

WORKING P A P E R

Better Financial Decision Making among Low- Income and Minority Groups

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FINANCIAL LITERACY CENTER
Final Report

Project E1, Better Financial Decision Making among Low-Income and Minority Groups
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Abstract

Doorways to Dreams Fund (D2D) is working to develop and test videogames attractive to low-income and minority adults that will provide training in critical financial skills to improve financial decision-making. During the last year, D2D has conceived, developed and delivered the third and fourth titles in its growing library of financial literacy casual video games: *Farm Blitz* and *Bite Club*. In *Farm Blitz*, players take on the role of a farmer who must harvest crops to generate earnings, manage debt, save money, and weather unexpected emergencies. *Farm Blitz* is designed to focus players' attention on how high-interest, short term debt can undermine efforts to build long term savings.

Bite Club, which is inspired by one of the most popular casual games of all time, *Diner Dash*, offers players a simulated game experience in which they face the real-world tension between managing debt payments and current spending needs on the one hand, and saving for the long-term goal of retirement on the other. Players manage a "day club" for vampires and must pay off student and credit card debt, buy club upgrades, and save for retirement one of three retirement outcomes.

Like D2D's other financial entertainment titles, *Farm Blitz* and *Bite Club* were made with and for low-income adults and evaluation is integrated into the development process. Following development, D2D completed preliminary effectiveness testing with 84 low-income adults across six locations in the US. While only small samples, each game generated a significant increase in financial skills self-confidence and knowledge.

Executive Summary

A prerequisite for having money left over to save is excellent day-to-day money management tools. Yet low-income Americans live on razor thin margins so they need to learn how to avoid, for example, a \$39 credit card late fee that effectively raids their saving budget. Doorways to Dreams Fund (D2D) is working to develop and test videogames attractive to this segment to provide training in critical financial literacy areas including household budgeting, consumer decision making, and cost-effective use of financial service providers. During the last year, D2D has conceived, developed and delivered the third and fourth titles in its growing library of financial literacy casual video games: *Farm Blitz* and *Bite Club*.

Farm Blitz, which is inspired by two of the world's most popular casual video games – *Bejeweled* and *FarmVille* – combines elements of a resource management game and a farming simulation (e.g., *FarmVille*) with those of a “match-three” game, in which the objective is to line up 3 or more matching objects in a horizontal or vertical row (e.g., *Bejeweled*). To facilitate game play, players take on the role of a farmer working to make her farm successful by harvesting crops to generate earnings, managing debt, saving money, and weathering unexpected emergencies.

Farm Blitz is designed to focus players' attention on how high-interest, short term debt can undermine consumers' efforts to build long term savings, typically earning interest at much lower rates. The game explicitly seeks to improve players' confidence, knowledge, and behavior related to two foundational concepts: keeping high cost, short-term debt in check and saving for the long-term. In addition, the game implicitly teaches how compound interest works, both as a negative force (accumulating finance charges) and a positive force (interest on savings). Finally, the game challenges players with unanticipated emergencies, represented by, for example, tornadoes and similar events; these “shocks” force players to use short-term debt to maintain strong farm earnings and remain in the game, while exposing players to the pitfalls of this type of borrowing.

Bite Club, which is inspired by one of the most popular casual games of all time, *Diner Dash*, offers players a simulated game experience in which they face the real-world tension between managing debt payments and current spending needs on the one hand, and saving for the long-term goal of retirement on the other. To facilitate the experience, the game play experience involves running a “day club” for vampires which offers patrons conversation, drinks, and dancing; making financial management decisions related debt, spending, and retirement; and reacting to a variety of savings offers. Like all casual video games, *Bite Club* features a straightforward but engrossing approach to game play, but it also includes core instructional design that teaches the value of three important real world behaviors: (1) saving for retirement; (2) paying down debt, and (3) managing current consumption.

While *Farm Blitz* and *Bite Club* were created by game designers and professional developers, these games were also made with and for lower-income adults. At three key milestones during development (delivery of a “First Playable” game, an “Alpha” version and a “Beta” version), D2D convened user-testing groups in partnership with a local community based human service agency in Boston. At each testing participants were asked to play the current version of the game, provide feedback throughout play, and contribute to small focus groups post-play. Over 80 low-income and minority adults participated in these user-testing sessions.

