

# Usability Assessment of a Suicide Intervention-Prevention Mini-Game

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**Abstract.** Video games are growing in popularity and are fulfilling genuine human needs that the real world is currently unable to satisfy. Games teach, inspire and engage us in ways that reality is not. This study evaluated a video game designed to educate players concerning suicide prevention. It is aimed at educating on how to identify and address someone who might be contemplating suicide. Six veterans with varied demographics played Suicide Intervention- Prevention Mini-Game (SIP-M) and showed improvement in knowledge concerning suicide intervention-prevention. Participants found the game entertaining, informative and felt better equipped to identify and handle someone who might be contemplating suicide. SIP-M is discussed in the larger context of a virtual environment where veterans can participate in activities and receive information about a variety of mental and physical disorders.

**Keywords:** Design: human centered design and user centered design · Entertainment: gamification · Technology: graphical user interface · Technology: interaction in virtual and augmented reality environments

## 1 Introduction

Suicide Intervention-Prevention Mini-Game (SIP-M) is a video game designed to educate players on suicide intervention-prevention through an interactive simulation (game) which utilizes our cognitive functions to allow visual thinking. Visual thinking can provide potential solutions to support the learning about suicide prevention through Tangible Interactive Objects (TIO's) [2]. Players control an avatar and collect facts on defensiveness. Defensiveness plays an important role in suicidal behavior and learning to properly cope with a defensive person can be pivotal in helping to intervene and/or prevent suicide. SIP-M is part of a project completed for a grant under The Solutions Center Venture Fund during the summer of 2011. The project was called *Suicide Intervention-Prevention: A Health Education Simulation* (SIP).

Through playing SIP-M, a veteran (regardless of age) should show improvement in learning about suicide. This is vital because suicide and the well-being of military personnel is a topic of growing concern in public health [3].

It is estimated that 22 veterans commit suicide a day [4] and recently a press release was issued stating that mental health of veterans is now the highest priority for the Department of Veterans Affairs (VA) [5]. Recent research on veterans exposed to combat indicates that they are at an increased risk for mental health disorders (especially post-traumatic stress disorder (PTSD) and major depression) which can lead to suicide [6] or a Crisis in Belief.<sup>1</sup> Although there are successful treatments for full-blown PTSD, early interventions are lacking. An early intervention method that has shown to help is using visuospatial computer games which research has shown will interfere with and reduce flashbacks [7].

Developing games for mental health can be crucial for veterans who are struggling with mental health issues and who cannot or will not receive treatment from VA health care facilities.

There are three main problems that affect veterans concerning receiving treatment - Eligibility: Not all veterans are eligible for VA health care services. Enrollment: Not all eligible veterans enroll in VA health care services. Use: Not all enrolled veterans actually use VA health care services [8]. SIP-M was developed as a means to provide for veterans who fall under one of these three main problems. It was designed to help veterans better understand and recognize defensiveness. It is expected that a veteran will show improvement in learning about defensiveness for suicide intervention-prevention and that the veteran will rate the usability of SIP-M favorably.

## 1.1 Suicide Intervention-Prevention Mini-Game

**Prototype:** SIP-M is an interactive simulation (game) played in the third person to challenge a “Player” to complete it within three minutes.

Knowledge is conveyed, reinforced, and tested as veterans play the mini-game. This approach was selected in an effort to help the player learn the content while being entertained through personal challenge (e.g., meeting an attainable, but difficult, goal) [9]. To complete the game or attain the goal, the player must actively collect three facts about defensiveness. Data shows that those who commit suicide are more defensive and guarded; evaluations reveal an escalation of adverse mental conditions such as defensiveness [10]. Each fact on defensiveness presented in the mini-game was researched [11] and confirmed with clinical psychologist, Dr. Kevin Rand, Associate Professor at IUPUI.

The software used for developing SIP-M was Thinking Worlds by Caspian Learning. Sound Forge by Sony was used for voice-overs & some sound effects. Soundbooth by Adobe was used for voice-overs, sound effects & background music. Soundsnap by Tera Media was used for sound effects and Word by Microsoft was used for the script.

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<sup>1</sup> *A Veteran's Guide to Civilian Living* is a book that I wrote to discuss several Crises that a veteran might be suffering from; including, a Crisis in Belief where a veteran stops believing that he or she can actually get better or improve.

2 Methods

The design process began with a field study consisting of interviews with experts in the area of suicide prevention, military sexual trauma and homelessness. Next a literature review was completed from the latest literature on veteran issues, trends, preferences and current online gaming preferences because the popularity of online gaming is only increasing [12]. A needs analysis was completed using this information and SIP-M was given IRB approval for this project.

Strong patterns emerged from this analysis and mental health – specifically suicide - emerged as the top priority. The term “suicide” was defined and the symptom “defensiveness” [13] was chosen as the mini-game’s central theme. Identical multiple choice pre-test and post-test were created with the answers specifically addressed in the game. If the veteran did not complete the game within the three minutes (completion results when all facts are found within the game) then the game automatically came to a stop and the facts about defensiveness were displayed. The post-test and survey immediately followed game completion.

