Building college student financial literacy:

Implementation and dissemination of a savings app

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Abstract

Educators at Iowa State University, working on a multi-state financial literacy project, worked with an Android programmer to develop the SaveIt! app, now available for free on GooglePlay. As with most computer applications, the app is largely self-explanatory in its use, but does not come with information to explain the pedagogical context for which it was developed. Three key features of the app include, 1) the ability create and track savings goals, 2) set up electronic reminders, and 3) to better visualize your goal achievement by translating your goals into meaningful units. The purpose of this implementation guide is to explore the pedagogical principles that can serve as a context for educational initiatives utilizing the app and to illustrate the app via representative screenshots. The content includes discussion of the role of motivation and goal-setting in the transfer from financial literacy to financial behavior, integration of financial-based learning technology, and principles of gamification, (i.e. learning pedagogy that incorporates game-playing tactics in formal classrooms). The SaveIt! app has the potential of being integrated into university initiatives and through personal student financial capability.

Keywords: apps, financial literacy, gamification, goal setting, pedagogy, savings
Applied Learning and Goal Setting (motivation)

It is a perplexing problem, that despite strong expectations for financial education to be an applied subject, few types of financial education transfer to improved financial behavior (Fox, Bartholomae, & Lee, 2005). In a broad review of 168 papers on the effects of financial education, Fernandes, Lynch, and Netemeyer (2014) indicated that, “interventions to improve financial literacy explain only 0.1% of the variance in financial behaviors” but, these researchers did, however, also conclude that, “‘just-in-time’ financial education tied to specific behaviors” could be effective (p.1861). A similar study indicated that financial literacy and capability interventions had an impact on “increasing savings” despite fewer results for other financial behaviors (Miller, Reichelstein, Salas, & Zia, 2014). From these recent studies, the implications are clear, financial education for some financial behavior works (i.e. savings), but that the education needs to be paired with immediate application.

These findings are consistent with theories of behavioral antecedents and behavioral modification. Theories suggest that motivation must be paired with information to lead to behavioral outcomes. For example, without sufficient self-efficacy, an individual will not feel adequate to implement learned principles. Subsequently, personal goals are not established and behaviors remain unchanged. Therefore, the application of learned information to practice allows individuals to test their knowledge in a way that can be more personalized within a realistic setting. Motivations drive optimal goal setting (Jain, 2009). The following are points that factor into goal setting and achievement.

- Compulsive buying could be viewed as goal-directed behavior in attempt to boost self-esteem (Roberts & Pirog, 2004).
• Despite underlying assumptions that bombarding people with multiple reasons to save money would result in them more likely to save, this strategy can backfire and a single savings goal can actually result in increased savings rates than multiple savings goals (Soman & Zhao, 2011), depending on individual’s motivational levels (Jain, 2009).

• However, among low-income households, similar to college students, partitioning is linked to increased self-control. Thus, people save more when earmarked money is separated into two accounts than when it is pooled into one account (Soman & Cheema, 2011).

• Individuals are more likely to reengage in a goal when they set a high-low range than when they set a single number goal, which leads to a greater feeling of accomplishment. Therefore, to keep a consumer motivated to continue with an activity or using a product over time, that consumer should first set or be given a high-low range (Scott & Nowlis, 2013). Additionally, failure to achieve a goal can result in decreased motivation and self-efficacy (Soman & Cheema, 2004).

It is important to bridge the gap of financial literacy and self-efficacy as a motivation for goal setting and behavioral change to achieve optimal results.

**Integration of Financial Based Technology**

Integration of financial based technology into high school and college courses is not new, but at the same time is not widespread. Scholarship on the most familiar technology-based financial tool—stock market simulation games—has helped underscore some of the principles of integrating technology in teaching financial literacy. Stock market games have helped students learn mathematics topics and apply classroom mathematics to a real-life, real-time context (Alsup & Altmyer, 2002). Students’ participation in stock market simulations allows them to use
ratios, fractions, decimals, and percentages in meaningful situations as well as graphs to illustrate stock performance and earnings estimates. Students apply their learning through research, spreadsheets, and presentations for class discussion (ISTE, 2000). Students use problem-solving and reasoning skills to investigate and select stocks to trade as well as communication skills to facilitate their research results into annual reports, mutual fund reports, and mock interviews (Alsup & Altmyer, 2002; Wood, O’Hare, & Andrews, 1992). Teachers can facilitate a setting for cooperative learning and decision-making within a competitive classroom structure of student teams (Wood, O’Hare, & Andrews). These important connections stimulate learning about money management and financial responsibility; students acquire rewards for good investment decisions and negative consequences for making bad decisions.