At the “Beta” milestone (the last key development milestone), D2D conducted quantitative development testing and observed significant gains in financial skills self-confidence and knowledge related to topics *Farm Blitz* and *Bite Club* seek to address. While *Farm Blitz* and *Bite Club* were not quite complete at the Beta milestone, testing at this stage offers the possibility of measurable results. However, the quality of results generated depends, in part, on the quality of game “balancing” (fine tuning the degree of game play difficulty) in the simulated experience, a process that can consume several weeks and the length of which is hard to predict.

Following development, D2D completed preliminary effectiveness testing for *Farm Blitz* and *Bite Club*, the two newest financial entertainment game titles. The games were tested with 84 low-income adults across six locations in the US. While only small sample testing, each game generated a significant increase in financial skills self-confidence and knowledge.

In terms of financial skills self-confidence, *Farm Blitz* is having the most significant impact on savings metrics—saving regularly, allowing savings to grow, and saving for emergencies. To a lesser degree, the game is also having a positive impact on debt measures. The sharpest gains in the testing were observed in the knowledge gained by participants playing *Farm Blitz*; many of the knowledge questions relate to the core concept of interest compounding, whether negatively for debt or positively for savings. The difference between pre and post testing were strongly positive, ranging from 16% to 67% improvement in the number of correct answers given by participants. In terms of financial skills self-confidence, *Bite Club* is having a positive impact across all the metrics—general savings, debt/spending management, and retirement; increases range from 11% to 22% reflecting the impact of the simulated experience. The knowledge gains for *Bite Club* were lower than expected, especially given the development testing results; this result appears to be driven by higher than average pre-test knowledge for the small sample studied.

While the preliminary testing results for *Farm Blitz* and *Bite Club* are quite positive, the next important step for financial literacy casual games is a more comprehensive randomized treatment and control evaluation. In addition, the reach of these games should be expanded; for example, Americans with limited English-proficiency could also benefit from this form of financial education. Finally, further work should be done to strengthen the link between game play and cultivation of financial capabilities that lead to improvements in individual financial outcomes.

Final Report

A prerequisite for having money left over to save is excellent day-to-day money management tools. Yet poor Americans live on razor thin margins so they need to learn how to avoid, for example, a \$39 credit card late fee that effectively raids their saving budget. In collaboration with the nonprofit organization Doorways to Dreams Fund (D2D), the team developed and tested videogames attractive to this segment to provide training in critical financial literacy areas including household budgeting, consumer decision making, and cost-effective use of financial service providers. A “casual” video game teaching a discrete lesson is an innovation with great potential, as they facilitate repetitive engagement with lessons, create a “performative” learning environment, and are very popular among females. As many as 72% of Americans play video games, with rates of play highest among those under age 35. Though video games are the fastest growing form of entertainment in the US, this marketing and distribution channel for financial education has yet to reach its potential - existing offerings often are not “games” but complex simulations or quizzes unlikely to be effective in engaging young and low-income adults.

During the last year, D2D has conceived, developed and delivered the third and fourth titles in its growing library of financial literacy casual video games; the games are *Farm Blitz* and *Bite Club*. This report will outline the game mechanics and learning objectives for each, review the assessment and evaluation process, and summarize preliminary effectiveness testing results.

Farm Blitz: Game and Learning Objectives

Farm Blitz is inspired by two of the most popular casual video games in the world today, *Bejeweled* and *FarmVille*. *Bejeweled* is a “match-3” game mechanic that has sold 50 million units; in fact, a copy of this game is sold on average every 4.3 seconds by its developer, PopCap.¹ *FarmVille* is the hottest casual game on the market with over 69 million active users on Facebook; this makes this one game bigger by number of users than Twitter.² *Farm Blitz* combines elements of a gardening or resource management game, like *FarmVille*, with those of a match-three game, similar to popular casual games like *Bejeweled*, in which the objective is to line up 3 or more matching objects in a horizontal or vertical row.



