# Projecting the Self into Virtual Worlds: Merging Identities with a Video Game Character

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#### Abstract

The purpose of the present study was to examine the effect of perspective-taking instructions (PTI) on (a) the tendency to project aspects of the self onto a video game character and (b) the degree of "telepresence" within a virtual world. Perspective taking instructions encourage subjects to imagine themselves as a story character. It has been found in the past that PTI may cause an individual to merge identities with a story character in written stories<sup>1</sup> and films<sup>2</sup>. This study replicated these findings using a video game. Male video game players were asked to play a video game and completed character trait measures about themselves and about the game character. Subjects given perspective-taking instructions (PTI) had more overlap in the character traits ascribed to themselves and the character than did control subjects. PTI did not significantly impact telepresence. Positive and negative implications of these findings are discussed.

#### Keywords: Video Games, Presence, Merged Identity

### 1. Introduction

Virtual world (VW) presence, or "telepresence", is a widely studied concept in computer science describing the human interaction with a VW. A VW can be defined as a psychologically inhabitable space within a technological environment (e.g., televisions, computers, head mounted displays, videogame consoles, and the internet). Telepresence can be defined as immersion into a VW to the point the VW is experienced as reality, and there is a loss of awareness of stimuli outside the virtual environment. Telepresence was originally the focus of researchers in computer science who were concerned with creating highly "immersive", high definition, and realistic video games and other technology<sup>3, 4, 5</sup>. The terms "telepresence" and "presence" will be used interchangeably throughout this article to refer to the same concept. Psychological researchers have become interested in telepresence and have measured it with emotions<sup>6</sup> and spatial memory<sup>7</sup> and have looked at its relation to personality traits<sup>8</sup>. Telepresence has also been said to be related to a flow experience which is the optimal state of an interaction where one becomes so attentive while completing a task that everything around the individual seems to disappear<sup>9</sup>.

Slater and colleagues showed just how strong telepresence can be<sup>10</sup>. Using a CAVE<sup>11</sup> (i.e., a three-dimensional panoramic view of a virtual reality environment), they recreated Stanley Milgram's controversial obedience to authority study in which researchers instructed participants to administer shocks to another human being up to the point of serious injury and even death<sup>12</sup>. In the virtual world version of this study, participants showed significantly increased physiological responses in skin conductance level and heart rate when asked to similarly administer shocks to a virtually-rendered human being. Some participants even withdrew from the study early while others indicated that during the study they experienced feelings of wanting to stop but continued anyway. This effect was more pronounced in a group that could see the virtual human versus the participants who could only hear a voice.

Telepresence was also evident in the participants' compliance when prompted to speak more loudly by the virtual human, and by their signs of hesitation in administering shocks, possibly indicating that participants perceived the virtual human as being a real human.

Several factors appear to contribute to the degree to which telepresence will be experienced in a virtual environment. According to Slater and Wilbur<sup>4</sup> in order for a medium to provide a sense of telepresence it should be inclusive (allow for external reality to be non-perceivable), extensive (accommodate many sensory modals), surrounding (a VW being perceivable panoramically vs. through a limited direct field), and vivid (quality of visual display). Also, it should have a plot (narrative). Experimental studies of video games and telepresence support the importance of many of these elements. For example, aspects of the technology such as image quality, sound quality, and screen size have been found to be important. Bracken and Skalski<sup>13</sup> found that participants who played a video game using a high definition TV had higher levels of reported immersion than those who played on a low definition TV. Interestingly though, one study found that image quality did not significantly impact telepresence whereas the quality of sound did seem to have an effect<sup>14</sup>. However, one difference between these two studies was the size of the television used during game play, which suggests screen size may be an important factor in the development of telepresence. Supporting this, a study examining telepresence during video game play on either an 81 inch screen or a 12.7 inch screen found greater telepresence (a more positive mood) when play occurred on the larger screen<sup>15</sup>.

Factors less directly related to the technology have also been shown to affect telepresence. Consistent with Slater and Wilbur's model<sup>4</sup>, a study found that adding a suspenseful narrative (i.e., revealing that a murderer was on the loose within the VW) to a highly immersive environment led participants to report high levels of presence on a questionnaire, and also led to an increased heart rate on a biofeedback device after they encountered the murderer within the virtual environment<sup>16</sup>.

Other factors affecting video game presence include the degree of violence and degree of frustration with game play<sup>17</sup>. By assigning participants to either a violent or non-violent game researchers found that when a game was perceived as being violent, the participants' telepresence increased. Also, after becoming experienced with the game, participants' frustration decreased while presence increased.

