Those who responded that a money market fund includes bonds and stocks are obviously confused.

Note that the above question focuses on a pretty simple concept of investing. Nothing too complicated!

Before turning to the data, we should define what would constitute knowing "enough" about investing. This is obviously a fairly subjective judgment call, so I'd like you, the reader, to think about it. In your opinion, what percentage of plan participants should know what a money market fund is, if we are to let them self-manage their savings?

Next, compare your acceptable level of understanding with our findings that just nine percent of plan participants answer this question correctly. I bet that the vast majority of plan sponsors and their advisors feel that many more participants ought to know what a money market fund is, if participants are in charge of investing their savings for retirement.

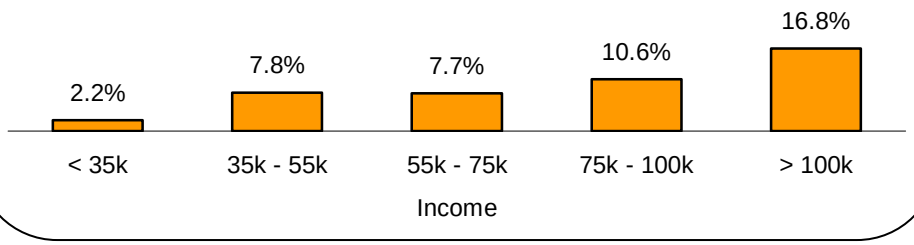
> Only nine percent of plan participants know what a money market fund is.

We also explored cross-sectional differences in financial literacy. We found that men are twice as likely as women to know what a money market fund is. Specifically, 12 percent of men know the answer versus six percent of women. While there are significant gender differences in financial literacy, note that the vast majority of men

and women cannot answer a simple question such as what a money market fund is.

We also found significant differences between lower-income and higher-income employees. As displayed in Figure 1, higher-income employees are many times more likely to know what a money market fund is than lower-income employees. However, even among those earning more than $100,000 a year, just 16.8 percent answer the question correctly.

FIGURE 1: PERCENTAGE OF PARTICIPANTS ANSWERING MONEY MARKET QUESTION CORRECTLY



One might argue that while participants do not understand what a money market fund is, they do understand what a cash fund is and they do understand the general principles of retirement planning. Professor Richard Thaler and I have put this hypothesis to test using data from a large public plan.

Plan participants in our study were presented with 14 statements about retirement planning and investing, and were asked to indicate if they agreed or disagreed with each statement. To give you a sense of the difficulty of the questions, here are two of the statements presented to the subjects: "Long-term government bonds always protect the value of your savings against inflation" and "Switching between stocks and bonds as the stock market goes up and down is a good strategy for increasing your retirement portfolio." Again, nothing too complicated in these questions.

Before turning to the results, note that on average, a person could get half the questions right by simply guessing. Given that, what fraction of the questions do you believe participants should answer correctly to be "qualified" to self-manage their retirement savings?

Next, let's compare your acceptable level of correct answers to our findings that the average participant got just 54 percent of the questions right. Again, I bet that the vast majority of plan sponsors and their advisors feel that participants know too little to properly self-manage their retirement savings.

The level of financial literacy among plan participants is extremely low.

We also investigated how different demographic groups scored on this "pop quiz." Again, men scored higher than women. Men got 59 percent of the questions right versus 50 percent correct for women. It is somewhat troubling that women scored no better than simply guessing the answers.

Women got 50 percent of the questions right – the same score one could get by simply guessing the answers! Men scored just slightly better.

To summarize, the level of financial literacy among plan participants is extremely low. This raises concerns about the ability of individuals to properly self-manage their retirement savings. The financial services industry has addressed these concerns with increased education programs. Plan sponsors and their advisors should be asking whether these education efforts are effective, and if not, how can they be made more effective. These are some of the issues I am going to address next.

ARE FINANCIAL EDUCATION EFFORTS EFFECTIVE?

The level of financial literacy among plan participants is extremely low. This raises at least two questions: (1) is financial education effective at boosting financial literacy, and (2) does education result in behavioral changes (i.e., do participants take action)?