¹ http://www.gamasutra.com/view/news/27183/Bejeweled_Sales_Hit_50_Million.php

² <http://www.telegraph.co.uk/technology/facebook/6138075/Farmville-set-to-become-most-popular-Facebook-application.html>

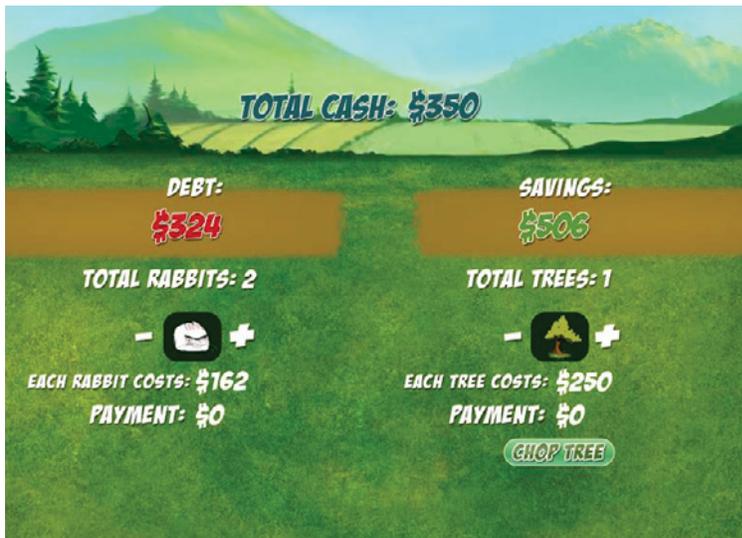
To facilitate learning, *Farm Blitz* players take on the role of a farmer. Lining up a row of three identical crops causes the crops to be "harvested," and earnings from that harvest are placed in a cash account. However, players cannot access their cash accounts until the end of a round of play, in the same way that a farmer may only be paid at the end of a growing season. Thus, if a player wants to spend money during a harvest, she must borrow money.

"Rabbit loans" are the mechanism by which players can borrow money. When players take out a rabbit loan, a rabbit is added to a pen on the player's farm. The rabbits multiply at a high, compounded rate and can become a threat to the upcoming harvest. When a player's rabbits exceed the size of the pen, they will begin to escape into the farm and destroy crops.



Once harvest season is over, players can pay down debt and contribute to savings. By paying off debt, the number of rabbits on a player's farm is reduced, thus decreasing the threat to the harvest. Players may also buy trees for their farm. Like the compound interest on savings, trees grow slowly. Players may also chop down trees to gain cash to pay down debt. The goal

of the game is for players to accrue as much money in their cash account and as many trees (long term savings) as possible without being overrun by rabbits (debt).



The *Farm Blitz* design focuses players on the way in which high-interest, short term debt undermines (lower-interest) long term savings. The game explicitly seeks to improve players' confidence, knowledge, and behavior related to these two essential concepts, the need to control high cost borrowing and the importance of building long-term saving. In addition, the game

implicitly teaches about the effects of compounding, both negative (e.g., finance charges) and positive (e.g., interest on savings). For low-income adults, many poor financial decisions result from a failure to appreciate how quickly debt can accumulate, the value of building a savings habit, and the interplay between the two (specifically that misuse of debt will sabotage efforts to build savings). As the game unfolds, players' experience firsthand the way in which quickly compounding debt products, such as high-interest credit cards and pay-day loans, can make it

impossible for relatively more slowly compounding savings products, such as Certificates of Deposit (CDs) or US Savings Bonds, to take root. *Farm Blitz* uses core metaphors relevant to the motif and style of play to bring its instructional design strategy to life.

The core instructional design content includes:

- **High-Interest, Short-Term Debt.** The design uses rabbits, with their reputation for rapid reproduction, to represent forms of high interest debt. Like short-term debt products for low-income adults, rabbit debt is accrued as a result of a variety of events that mirror real life. The interest rate for the rabbits is high. Thus, the more rabbits a player has living on her farm, the more quickly she will accrue additional rabbits. Just as high interest debt destroys an individual's financial reserves, rabbits destroy the player's earnings by eating crops before they can be harvested.
- **Low-Interest, Long-Term Savings.** At the end of a round, a player may take some of the cash they have earned through harvesting crops and save it by purchasing a tree for their farm. Like a savings account, trees grow in value through compound interest with a relatively low rate. Like a CD or a US Savings Bond, trees are purchased in dollar denominations and redeemed at their value plus the interest they have earned.
- **Compounding Interest.** Both rabbits and trees grow at compounded rates. Just like credit cards and savings accounts, rabbit debt grows at a much higher rate than tree savings.