Slater and Wilbur mention the importance to telepresence of the perceived matching between the user's normal movements and movements within the virtual world<sup>4</sup>. This kind of matching does not occur with many video games (because a game character is often controlled by a "controller" with toggles and buttons), but the present study examined weather matching may extend beyond motor movements to include psychological matching (i.e., empathic matching between the real self and a virtual self.) It may be that a merging of identities can occur when one experiences a plot to which they can associate the real self with a virtual self.

#### 1.1 Merged Identities

Telepresence in a VW may be related to the phenomenon of "merged identities" that can occur both in and outside of the VW environment. Merged identity occurs when people either project their own traits onto a character in a narrative, or begin to define themselves with the given traits of a character from a narrative. Jerome and Jordan theorized that a mediated environment such as a VW may be a place where an individual will project the self during a state of presence<sup>18</sup>. Klimmt, Hefner, Vorderer, Roth and Blake found that after participants played either a racing game or first-person shooter game they responded to an Implicit Association Task in a manner that indicated implicit shifts in self-perception: they associated the word 'me' more with game-relevant words<sup>19</sup>.

Perspective taking instructions (PTI) have been shown to affect the likelihood that people will merge identities with story characters. PTI ask subjects to imagine themselves as the character they are seeing or reading about while also imagining that they are in the same situation as that character. Goldstein and Cialdini found that participants given PTI before reading a narrative about a character who displayed helpfulness reported that they possessed behavioral traits similar to the character in the narrative (i.e. being helpful)<sup>1</sup>. Further after the study was completed those participants actually demonstrated more helpfulness than control participants; they were more willing to comply with a request to complete additional questionnaires that were not required.

Davis, Conklin, Smith, and Luce found similar results when they presented PTI to participants who watched a video<sup>2</sup>. However, instead of showing that PTI lead participants to take on behavioral traits of a character in a narrative, they showed that participants given PTI projected their own traits onto a story character. Moreover, PTI also caused greater attentiveness to a character.

### 1.2 The Present Study

The present study extended previous research to examine the effect of PTI on video game players' tendency to merge identities with an avatar in a video game. An avatar is the character in a video game that the video game player controls. Given that videogame characters are often only minimally defined, PTI should lead to effects that mirror those of Davis et al.<sup>2</sup> in which subjects project their own traits onto a story character. Furthermore, since PTI has been associated with increased attention to a character it may also increase attention to the tasks being performed within the virtual world therefore helping one achieve a sense of telepresence during game play by adding to the inclusiveness<sup>4</sup> of the experience.

# 2. Methodology

### 2.1 Participants

Participants were 25 volunteer students enrolled in introductory and experimental psychology classes at Eastern Kentucky University. Participants received course credit for participation. Restrictions for participation were that subjects must be 18 years or older, males, and experienced video game players. Participants were randomly assigned to a PTI condition or a control condition that received alternative instructions.

### 2.2 Materials

### 2.2.1 trait questionnaire

A 30-item trait questionnaire was used to evaluate participants' initial self-perception before game  $play^{20}$ . Each question consisted of antonymous terms which served as anchors on each end of a 5-point scale (e.g. Timid 1 2 3 4 5 Bold). Instructions for filling out the scale were listed at the top of the page. Participants were told to circle the number that closely resembled how they viewed themselves.

#### 2.2.2 video game

An X-box 360 gaming console with wireless controller was used for game play. The action/strategy game, Hitman: Absolution was used for this study<sup>21</sup>. It had a suspenseful narrative backstory about the game character whose name is Agent 47. The game console was connected to a 32 inch, Samsung, high definition (1080i), flat screen television and the game was played within a darkened room with the TV volume set to twenty.

# 2.2.3 PTI and control instructions

Participants in both groups were instructed to make themselves comfortable, pay close attention to the story, and play the game with any style they chose. The PTI group was further advised that: "as you play and become comfortable with Agent 47 please imagine how you yourself would feel if you were actually in the game as Agent 47. In your mind's eye, trade places with Agent 47 and play the game as if the missions were actually happening to you."

#### 2.2.4 game experience questionnaire

A "game experience questionnaire" was used to assess both telepresence and the degree to which the subject projected their self-traits onto the videogame avatar. The questionnaire also included filler items about the subjects' evaluation of the game.

Telepresence questions were taken from previously used telepresence and activity flow state scales<sup>22, 23</sup>. These items were 20 Likert-type questions anchored with strongly disagree (1) and strongly agree (5) with such questions as: "I performed automatically, without having to think about it", and "time felt like it sped up".