Let me start by focusing on the effect of education efforts on financial literacy. Professor Richard Thaler and I used data from a large public plan, where employee knowledge was measured before and after a major financial education campaign. During the campaign, employees had access to information through printed materials, the web, seminars and an optional one-on-one telephone session with an advisor.

As you might recall from the previous article, prior to the education campaign employees answered 54 percent of the questions correctly. And remember that random guessing would result in getting about 50 percent of the questions right.

In your opinion, to justify the costs, what percentage of questions should people answer correctly after the education campaign? Put differently, what percentage of correct answers would mean the education campaign was "effective"?

The education campaign resulted in the percentage of correct answers increasing by just one percent from 54 to 55 percent. I bet that the vast majority of plan sponsors and their advisors expected far greater improvement in financial literacy.

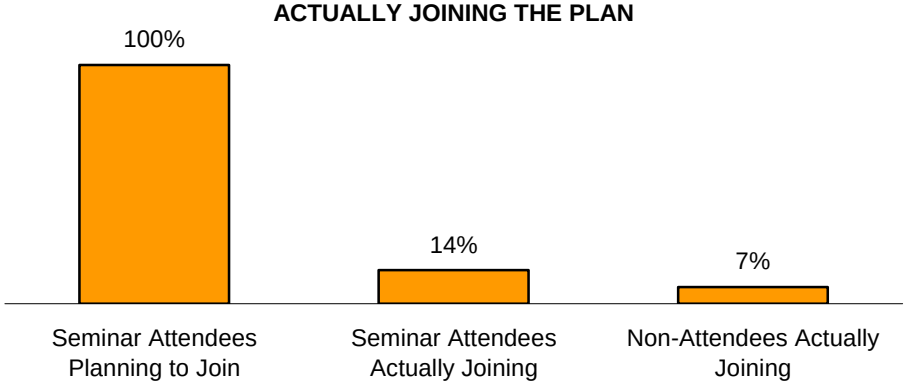
> Even the most expensive education campaigns could end up largely ineffective at boosting financial literacy.

Of course, there are many different ways to educate employees and some approaches might be more effective than others. A forthcoming research study by Choi et al offers a more optimistic view of financial education.

In their study, Choi et al focused on employees attending education seminars. Note, however, the potential bias in focusing on seminar attendees, as those electing to attend a seminar might be more interested in their finances to begin with.

Choi et al documented that seminar attendance resulted in good intentions from many participants. Figure 2 indicates that every single attendee who was not participating in the plan had the intention to join the plan. In addition, those who were already in the plan intended to increase their deferral rates and change their investment elections.

FIGURE 2: PERCENTAGE OF EMPLOYEES PLANNING VERSUS ACTUALLY JOINING THE PLAN



The study also investigated the important question of whether education efforts are effective at changing behavior. Participants said they will join the plan, but did they? Unfortunately, as Figure 2 shows, very few follow up on their good intentions. In particular, just 14 percent of those planning to join the plan ended up doing so. Note that among those who did not attend the seminar, seven percent ended up joining the plan anyway. The incremental effect of attending the seminar is at best seven percent.

Similar results are also reported in a 2003 study by Duflo and Saez who investigated financial education efforts at a large university. They found that seminar attendees were more likely to take action, but again, the effect was very small. The consistency of results across different studies and different employee groups reiterates that education efforts often result in good intentions but very little action.

Financial education seminars generate good intentions, but very little change in actual saving behavior.

In summary, research on financial education raises several concerns. First, education efforts are often ineffective at boosting financial literacy. Second, even when education efforts are successful at generating intentions to act, very few employees follow up on their good intentions.

Given the research findings, should we give up on financial education? Or, should we try educating and communicating with employees in a different way that incorporates lessons from the field of behavioral decision making? I personally believe that financial education and communication efforts could be made more effective by applying what we have learned through behavioral research.

RETHINKING FINANCIAL EDUCATION AND COMMUNICATION EFFORTS

To come up with ways to improve low financial literacy levels, I brainstormed with academics at the University of Chicago, Columbia University, the London Business School and UCLA. In this article, I am going to outline two approaches that could enhance the effectiveness of education and communication efforts, though I do not mean in any way to imply that these are the only approaches to consider.