In addition, the game introduces unexpected emergencies, represented by tornadoes and similar events; these shocks force players to use short-term debt to maintain strong earnings. The game then encourages players to use savings to pay off this debt immediately, conveying a core lesson about the need to use debt judiciously and pay it off as quickly as possible.

Farm Blitz was created by designers at the MIT Education Arcade and developed by FableVision in collaboration with the design team.

Bite Club: Game and Learning Objectives

Bite Club is inspired by one of the most popular casual video games of all time, *Diner Dash*.



Diner Dash is built on a resource management game mechanic that has sold millions of units, and spawned hundreds of similar titles adapting the same basic approach to game play. In addition, *Bite Club* was inspired by the current and historical focus in mainstream pop culture on vampires, a trend with appeal across age groups (including adults) and socioeconomic status (including people living on low incomes).

Like all casual video games, *Bite Club* features a straightforward approach to game play. Players manage a “day club” for vampires and must successfully pay off debt, meet current consumption needs, and save for retirement (players strive for one of three

retirement outcomes). *Bite Club* is a 15 round game with 3 years' time passing between each round, allowing the game play experience to span 45 years. In effect, the players enter a financial simulation running from age 22 until age 67.

To facilitate the experience, the game has two distinct sections – club management and crypt-keeping. The core challenges of game play in *Bite Club* include:

- Running a “day club” for vampires which offers patrons areas for conversation – tables and couches; a place for drinks – type A, B, or O blood, a DJ booth with interactive song selections, and a dance floor.
- Servicing the four stations in the day club in order to satisfy a variety of vampire customers and earn revenue; Vampires are content until they do not get what they want.
- Making financial management decisions related to paying off debt, managing current consumption, and saving for retirement.
- Reacting to a variety of savings offers, which include retirement “open enrollment” and additional long-term savings promotions.



The *Bite Club* design focuses on creating a simulated game experience in which players face the real world tension between paying off debt and meeting current spending needs on the one

hand, and building long-term savings for retirement on the other. For low-income adults, building retirement savings can seem completely out-of-reach given pressing needs to pay-down debt and manage daily expenses. *Bite Club* players experience the natural tension among debt service, spending money, and long-term saving as the game unfolds. By featuring vampires, who live forever, the game highlights the impact of long-term savings over a 45 year span in a 15 round game.



The core instructional design content includes:

- ***Saving for Retirement.*** Players' characters long to move back to the No Sun-belt for retirement, but as vampires are immortal, they must save a substantial amount of money to finance their retirement dream – they must reach a retirement savings goal before they can close down their “day club” and move on to a new life.
- ***Paying Down Debt.*** Players start with credit card debt from the Werewolf Bank, which was used to start the club. In order to retire, players must pay off low annual percentage rate student loans from their university business classes.
- ***Managing Current Consumption.*** The club must be managed effectively to continue to satisfy consumers. Players are offered the option to purchase various upgrades, some of which are valuable (needs) and some of which are merely aesthetic (wants).

In addition, the game implicitly impacts player thinking about retirement age, retirement lifestyle and long-term retirement goals.

Bite Club reflects a design and development collaboration between by designers at the MIT Education Arcade and FableVision.

Assessment and Development Testing

D2D made *Farm Blitz* and *Bite Club* with and for low-income and minority adults. This development process allows D2D to build assessment into the game development process. At three key milestones during development (delivery of a “First Playable” game, an “Alpha” version and a “Beta” version), D2D convened user-testing groups in partnership with a local community based human service agency in Boston. At each testing participants were asked to play the current version of the game, provide feedback throughout play, and contribute to small focus groups post-play. Over 80 low-income and minority adults participated in these user-testing sessions. Between 9 and 18 testers participated in each of the three testing sessions, and recruiting focused on a testing population of low-income females, aged 18 to 35 years old with a diversity of ethnic backgrounds.

At each testing, participants were asked to play the current version of the game, provide feedback throughout play, and contribute to small focus groups after play concluded. In the early stages of game development, this qualitative feedback is crucial to refine the learning objectives of the game and ensure that the approach and material connects with the audience. Of note, in both the Alpha and Beta testing sessions, players would not stop playing these games – some even returned to continue playing after the official testing session was complete. This behavior translated into consistently positive feedback and high ratings for fun and interest in playing for the game throughout development.