In contrast, stock market games can give a misleading impression that relative equal ownership of stocks exists despite variance in income across groups (Maier, 2002). It ignores economic theory that suggests some stock investor profitability could attribute to luck rather than skill and might leave out negative historical events. With this in mind, these types of simulations do not teach students principles about insurance, home purchases, long-term saving for retirement, risk, and saving. Thus, while stock market games can illustrate financial growth, they do not instill real-world associations of learning about money in more tangible spheres.

- Stock market simulations motivate students to use important mathematics to explore the exciting worlds of biotechnology, fiber optics, and wireless communication and to get a sneak preview of the jobs they may be doing in the future (Alsup & Altmyer, 2002).
- Stock market game are intended as an education tool using the motivational value of competition (Wood, O’Hare, & Andrews, 1992)
A recently designed savings app is a potentially innovative strategy to implement personal financial goals within and outside of a classroom setting. “SaveIt! is a free-to-download Android application that illustrates the power to use everyday spending decisions to reach your personal financial goals (see Appendix 1). Tell SaveIt! your goal, how much you want to save, and when you want to reach your goal. The app formulates an ‘alternative currency’ option allowing you to quantify ‘current savings’ such as how many textbook pages or travel miles for spring break you have already saved,” (Abstract from app designer, 2014). The current form of the app is designed as a “monopoly” version. Therefore, no money is at stake. The app allows you to create multiple goals and transfer “monopoly” money between goals as a means to visualize the saving process from a new perspective.

**Gamification in Classrooms**

The SaveIt! Application is a low-stakes practice for real savings goals that enables the instructor to easily make it a required part of the curriculum while at the same time giving students something to do that builds habits, tracks progress, and obtains results that can be shared. In other words, the savings actions can be frequent and repetitive and thus they lend themselves well to game playing. Game playing can boost learning through intrinsic means such as positive enticement and competition. Gamification involves the application of learning through game play. This can be done in a variety of ways such as through rewards, badges, leveling up, quests, storylines, or curriculum maps (Bruder, 2014). Games can be used to create experiences where players can have active encounters with difficult concepts, which may result in greater understanding than in a traditional lecture (Phetteplace & Felker, 2014). Strategies for gamification fail when motivation is forgotten, it is merely added to a current strategy, and if the game play and tasks are predicable (Cook, 2013). Therefore, gamification needs to go beyond
adding points, rewards, or token to the learning processes and provide compelling narrative, several opportunities for feedback, interesting challenges, and problem-solving (Weinstein, 2011).

The creation of the SaveIt! app stems from a contest called “Money Game Jam” for student teams to “create mobile or web-based games with significant personal finance content” to engage students through elements of gamification (Grant for Student financial education: Individualized and gamified, 2013). The 27-hour hackathon style event allowed students from a variety of disciplines to design games or apps concentrated to improving student financial capability (Council of Graduate Schools Enhancing Student Financial Education, Annual Narrative Report, Year 1, 2014).

Gamification was then developed for use in a personal finance course at Iowa State. Principles of gamification that guide the course include rewards, leveling up, continuous challenge, and focusing on goals (Personal Communication with Instructor). As a result of the “Money Game Jam,” interactive and engaging activities for learning about finances were incorporated into the course, which gives saving apps like SaveIt! the opportunity to be used as a tool in classroom settings.

- When used meaningfully, video games require students to problem solve, inquire, adapt, and reflect on how their decisions impact the mission and goal (Maguth, List, & Wunderle, 2014).
- Any game designer must be able to answer the question “Why would people play my game?” If sufficient thought is not put into ensuring the game provides some way of drawing players in and rewarding them, it will fail. There are two basic philosophies on how best to do this. The first values external motivators like money or prizes. The
second is intrinsic motivations like desire to learn. Put the motivation on the player leaving it up to them how they make decisions for the direction of the game (Phetteplace & Felker, 2014).

- A certain curriculum focused on a gamification-based concept of the Zone of Intrinsic Motivation (ZIM) that focuses on intrinsic motivation to learn. It includes students to achieve goals and computer network resources for gamified curriculum (Gran, 2014)

- Gamification promotes interactions between groups or institutions based on a set of rules. Games provide players with a set of goals that give them a sense of success or failure (Nisar, 2015).

