Fear of Failure: Gender Differences in Older Adult Gamers

Laura M. Levy, Maribeth Gandy, Rob Solomon
Interactive Media Technology Center
Georgia Institute of Technology
{laura, maribeth, rob}@imtc.gatech.edu

Anne Collins McLaughlin, Jason C. Allaire, Laura A. Whitlock
North Carolina State University
{anne_mclaughlin, jason_allaire, lawhitlo}@ncsu.edu

ABSTRACT
In this poster, we examine gender differences in older adults playing an off-the-shelf puzzle game (Boom Blox, EA 2008). Game design research for the elderly is an under-developed area, even though one-fifth of adults over the age of sixty-five reported playing video games and those that do so play more often that their younger counterparts. Gender differences in older adult gamers are even less understood. We use quantitative and qualitative techniques to identify gender differences in older adult game players and we discuss ramifications for cognitive game design.

Categories and Subject Descriptors
H.5.1 [Information Interfaces and Presentation]: Multimedia Information System—Evaluation/methodology; H.5.2 [Information Interfaces and Presentation]: User Interfaces—User-centered design.

General Terms
Experimentation, Human Factors

Keywords
Cognitive Games, Gaming, Game Design, Older Adults

1. INTRODUCTION
As the average age of the world’s population continues to rise, so does the interest in developing successful cognitive interventions that may halt or ameliorate age-related cognitive declines. Computer based “brain games” have flourished both on the web and on familiar household consoles. Recent research into novel, attention demanding, social environments, including first-person-shooter video games [1] suggests that it might be possible to develop effective computer-based cognitive interventions that produce benefits beyond improved performance on the game itself. While much effort is being put towards understanding the types of activities that result in cognitive change, less thought is given to the game design and player experience.

The design of computer games that are both compelling and accessible to an older player is an under-explored area [2]. Whitlock et al. found the massively multiplayer online role-playing game “World of Warcraft” to yield cognitive benefits in older players, yet the participants struggled with the complexity of the game. [3].

We believe that the player is an important part of the formula for designing an effective and enjoyable intervention. Therefore, the in-game and post-game processing of that experience is a crucial piece to understanding game design for this audience. There exists little research on game design for the elderly and even less is known concerning gender differences in players.

2. STUDY DESCRIPTION
This project is part of a multi-year collaborative study involving psychologists, computer scientists, game designers, and artists with an ultimate goal of understanding how interaction and technology can produce changes in cognitive ability. Currently, we are in the process of carrying out a large-scale experiment with 150 participants, over the age of 65, who play Nintendo’s Boom Blox and Bash Party (the sequel) for 15 one-hour sessions. The experiment is being carried out at several assisted and independent living centers and utilizes our custom mobile game study platform, called WiiCord. More information on the details of the study design can be found in McLaughlin et al. [4].

The data in this paper comes from a population of participants who have completed the study thus far, which includes pre-test questionnaires and post-test surveys/interviews about the game play experience. We also utilize detailed data regarding player behaviors and actions during play that resulted from the video/audio coding of 10 participants’ last ten play sessions. A team of 5 researchers coded video data identifying discrete behaviors, game actions and events. The 10 participants all played both games (Boom Blox and Bash Party) individually, and were between 65 and 76 years of age. There were 6 women and 4 men in this group.

3. METHOD
Trained observational coders transcribed the last 10 hours of play sessions tagging discrete emotive behaviors, dialogue, and game play actions (such as receiving medals and retrying levels) resulting in 100 hours of total coded play. Participants played in an individual environment, with only an experimenter present to run the session. Quantitative in-game data consists of behavior and game play action frequencies (n=10). Pre- and post-test questionnaires and surveys were given to all participants and we use a qualitative analysis to identify positive and negative game comments in assessing game play experience (n=18).

3. OBSERVATIONS AND RESULTS
In our sub-sample of ten participants, eight had played a video game within the past two years. Of these, most had played
computer-based games such as Free Cell, Spider Solitaire, and Mahjong and one male participant had experience playing Wii Bowling.