At the Beta milestone, D2D conducted quantitative development testing for both *Bite Club* and *Farm Blitz*. While the game was not completed, potential exists for measurable results, depending on how well “balanced” the game simulation is (hard enough to challenge players, but not so difficult as to discourage play or appear unwinnable).

Similar to D2D's experience with our first game, *Celebrity Calamity*, game), after 45 to 60 minutes of game play, we observed significant gains in financial skills self-confidence related to

each game's learning objectives (**Appendix A.1**, **Appendix A.3**). D2D also did preliminary measurement on knowledge gains and saw improvements in topics the game teaches (**Appendix A.2**, **Appendix A.4**). While it should be noted that these development testing results are for a very small sample of players, these metrics provided leading indicators for further research during post-development, small sample testing.

Preliminary Effectiveness Testing

D2D has completed preliminary effectiveness testing for *Farm Blitz* and *Bite Club*, the two newest financial entertainment game titles. The games were tested with 84 low-income adults across six locations in the US. While only small sample testing, each game generated a significant increase in financial skills self-confidence and knowledge.

With development complete, D2D began preliminary effectiveness testing for each game. The objective of this small sample preliminary effectiveness testing is:

- To further understand the impact on financial skills self-confidence and knowledge for our target audience of low-income adults;
- Identify areas in the game that can be further tweaked/refined to improve the impact of instructional design; and
- Determine how each game plays in a variety of settings across the US.

In addition, preliminary testing allows D2D and our development partners to identify any additional game bugs.

Testing Protocols

D2D begins the testing process by recruiting an array of partners serving low-income clients in a variety of cities across the US. D2D identified six partner organizations willing to recruit 10-15 adults for a game testing session. Partners were paid to recruit participants, manage the testing location (i.e., computer center), and provide food for the participants. Each participant was paid a research stipend for testing

Each testing session is two hours in length. Participants arrive at the computer center, complete an in-take survey, and complete a set of pre-test questions related to financial skills self-confidence and knowledge. Players are then asked to play the testing game, either *Bite Club* or *Farm Blitz*. After 90 minutes or when the end of the game is reached (whichever occurs earlier), the participants are asked to complete post-test questions—which are the same as the pre-test—and also provide qualitative and quantitative feedback about the game play experience.

Results

Farm Blitz was tested in 3 locations—New York (Bronx), Jacksonville, FL, and Austin, TX— by 41 participants; *Bite Club* was tested in 3 locations—Baltimore, MD, Cleveland, OH, and Houston, TX—by 43 participants in 3 locations.

Game	City	Organization/Partner	Testers
Bite Club	Baltimore, MD	Baltimore CASH	14
Bite Club	Cleveland, OH	Cleveland Housing Network	13
Bite Club	Houston, TX	East Side University Village Community Learning Center	16
Farm Blitz	New York, NY	Mt. Hope Housing Community	15
Farm Blitz	Jacksonville, FL	United Way of Northeast Florida	12
Farm Blitz	Austin, TX	LifeWorks	14

Farm Blitz: Preliminary Effectiveness Testing

The combined results for *Farm Blitz* indicate that the game is having a positive impact on both financial skills self-confidence and knowledge in the areas where the game teaches. In terms of financial skills self-confidence (**Appendix B.1**), *Farm Blitz* is having the most significant impact on savings metrics—saving regularly, allowing savings to grow, and saving for emergencies. To a lesser degree, the game is also having a positive impact on debt measures. Given the design of this game, D2D is very interested in understanding if repeat play further increases players’ self-confidence as they have the opportunity master the concepts.

The sharpest gains in the testing were observed in the knowledge gained by participants (**Appendix B.2**) playing *Farm Blitz*. Many of the knowledge questions relate to the core concept of interest compounding, whether negatively for debt or positively for savings. The difference between pre and post testing were strongly positive, ranging from 16% to 67% improvement in the number of correct answers given by participants. Not surprisingly, knowledge around interest compounding is low for our sample, and, clearly, *Farm Blitz* effectively imparts knowledge on this topic.