Before turning to possible solutions, let's review the typical approach to financial education. In the case of convincing employees to save, educational materials often highlight the rationale for saving. For example, some providers illustrate the impact of starting to save early by calculating the additional savings that can accumulate.

It is important to note that most education efforts focus on reasoning, cognition and calculations. People, however, are very different from computers in that while we can perform calculations using our logical mind we also operate in an intuitive and emotional fashion.

When operating in the more intuitive and emotional mode, people tend to follow their gut reactions and pay attention to their affective response to certain stimuli. The affective response tends to weigh heavily on what we actually see or the imagery that comes to mind. Hsee and Rottenstreich provided a nice illustration of this phenomenon in their 2004 paper on saving endangered pandas. They found that people are willing to pay more to save a panda bear when presented with a photo.

People operate in two modes: one calculative and the other intuitive and emotional. In the latter mode, imagery plays a crucial role.

Hsee and Rottenstreich also explored how much people are willing to pay to save four pandas. They found that those viewing images of pandas were insensitive to the number of pandas they could save. In other words, they were willing to pay the same amount whether they saved one panda or four. The authors conclude that in the emotional mode, values are determined by

how one *feels* about endangered pandas regardless of the number of pandas saved.

I highlight some of the differences between the calculative mode and the intuitive/ emotional mode in Table 1. More details are available in a 2002 paper by Stanovich and West.

TABLE 1: THE DUAL-PROCESS MODEL OF BEHAVIOR

The Calculative Mode	The Intuitive Mode
Relatively slow	Relatively fast
Demanding of cognitive capacity	Undemanding of cognitive capacity
Controlled	Automatic
Analytic	Holistic
Rule-based	Associative
More deliberative	More emotional

The use of imagery and emotions is standard in many industries, but not so much in the financial services industry. (Yes, we sometimes display a photo of retirees enjoying the sunset, but I view this as very limited use of imagery.) Consider, for example, the tobacco industry. While cigarette warning labels in the US focus on written text, cigarette advertisements always make use of images. Interestingly, some countries, including Canada and Australia, require warning labels to include imagery.

Research suggests using more imagery in financial education efforts.

The message is a simple one: A picture is worth a thousand words. Let's use more thoughtful imagery in financial education and communications efforts. The rationale (if I may appeal to your calculative mode) is that people already have a good sense of the "pain" that is associated with saving, but they do not have a vivid picture of the benefits of saving. We have to work hard to

make sure the future benefits of saving are at least as vivid as the pain of spending less today.

There are potentially many different ways to communicate a vivid image of the distant benefits of savings. One approach could be to present employees with photos – or better yet video clips – of lifestyles associated with saving more. The clips could illustrate in the most vivid way the type of house one could have in retirement, the type of restaurants one could go to, the type of destination one could travel to, the type of healthcare services one could expect and even the type of gifts one could afford for the grandkids.

As we have already seen, education efforts often generate good intentions but very little action. Hence, my second message is to couple the best education and communication efforts with a "simpler than simple" opportunity for employees to take action. We do know, for example, that simplifying the enrollment form could have a large effect on participation rates in the plan.

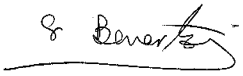
Education and communication efforts should be coupled with easier ways for employees to take action.

In summary, I believe that the affective approach to financial education and communication could be successful at getting employees engaged as well as boosting financial literacy. However, this approach has to be coupled with a simple way for employees to apply their acquired knowledge.

Having said the above, I still feel that plan design features would have a larger effect than financial education and communication efforts. For example, automatic enrollment will result in higher participation rates than education campaigns. The good news, however, is that it is not "one or the other." Plan sponsors should couple education efforts with other initiatives to ensure the success of their retirement plan.

I hope you enjoyed reading the 401(k)now research digest. If you have any comments, suggestions or feedback, feel free to send me an email at benartzi@ucla.edu.

Sincerely,



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