Both men and women reported similar opinions on game play experience in a 45 question exit survey given upon completion of the study. In a seven-point Likert scale, a t test failed to reveal a statistically reliable difference between men (M=4.00, s=1.73) and women (M=4.20, s=2.17), t(6)=0.13, p=0.89, a=0.05 for the question “the puzzles in the game were difficult to figure out”. Similarly, the question “overall, the game was difficult for me” failed to indicate any gender difference in challenges experienced in the game for males (M=4.00, s=1.73) and females (M=4.20, s=2.17), t(6)=0.13, p=0.89, a=0.05. Men (M=5.33, s=1.15) and women (M=6.20, s=0.84) had no significant difference in motivation levels towards gaining a high score, as measured by responses to “I was motivated to achieve a high score in the game”, t(6)=1.24, p=0.26, a=0.05.

Men and women had similar game play performance as rated by the game’s medal system. We have found no significant difference in the types and number of Gold, Silver, and Bronze medals between genders. “Try Again!” screens are delivered as feedback to a player upon failure to meet the minimum requirements for a medal. Women received more “Try Again!” screens (M=12.91, s=2.15) than men (M=8.46, s=3.03), t(8)=2.73, p=0.03, a=0.05, though there was no significant difference in the number of level retries. Upon detailed examination, we found men quit out of levels that would fail to achieve a medal. Women, on the other hand, would play through a level to the end even if that meant receiving negative feedback in the form of “Try Again!”

Players express a suite of emotions during game play; however only one of our recorded behaviors revealed a significant difference between genders. A t test showed women (M=8.07, s=5.08) vocalized confusion more often during game play in comparison to men (M=2.40, s=0.49), t(8)=2.18, p=0.04, a=0.05. The women in our sample were also more specific concerning the level and object of their confusion as compared to men. Examples of confusion statements by women were “Which block do I hit?”, “Which button should I push?”, and “I don’t understand why that fell”. Men vocalized more general statements of misunderstanding such as, “I just don’t know”, “What do I do now?”, and “I don’t get this”. Additionally, the confusion statements of men often coupled with vocalizations of frustration and anger. Though women vocalized confusion more often than the men, they did not experience any more time in difficulty as measured in seconds (difficulties include menu navigation, remote coordination, and game play strategy).

4. DISCUSSION
Our results, based on quantitative in-game play behavior and qualitative pre- and post-testing surveys, suggest that men and women experienced challenges presented by the game in a similar way, while they also performed at a comparable level. However, their behavior and reactions towards confusion and the prospect of failure were very different.

Though participants played in individual settings, there was always one experimenter in the room with them guiding the session. Men and women may have perceived the presence of this companion in different ways. Often, the experimenter was a young woman and this may have influenced the male participants to avoid expressing confusion or incompetence while playing the game. The female participants may have felt less threatened overall, regardless of the experimenter’s gender, and may have been more comfortable in expressing confusion.

A successful strategy for anyone maximizing their time in a game is to “quit while you’re ahead”. Men in our study capitalized on this strategy and minimized how long they spent in a level destined to fail. The watchful eyes of an experimenter may also have spurred the male participants to avoid the negative feedback. “Try Again!” screens that signal level failure and prompted them to quit out in favor of launching a new attempt.

These interesting behaviors are important for anyone designing games for older adults. Not only must a designer create a game acceptable to an older adult, they must also be cognizant of behavior differences that occur between genders. Perhaps men are more reticent to appear unskilled, confused and failing at a task than women are, particularly when another person is in the room.

The “desirable difficulties”, or moments of struggle that are requisite for cognitive benefit [5], may occur at any point during a cognitive game. A player that intentionally avoids or accidentally misses these moments due to level quitting may lose out entirely on the purpose of a cognitive game. Additionally, a player that hides confusion may never get the help needed to enjoy the game fully and this behavior may encourage aborted levels.

5. CONCLUSION
Game play behavior and game design for older adults are both under-explored areas of research. Gender differences in older gamers are rarely discussed, but an important consideration in designing games for the elderly. We have found a quantitative observational behavior method paired with a qualitative survey analysis to be a critical technique to understanding how older adults play and enjoy video games. Future work on gender differences in older gamers is necessary, particularly for therapeutic and cognitive game design.

6. ACKNOWLEDGEMENTS
This work is funded by NSF Grant #0905127.

7. REFERENCES