Bite Club: Preliminary Effectiveness Testing

In terms of financial skills self-confidence, *Bite Club* is having a positive impact across all the metrics—general savings, debt/spending management, and retirement (**Appendix B.3**). Increases range from 11% to 22%. The comprehensive nature of the simulated experience affords players a robust learning environment following a single play. Given the design of this game, D2D is very interested in understanding if this positive confidence trend leads to better retirement savings outcomes (e.g., higher take-up rates of retirement products, more savings, etc.).

The knowledge gains for *Bite Club* were lower than expected (**Appendix B.4**), especially given the development testing results. It appears that at these testing locations the pre-test knowledge was exceptionally high in the key areas the game teaches. This issue could stem from three areas. First, the testing participants for *Bite Club* may have higher general knowledge than a broader sample of lower income Americans; in Baltimore, a number of testers were credit union employees which, while lower-income may have provided them higher overall

financial knowledge. Second, the questions set developed for this game may be too easy; questions related more toward real world trade-offs and choices simulated in the game may be more useful measures. Finally, the game itself may be more suited for driving behavior changes/action taking around key retirement outcomes as opposed to simply imparting knowledge. With that said, the results still show a positive trend, and the testing generated insights into how the game might be tweaked to improve outcomes further.

Summary and Looking Forward

D2D has successfully created, developed, and deployed two new financial literacy casual game titles, *Farm Blitz* and *Bite Club*, to reach low-income and minority adults. These games expand D2D's current library of games to four and add important financial topics to those already deployed. By utilizing a new product development process which integrates target audience feedback into game development, D2D's work has resulted in positive impacts on financial skills self-confidence and knowledge in the areas where the games teach.

While the preliminary testing results for *Farm Blitz* and *Bite Club* are quite positive, the next important step for financial literacy casual games is a more comprehensive randomized treatment and control evaluation. In addition, the reach of these games should be expanded; for example, Americans with limited English-proficiency could also benefit from this form of financial education. Finally, further work should be done to strengthen the link between game play and cultivation of financial capabilities that lead to improvements in individual financial outcomes.

Appendix A—Development Testing

Appendix A.1—*Farm Blitz* Financial Skills Self-Confidence Measures (Development Testing)

Rate your degree of Confidence in doing the following (1 to 5):	Pre	Post	% Change
Not take on more debt than I can handle.	3.33	3.83	15%
Start to save money.	3.17	3.83	21%
Avoid finance charges.	3.08	3.67	19%
Pay my debt on a regular basis.	3.33	3.92	18%
Save money regularly.	3.25	3.58	10%
Manage my finances.	3.25	3.75	15%
Allow savings to grow by not taking it out.	3.17	3.67	16%

Appendix A.2—*Farm Blitz* Knowledge Measures (Development Testing)

Knowledge Questions (% Correct)	Pre	Post	% Change
The interest rate (sometimes called APR) determines how fast money will grow.	58%	75%	29%
Over long periods of time, the amount of money earned by compound interest can exceed the amount of money originally invested.	50%	83%	67%
A loan (debt) with a 3% annual percentage rate (APR) is better than a loan with a 20% annual percentage rate (APR)	33%	50%	50%
Money in your savings account should <u>not</u> be used if you have a financial emergency.	58%	83%	43%
Finance charges are fees charged to the borrowers to use someone else's money.	58%	75%	29%

Source: True/False Questions adapted from the NEFE Financial Evaluation Toolkit.

Appendix A.3—*Bite Club* Financial Skills Self-Confidence Measures (Development Testing)

Rate your degree of Confidence in doing the following (1 to 5):	Pre	Post	% Change
Set clear retirement goals.	2.22	3.44	55%
Start saving now for retirement.	2.44	3.56	45%
Allow retirement money to grow by not taking it out	2.67	3.56	33%
Reduce spending in order to increase savings.	2.89	3.67	27%
Set up an automatic savings deduction or plan.	2.56	3.22	26%
Pay off debt to prepare for retirement.	2.78	3.44	24%

Appendix A.4—*Bite Club* Knowledge Measures (Development Testing)

Knowledge Questions (% Correct)	Pre	Post	Change
The amount of money available to save for retirement can be significantly increased by reducing spending today.	56%	89%	60%
Saving small amounts of extra money you have leftover does NOT help increase retirement savings.	67%	89%	33%
Little things like starting now and saving regularly are critical in order to achieve retirement goals.	67%	89%	33%
Compound interest is when the interest your money has earned begins to earn more interest.	67%	89%	33%
Paying off outstanding debt, like credit cards and student loans, is NOT a way to save for the future.	78%	100%	29%
Over long periods of time, the amount of money earned by compound interest can exceed the amount of money originally invested.	44%	56%	25%
One of the most important habits you can develop is saving in retirement accounts.	67%	78%	17%

Source: True/False Questions adapted from the NEFE Financial Evaluation Toolkit.

