



Can Games Build Financial Capability?
***Financial Entertainment and
Gamification***

November 18, 2013

Using Technology to Strengthen Financial Capabilities
Webinar
Federal Reserve Bank of Boston

Doorways to Dreams (D2D) Fund

- Nick Maynard, Director of Innovation
- **D2D's Mission: to strengthen the financial opportunity and security of low and moderate income consumers by innovating, incubating, and stimulating new financial products and policies.**
- Non-Profit 501(c)3 based in Allston, MA
- Wide range of work
 - + Promoting savings bonds at tax time
 - + Incentivizing routine savings with prizes
 - + Building financial capability with games
 - + Comodifying emergency savings
 - + Shaping the fintech & mobile app space



Why Casual / Social Games?

- Popular
 - 72% of Americans play video games
 - *Bejeweled* – copy sold every 4.3 seconds
 - *Angry Birds* – 1 Billion downloads (5/2012)
 - *FarmVille 2*: 50MM active monthly users (2013)
- Accessible
 - Casual games can be learned quickly, played for minutes or hours
 - Inexpensive entertainment, often free
 - Smartphone gaming growing fast
- Non-traditional player
 - Average social gamer: 43-year-old female
 - 74%+ of casual game buyers are women
 - 35% of social gamers have no previous video game experience

What is Financial Entertainment?

A Library of casual video games

- *Celebrity Calamity*: Manage credit & debt
- *Groove Nation*: Dance budget game
- *Bite Club*: Vampire retirement savings
- *FarmBlitz*: Manage resources to build savings
- *Refund Rush*: Make the most of a tax refund
- *Celebrity Calamity Mobile*: App Store



Financial Entertainment is not...



- *World of Warcraft* or other massive multiplayer online games
- Console video games like those played on the Xbox, Wii, or even mobile consoles like the Nintendo DS
- *Skyrim* or other large scale computer video games
- *Life, Monopoly* or other turn-based board games that have been deployed as video games
- *Jeopardy* or other quiz based games, trivia style games

...however, Financial Entertainment is “performative” requiring players to make real world choices simulated in a casual game environment.



- **Game** “**Frame**” or the game motif used for PR – outreach (e.g., farms, vampires, celebrities)
- **Play** a casual video game
- **Have fun**
- **Reduce** stress and anxiety
- **Learn** and build confidence
- **Change the brain?**
- Prompt at key moments
- Offer valuable game rewards
- Purchase in-game items by saving (e.g.)
- Game becomes a “layer” between you and real world
- Demonstrate behaviors (e.g., deposits, no withdrawals)
- Realize outcomes (e.g., increased savings)

What Do Players Do in *Farm Blitz*? (1)



- Players take on farmer role
 - Lining up a row of three or more identical crops causes the crops to be “harvested,” resulting in earnings/income
- “Rabbit loans” are how players can borrow money to finance operations
 - Rabbits live in onscreen pen, multiply at a high, compounded rate, and can escape and destroy crops
- “Tree savings accounts” are how players save money
 - Trees grow on screen at a slow, but steady compounded rate and can withstand weather “emergencies”



What Do Players Do in *Farm Blitz*? (2)

- Once harvest season is over, players can pay down debt and contribute to savings
 - Paying off debt reduces number of rabbits in the pen
 - Players may also buy more trees for their farm increasing net worth
 - Players can also chop down trees to gain cash to pay down debt



- **Game goal:** accrue as much money in cash account and as many trees (long-term savings) as possible without being overrun by rabbits (debt) or having the cash account wiped out by weather emergencies (financial shocks)

- The Psychophysiology Lab at East Carolina University studies focus on the relationship (cybernetic loop) between mood, stress, depression, anxiety, and cognition changes evoked by playing video games by using physiological, neuroendocrine, and psychological measures.
- Studied casual games – *Bejewelled*, *Peggle*, *Bookworm Adventures* and *Plants vs. Zombies* (all PopCap titles)
- Findings
 - Casual video games have the ability to improve an individual's mood and decrease our stress from a subjective and physiological perspective
 - Casual video games also have positive significant effects on depression and anxiety symptoms
 - Research supports use of casual games as an adjunct to traditional therapies, like medication, and potentially as a replacement in certain cases

- Channels & Partners
 - + *Financial institutions*
 - + *Employers & Plan Sponsors*
 - + *Schools / Universities*
 - + *Government*
 - + *NGOs*
 - + *Military*



Farm Blitz Has Impact on Player Confidence

Preliminary Results in Financial Skills Self-Confidence in Areas Game Teaches

<u>Rate your degree of confidence in doing the following (1 to 5):</u>	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%



Farm Blitz Has Impact on Player Knowledge

Preliminary Results in Financial Knowledge

	% Correct	% Correct	
<u>Knowledge (True/False Questions)</u>	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.			

