Chapter 10

Impacts of Forced Serious Game Play on Vulnerable Subgroups

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ABSTRACT

Three vulnerable subgroups of players (non-gamers, resistant players, and females) were studied to understand how each approaches and plays serious games. The authors explore forced (required) play using four different online casual games. Their research strongly suggests that the most important threat to a serious game’s impact is when players dislike the game. Serious games are less effective for players who dislike a game and most effective for those who like the game. Non-gamers were at a distinct disadvantage as far as gameplay performance. They experienced a more negative effect in two of the four games. Finally, males tended to seek more difficult challenges in games than females. The optimal amount of challenge may be the most important gender difference to consider when designing serious games.

INTRODUCTION

Computer games for entertainment are downloaded or purchased from stores, played online, or borrowed from friends as part of a free market culture of choice. Game players decide what games they want to play, and when or where they will play them. In other words, playing games for fun is a highly voluntary and selective experience. Games for learning, on the other hand, can be quite the opposite. There are informal learning games mainly distributed on the internet, which players can voluntarily choose to play. However, many other serious games are required components of a school or training curriculum. These serious games are played within a military training context, as part of a high school curriculum, or used in corporate training. There are also games for health prescribed to maintain and improve cognitive health. Some of these games are mandatory learning experiences.
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that are equivalent to assigned lab experiments, interactive training videos, simulation exercises, etc. These games are assigned in order to obtain desired serious outcomes other than just for fun.

When games are assigned rather than self-selected by the players, serious games face a much less enthusiastic, more diverse player audience than entertainment games due to the lack of the players’ ability to choose which game to play. This often includes players who are disadvantaged because of the game format. A serious game’s audience may include those who rarely play any kind of game (i.e. inexperienced “non-gamers”) and those who dislike and normally avoid playing the genre used by that particular serious game (i.e. genre inexperienced and/or “resistant players”). The ramifications of this are obvious, though surprisingly overlooked in the digital game-based learning community at present: inexperienced players face an extra barrier of figuring out how to play, and resistant players miss out on the intrinsic motivation games afford to eager players. While certain games may be fun for many people (e.g., the bestselling Civilization series which is used for education; Squire, 2005), they are not “fun,” “engaging,” and “motivating” for everyone. Even the most wonderful serious games will undoubtedly fail to delight all members of a class or other target audience. This would not be an important concern if the only consequence was lack of fun or if this were in a culture where players could choose which educational game they will use in a formal learning environment. However, being a non-gamer or resistant player may present more serious disadvantages in formal digital game-based learning situations.

We have previously written about hypothetical ways that vulnerable subgroups of players might face disadvantages compared to other players when assigned to play a serious game (Magerko, Heeter, & Medler, 2010). In this study we use large-scale survey and gameplay data to examine our hypotheses about how three vulnerable subgroups of players (non-gamers, resistant players, and females) approach and play serious games. The subsequent findings from this study are intended to help inform serious game designers about the population who may play their games and to potentially enable the intelligent adaptation of games to better fit individual learners.

THREE VULNERABLE SUBGROUPS

Non-Gamers

Non-gamers are people who have little or no digital gaming experience. Unfamiliarity with gaming in general or with a particular game genre can present barriers to achieving learning goals. When a serious game is assigned for learning, a player must effectively master how to play the game in order to experience the desired learning content. From the perspective of cognitive load, more mental attention devoted to figuring out how to play means less cognitive attention available to devote to learning the intended material (Mayer, 2005a, 2005b; Sweller, in press). Non-gamers need to exert more effort figuring out how to play most games than experienced gamers, making it harder for non-gamers to benefit from serious games. Furthermore, feeling lost and incompetent while trying to play a game introduces negative thoughts that can create performance deficits by diverting cognitive load (Cardinu, Maas, Rosabianca, & Kiesner, 2005; Croizet et al., 2004), resulting in negative consequences for learning (Covington, Omelich, & Schwarzer, 1986; Thomas et al., 2006). For example, when a non-gamer participant in our study (explained in detail later) was asked why she quit early without playing for the assigned 10 minutes, the participant expressed both frustration over learning to play a game, and also negative emotions: “I did not know what to do. I hate playing video/computer games.” This kind of response is obviously undesirable within a learning context.
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