Appendix B—Preliminary Small-Sample Testing

Appendix B.1—*Farm Blitz* Financial Skills Self-Confidence Measures

Rate your degree of confidence in doing the following (1 to 5):	PRE	POST	% Change
Not take on more debt than I can handle.	3.37	3.85	14%
Start saving money.	3.73	4.12	10%
Follow the directions of my boss or supervisor.	4.68	4.68	0%
Avoid finance charges.	3.56	3.76	5%
Pay my debt on a regular basis.	3.59	4.07	14%
Save money regularly.	3.24	3.93	21%
Manage my finances.	3.76	3.93	5%
Perform job-related tasks.	4.56	4.44	-3%
Use savings to pay off debt.	3.49	3.95	13%
Allow savings to grow by not taking it out.	2.93	4.05	38%
Avoid high interest debt.	3.61	4.02	11%
Save for financial emergencies.	3.20	4.05	27%

Appendix B.2—*Farm Blitz* Knowledge Measures

	% Correct	% Correct	
Knowledge (True/False Questions)	PRE	POST	% Change
The interest rate (sometimes called APR) determines how fast money will grow. (T)	41%	66%	59%
Over long periods of time, the amount of money earned by compound interest can exceed the amount of money originally invested. (T)	68%	90%	32%
Some banks have penalties for taking money from a savings account. (T)	51%	63%	24%
A loan (debt) with a 3% interest rate is a better deal than a loan with a 20% interest rate. (T)	71%	90%	28%
The length of time your savings is left to grow is one of the most important factors in determining how much your savings will to be worth in the future. (T)	78%	90%	16%
Finance charges on debt typically grow faster than interest earned on savings. (T)	59%	85%	46%
Money in your savings account should not be used if you have a financial emergency. (F)	71%	83%	17%
Finance charges are fees charged to the borrower to use someone else's money. (T)	44%	73%	67%
Compound interest is when your interest earns interest. (T)	54%	83%	55%

Source: Questions adapted from the NEFE Evaluation Toolkit.

Appendix B.3—*Bite Club* Financial Skills Self-Confidence Measures

Rate your degree of confidence in doing the following (1 to 5):	PRE	POST	% Change
Set clear retirement goals.	3.49	4.07	17%
Picture where you will live during retirement	3.40	4.12	21%
Imagine how you expect to live in retirement.	3.63	4.12	13%
Take advantage of retirement opportunities when I am offered them.	3.70	4.21	14%
Make decisions now that will make retirement a reality for me.	3.63	4.14	14%
Save money regularly.	3.58	4.07	14%
Set up an automatic savings deduction or plan.	3.56	4.07	14%
Pay off debt to prepare for retirement.	3.70	4.28	16%
Reduce spending in order to increase savings.	3.60	4.40	22%
Start saving now for retirement	3.47	4.16	20%
Allow retirement money to grow by not taking it ou.	3.74	4.14	11%

Appendix B.4—*Bite Club* Knowledge Measures

	% Correct	% Correct	
Knowledge (True/False Questions)	PRE	POST	% Change
Paying off debt is one way to save for retirement. (T)	79%	93%	18%
When planning for retirement, the desired retirement age has little to do with whether a person will have enough money to retire. (F)	37%	42%	13%
The amount of money available to save for retirement can be significantly increased by paying off debt today. (T)	77%	86%	12%
One of the most important habits you can develop is to start saving in retirement accounts. (T)	88%	95%	8%
Saving small amounts of extra money you have left over does not help increase retirement savings. (F)	81%	81%	0%
Compound interest is when the interest your money has earned begins to earn more interest. (T)	72%	84%	16%
A retirement account where your employer matches what you save is not a good way to save for retirement. (F)	63%	70%	11%
Source: Questions adapted from the NEFE Evaluation Toolkit.			