- *Farm Blitz* was deployed in a low-cost randomized comparison trial (RCT):
 - 200 low-to-moderate income Americans
 - Treatment (*Farm Blitz*); comparison (online materials)
 - Pre-post survey responses
 - Post-only “offers”
- The results were promising:
 - Knowledge/Confidence pre-post “test”
 - Take-rate for savings offers, including buying US Savings Bonds

Staples: Pilot Testing





- **350k** plays in 22 months
- Average player stays **15-40 mins**
- **90k hours** of financial ed.

- Double-digit increases in knowledge, confidence pre/post play

- Post-play action taking greater than after written info by >9%
- Offers embedded in-game: players taking action

- Hypothesis: Game platform can be leveraged for continued action

- Hypothesis: Game platform supports new financial behaviors

- Financial Entertainment has built up D2D's expertise and understanding of games
- Gamification is “the use of game elements and game-design techniques in non-game contexts” (Werbach, Hunter)
- We are funded to research gamification of the savings pocket on prepaid cards
 - Prepaid Card Partner – Banking Up (Upside Card)
 - Funder – CFSI's Financial Capability Innovation Fund II

Celebrity Calamity *Mobile*



- Most popular FE game title redesigned for Apple smartphones and tablets



- Play anywhere (e.g., bus stop, subway, doctor waiting room)
- Built for iOS (iPhone, iPad, iPod Touch)
- Now 3 exciting mini-games
 - Built for unique mobile device features (e.g., touchscreen, motion control)
 - Elements modeled on popular games (e.g., Fruit Ninja)
- Available free in the App Store

Why go mobile?

Who does Mobile reach?

- Mobile penetration is high
 - + 87% US adults own a mobile phone
 - + 45% US adults own a smartphone (Fed Reserve 2013)
- **Underbanked: *higher*** usage rates than general population
 - + 90% have a mobile phone;
 - + 56% have a smartphone
- **LMI population: *lower*** than general population but ***significant***
 - + 75% HH earning less than 20k annually own a phone;
 - + 20% have a smartphone
- Mobile *financial services* usage rates
 - + 29% of underbanked; compared to 21% of all consumers

See [Consumers and Mobile Financial Services](#), Federal Reserve 2013 and PEW Internet Research Project: [Mobile](#)

Why go mobile? Who does it reach?

Take Away...

- + Since mobile is especially prevalent amongst
 - Un/underbanked
 - Younger generations
 - Minorities
 - People with low levels of income

There is *potential* to reach folks via mobile who are not sufficiently served by formal financial institutions.

Connectivity: Internet Access

– Mobile Devices for Internet Usage

- + 1/4 smartphone owners report their smartphone being their main source of internet access
- + 1/3 of that population reports their smartphone as only internet access in home
 - “Smartphone owners under the age of 30, non-white smartphone users, and smartphone owners with *relatively low income* and education levels are particularly likely to say that they mostly go online using their phones.”

A vehicle for communication

- Meeting your client where they are...
(psst... now we know, they're online on their phones)
- Consider:
 - + Your online presence
 - Website
 - Facebook
 - Twitter
 - + Your communications
 - Emails
 - SMS (texts)

Why Phones + Personal Finance works



- Portability of the mobile device
 - + Suggested App: I want an app that can hook up to my car and tell me how much it costs per gallon to drive at my current speed. Second feature would be local gas prices.
- Built-In Geolocation (GPS) technologies
 - + Suggested App: I want an app that locates people around you who are willing to trade away an item that you would have otherwise purchased, then facilitate the trade.
- Ability to deliver audible and haptic (vibrate mode) alerts
 - + Suggested App: I want an app that zaps me every time I walk into a store/restaurant/bar to spend money that I do not have. It will then show an alert with my budget for shopping etc.
- Ability to capture a photo or video
 - + Suggested App: I want an app that allows me to set a categorized budget each month and take photos of receipts to track expenditures in real time to show the percentage used/available.

Questions

Contact Information

Nick Maynard
Director of Innovation
nmaynard@d2dfund.org
617.541.9063

@FinEntertainmnt

www.d2dfund.org

www.financialentertainment.org

www.celebritycalamitymobile.org