All participants were veterans currently living in the Indianapolis, Indiana area. The ages ranged from 28–60 years old and consisted of three males and three females. Very little background was known about the veterans in an effort to respect privacy, with the exception of their age, location and “veteran” status.

3 Results

All users with the exception of user five showed improvement in learning about suicide intervention-prevention or scored the same after the post-test; however, user five was not accustomed to playing this type of interactive video game. After completing the post-test and survey, user five immediately played the game a second time and showed substantial improvement learning the facts. Again, only the initial results were used with each participant. User three scored the same but user’s one, two, four and six showed improvement. Playing SIP-M resulted in successfully informing veterans about suicide intervention-prevention as indicated by the results from the post-test (Fig. 1).

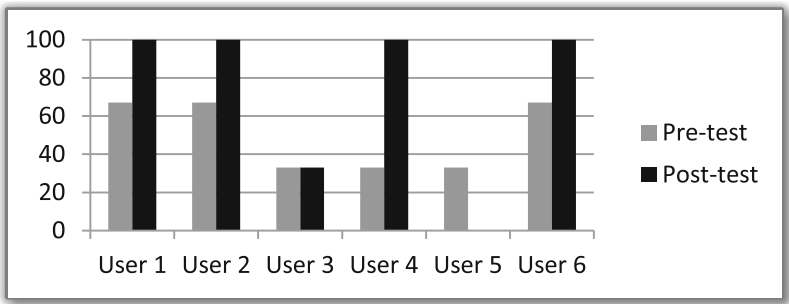


Fig. 1. Percent of knowledge learned pre and post-test. Note that user five scored a zero on the post-test

Following the post-test, a survey was given using a Likert-type scale. The survey asked users to rate the game on four factors; informative, better equipped to talk with someone who might be suicidal, entertaining, and character maneuverability. Participants rated each factor on a scale of one to ten with ten being “excellent” and one being “poor.” Users felt they were better informed about suicide and found the game entertaining; all users with the exception of user four scored the game six and above on entertaining. User four found the character difficult to maneuver, therefore, did not find the game as entertaining but still gave an average score of five. However, user four felt informed and better equipped to handle someone who is defensive. Overall, users rated SIP-M “Good” to “Excellent”.

Suicide Intervention-Prevention Mini-Game was successfully designed to help veterans identify suicidal tendencies using a video game. Suicide intervention-prevention information was provided in the form of an entertaining game with the thought that veterans will want to play more health games and as they play, continue to learn about issues that affect them.

## 4 Conclusion

Restating the two study hypotheses: (1) veterans would show an improvement in learning about defensiveness for suicide intervention-prevention and (2) veterans would rate the usability of the SIP-M favorably. The first hypothesis is supported by the results of the pre and post-test (Fig. 1). The second hypothesis is supported by the user ratings for ‘informative’, ‘better equipped’ (to talk with someone who might be defensive), ‘entertaining’, and ‘character maneuverability’, as well as the overall usability ratings as “Good” to “Excellent”. Therefore, results support that SIP-M is successful in helping veterans become better equipped to cope with someone who is suicidal through an entertaining game. These results satisfy objectives 2:3 and 2.4 of the Surgeon General’s *2012 National Strategy for Suicide Prevention* by supporting increasing knowledge of warning signs for suicide using innovative applications like virtual worlds and gaming [14].

SIP-M will be one of many games within a larger project called SavageWorld (SW). SW is a virtual collective online shared space where veterans can explore, meet other veterans, socialize, play games and participate in activities as a group or individually while chatting in real-time. This world will use individually designed animated characters (avatars) to move around and interact with this virtual world. The project intends to offer assistance to all veterans including military personnel suffering from suicidal thoughts, depression, PTSD, MST (military sexual trauma) and those suffering physical restrictions and disabilities.

Veterans will have access not only to games like SIP-M but also other informative games, health links, benefits information, pet therapy, music therapy, social interaction, help channels, help links, health information and other basic information while providing an entertaining, safe and pleasant environment. For example; alerts or text messages will be sent to the user’s smart phone to encourage and support the veteran throughout the day. The message will be indicative of what the veteran prefers, i.e. Christians will receive a motivating scripture, etc. These messages can also invite the

veteran to fulfill their responsibilities like a Twelve Step Program and the need to complete step nine, etc. Also, if the veteran is caring for a virtual pet, the animal will periodically need feeding, walking and loving. This will come as an alert and an invitation to socialize in SW. Caring for a pet has been shown to be very therapeutic [15].

The underpinning principle behind these alerts and invitations is to be a constant reminder that SW is a safe-always available place a veteran can go for help and support. The Office of the Inspector General expressed concerns that veterans may not be able to access the mental health care they need in a timely manner [16]. SW would always be available; day or night, from any PC and/or mobile device.

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