- Through this type of learning teachers should look for teachable moments. They will not be the same for each learner. The application of gaming reflects an apprenticeship when learning and doing are combined in a context where action and performance create a concept and content in real time. To this end, recreating the "age-old apprenticeship model of learning within a new-age immersive gaming context" it is important to consider that it is instructionally grounded, focused on participants, intuitive, action oriented, consequentially experienced, collaboratively motivated, and reflectively synthesized (O'Driscoll, 2014, p.66).
References


Appendix 1

Savelt Download Guide

Step 1: Visit the Google Play store to download "Savelt!" .............................................. 11
Step 2: Add a Funding Source .................................................................................................. 15
Step 3: Create a Goal .................................................................................................................. 17
Step 4 (optional): Create a Reminder for your Goal ................................................................. 20
Step 5. View your progress in “My Goals” ................................................................................. 23
Step 6: Transfer between Goals, your ‘Bank Account’ (Piggy Bank) and your Savings .......................................................................................................................... 24
Step 7: View a Complete List of your Transactions .................................................................. 25
Step 1: Visit the Google Play store to download "SaveIt!"


   ![SaveIt! app screen](image)

   SaveIt! is a free-to-download Android application which gives you the power to use everyday spending decisions to reach your personal financial goals. Tell SaveIt! your goal, how much you want to save, and when you want to reach your goal. Next, you can use to SaveIt! to make small savings steps. Simply enter how much you want to save and confirm the transaction. SaveIt! will put the money towards your goal and you can see your progress.

2. You can also scan the QR code to link directly to the Google Play Store.
3. Click the “Install” button.
4. Click the “Accept” button.

5. Savelt will now download. It is approximately 6 mb, so this may take a few minutes depending on your connection.
6. Once Savelt! has finished downloading, click “Open”
Step 2: Add a Funding Source

1. Once you open the app, it will request you to enter the amount of money you would like to start in your Piggy Bank in order to save for your goals. This is not connected to your personal bank account.
2. You can update your funding source at any time. Want to add more money into your Bank Account (Piggy Bank)? Click either “Add to Balance” to add money to what is already there, or “Set Balance” to replace the amount already there.

![Image of funding sources](image1.png)

3. If you run into issues setting a large balance, type in $10,000 and select “Add to Balance” as many times as needed to put your balance to the amount you want.
Step 3: Create a Goal

1. Once you have added a dollar amount to your Piggy Bank, SaveIt will ask you to create a goal. Click “Create a Goal”.

2. When creating a goal, first enter in the name of your goal. Click “Next Step”
3. Next enter how much you want to save for your goal. Click “Next Step”.

![Image showing the amount to save interface]

4. The next step is creating an alternate currency for representing your goal. This step is optional.

![Image showing the alternate currency type interface]
Here’s a few examples of an alternate currency:

<table>
<thead>
<tr>
<th>Goal</th>
<th>Alternate Currency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring Break Trip</td>
<td>Miles</td>
</tr>
<tr>
<td>Rent</td>
<td>Days of Rent</td>
</tr>
<tr>
<td>Student Loan Payment</td>
<td>Debt-Free Days</td>
</tr>
<tr>
<td>Textbooks</td>
<td>Pages</td>
</tr>
</tbody>
</table>

If you are confused by this, feel free to leave these two fields blank.

5. Lastly, set the date you’d like to have reached your goal. (If you’d like to see a calendar view, click “View Calendar”). After you have set your goal’s due date, click “Create Goal”. 
Step 4 (optional): Create a Reminder for your Goal

1. After you have created your goal, you will be asked if you want to create a reminder for the goal. To create a reminder click “Yes”. (Note you can always manage your reminders by going to the reminders page).

2. Set when you want to be reminded by setting the time and how often.
3. Set the reminder message. For example “Did you buy coffee this morning?”

4. Set how much you want to remind yourself to save each time you are reminded. For example: reminder amount of $4.00. Click “Create Reminder”
5. After the reminder has been created, you will be brought to the home screen. On the home screen, you can scroll between goals and enter the amount you want to save.

To navigate the application, simply use the navigation button (starred) in the upper left hand corner of the application.
Step 5. View your progress in “My Goals”

1. You can scroll between goals and view each along their timeline.
2. If you click “Withdraw Goal Funds,” you will be directed to the “Transfer Funds” page (Listed in next step).
3. If you delete your goal, the goal will be permanently deleted and all of the money in your goal will go directly to your general “Savings” goal.
Step 6: Transfer between Goals, your ‘Bank Account’ (Piggy Bank) and your Savings

1. On the “Transfer Funds” page, you can transfer money between goals. You can also transfer money from a goal into your ‘Savings’ (non-goal oriented) or your Bank Account (Piggy Bank).

2. Once you have reached your goal, click ‘End Goal.’ This will delete the goal you have reached and put the money into your Bank Account (Piggy Bank).
Step 7: View a Complete List of your Transactions

1. View a complete list of transactions by scrolling to “All Goals.”
2. Scroll to one specific goal to see only the transactions for that goal.

If you have any problems with SaveIt! please send us an email (benson@iastate.edu) with SaveIt! in the email subject - any feedback we receive could be very helpful!