Designing a Digital Roleplaying Game to Foster Awareness of Hidden Disabilities

Rafael Leonardo da Silva
University of Georgia
850 College Station Rd
Athens, Georgia 30605 – United States of America
+17066210354
Rafaelleon@uga.edu

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EXTENDED ABSTRACT

On Fighting Shadows (OFS) is a two-dimensional roleplaying game that tells the story of Marvin, a young adult that experiences hidden disabilities such as anxiety, depression, and hydrocephalus. Developed with the goal of being both informational and engaging, OFS aims to increase awareness and foster discussions not only about hidden disabilities as medical conditions, but also as phenomena that are experienced in society (Fitzgerald & Paterson 1995), where misinformation and misunderstanding about brain and mental illnesses are common. The objective of this presentation, framed as a design case, is to describe the development process, including the design dilemmas, of the prototype of OFS, as well as to discuss future directions of this project.

Educational game design inherently involves a struggle of balance between learning and play (Prestopnik 2016). As an avid gamer and educator, the researcher's instinctive task was to find ways to integrate learning and engagement. This question led to decisions on game format and narrative; in the end, the development of a 2D digital roleplaying game in which the player could navigate the environment and interact with a wide range of characters was decided upon. This two-dimension format was chosen to increase the ease of use for players that are not familiar with game play and/or roleplaying games, as 3D environments, although more immersive, can be harder to navigate for inexperienced users, increasing cognitive load (Schrader & Bastiaens 2012).

The game creation software RPG Maker MV was adopted for the prototype due to the researcher's familiarity with the platform and adequacy of the tool for the intended game format; games which can convey and elicit strong emotions, such as *To the Moon* (Freebird Games 2011), have been developed with this software (Nam, Kim, Kim, & Lee 2016), and can be used as example of its possibilities. This first version of the game was to be composed of three simple puzzles, or problem-solving challenges, that would introduce the player to one of the conditions to be discussed in the full game, hydrocephalus. These puzzles relied on information that had been provided to the player, as well as visual cues. As far as content is concerned, the medical details and social phenomena were derived from the designer's lived

experience with hydrocephalus, as well as information provided by an association that specializes in this condition (Hydrocephalus Association, 2019).

In terms of narrative, the puzzles presented in the prototype expand on an introduction provided to the player about the nature of hydrocephalus. After describing basic symptoms and origins of the condition, the game moves on to introduce the main character, Marvin, and his social context. In the last of the three puzzles presented, the player's understanding of the condition is tested in a medical setting. When Marvin is taken to a hospital with symptoms of hydrocephalus VP shunt malfunction, namely headaches and blurry vision, the player is prompted to navigate the environment to point the medical doctor to an appropriate diagnosis by interacting with hydrocephalus-related artifacts. That said, the player needs to recall, for instance, that the condition originates in the brain.

Actions in OFS are limited, in the prototype, to moving in the four cardinal directions, dialoguing with non-playable characters, and interacting with still objects. The basic commands to navigate the game are presented in full after the introduction and remain unchanged throughout the prototype. The possible commands were kept to a minimum to facilitate navigation for players who might not be familiar with game-based environments, thus potentially decreasing unnecessary or undesired mental effort (Ak & Kutlu 2017).

Following the development of the prototype, a usability testing session was conducted in an instructional environment with six graduate students and one instructor at a university in the southern United States. These participants were selected due to their expertise and familiarity with design procedures, and their feedback was theorized to be relevant for continued development. Furthermore, it is relevant to note that these participants did not identify with the hidden disabilities addressed in the game, and this presents a limitation that will be addressed in a later iteration of the study.

All participants had been familiarized with the objectives of the game prototype, namely raising awareness about hydrocephalus and its symptoms, prior to this session. In order to foster discussion about game components in the testing phase, participants were encouraged to navigate the game environment and solve the puzzles in pairs. This strategy was observed to facilitate the interaction of individuals who were not familiar with 2D game mechanics. Furthermore, the opportunity to discuss possible solutions for the problems posed in the game with a peer made the puzzle-solving process noticeably more efficient. Presence of individuals who were experienced in playing 2D games in specific pairs also led to faster puzzle solutions. The testing session was of great relevance to suggest directions to the continued development of the game. Through participant observation and feedback, it is possible to infer that a more customized game play experience that supports different learner profiles and levels of game knowledge can increase the efficacy of the tool. In addition, navigation issues provided valuable insights of aspects of design that need to be improved so that players can have a more efficient and comfortable learning process.

Both in the prototype design phase and in usability testing, the tension between learning and entertainment was observed, aligning with reflections from previous studies (Prestopnik 2016). Possible directions to improve the experience for different user profiles involve adaptation of game conditions for players that would like to prioritize educational information over fun, and vice-versa. A challenge, moving forward, is to maintain the game's desired look and feel following such adaptations. Finally, playing OFS was observed to engage users in experiencing symptoms of hydrocephalus and understanding the character's feelings. This process of emotional

engagement (Gee 2005) was facilitated by visual representations of symptoms, as well as in-game reactions of the main character and his peers. As the full game is developed, this aspect of the game will be explored in a detailed manner.

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