Questions measuring projection of the self onto the game character were 30 items identical to the initial trait questionnaire. However, now participants were asked to rate Agent 47 as they viewed him after game play. These

questions were embedded in the game experience questionnaire in order to avoid cuing subjects to the hypothesis of the study. Items were in a different random order than the initial trait questionnaire.

# 2.3 Procedure

Participants were tested individually in a small room containing the game system. All participants were told that the purpose of the study was to assess personalities of video game players and the types of games they enjoy. Informed consent was obtained before beginning the study.

Each participant first completed the self-trait questionnaire. Then the experimenter gave a 10 minute demonstration of the video game to show the participant how to progress through level one of the game. During this demonstration the researcher pointed out specific game controls and demonstrated various parts of the game that would aid progression through the game. The game was then reset so that the participant could start at the beginning of level one and hear the full narrative of the game's story. The game difficulty was set to easy.

After the game demonstration but before actual participant game play, the participant was given the PTI or control instructions to read as the experimenter read the instructions aloud. Next, the lights were turned out and the participant began the game. Participants were told that the experimenter would be right outside of the testing room if they needed any assistance. No indication of gameplay time-limit was given to the participant nor did they ask.

Finally, after allowing the participant 30 minutes of game play the experimenter returned, turned on the lights, and asked the participant to please pause or quit playing the game and to lay down the controller. The participant then completed the game experience questionnaire and following this, was debriefed.

# 3. Data

# 3.1 Merged Identities

To measure the degree to which participants projected their own traits onto the avatar, subjects were given a merged identity score: this was the number of traits to which subjects gave a similar rating for themselves and for the game character (similar meant that ratings could only differ by 1 point). The mean scores in each condition are shown in Table 1. The maximum possible score is 30. A two-tailed t-test for independent samples showed that the mean for the PTI condition (M = 20.5, SD = 3.4) is significantly higher than the mean for the control condition (M = 17.7, SD = 2.7); t (23) = 2.3, p < .05.

# 3.2 Telepresence

Responses to the 20 telepresence items were summed. Mean scores are shown in Table 1. The maximum possible score is 100. Contrary to the hypothesis, telepresence scores in the PTI condition (M = 35.1, SD = 6.1) are not significantly different than the scores in the control condition (M = 36.8, SD = 3.8); t (23) = -.86, p > .05.

Table 1. mean merged identity scores and mean telepresence scores in the PTI and control conditions

Group	Merged Identity		Telepresence	
	Mean	Standard Deviation	Mean	Standard Deviation
PTI	20.5	3.4	35.1	6.1
Control	17.7	2.7	36.8	3.8

# 4. Conclusion

Results of the present study support the hypothesis that PTI can increase the tendency to project the self onto a video game avatar. The mean number of traits ascribed to both the self and the avatar was significantly higher in the PTI condition. These results confirm previous research findings that showed PTI led subjects to merge identities with a character in a narrative<sup>1, 2</sup>. This study extends this research by showing participants' identities could be merged with a videogame avatar. Lastly, these results support the theory that virtual environments are a place where individuals project the self<sup>18</sup>.

Contrary to the hypotheses, PTI did not affect telepresence. Even though it has been found that PTI increases attention to a character in a narrative, it may be that this increased attention to one factor of the narrative leads to less attention being focused on other factors associated with an immersive framework<sup>4</sup>. Scores indicate that telepresence was fairly low in both conditions. This may have been the result of several factors. The game system and game used may not have met the technological requirements for an immersive technology as discussed earlier. A high definition screen was used, but the system and environment may still not have been sufficiently "extensive", surrounding, and vivid. Also, although time limit of game play has not been shown to have a significant effect on telepresence<sup>24</sup>, it could be that a limited amount of time constrained proficiency of learning the precise game controls. A lack of proficiency could have contributed to game frustration which has been shown to negatively affect telepresence<sup>17</sup>. Finally, although the telepresence questions were taken from previously used scales<sup>22, 23</sup>, future research might explore the use of physiological measures which may be more sensitive to levels of telepresence experienced during game play such as a video game player leaning with the controller, shaking the controller, or experiencing an increased heart rate.

The present study showed that video game players can merge identities with a video game character. The implications of this finding might be viewed as negative given the violent nature of many video games and the evidence that media violence, including video game violence, has negative effects on young people<sup>25</sup>. Merging identities with a violent character might not be desirable. In other contexts, merging identities has been mentioned to explain the dark and psychological side of anorexia in which girls might merge identities with super models on TV and engage in maladaptive eating behaviors<sup>26</sup>.

On the other hand, PTI could enhance empathy. PTI may lead individuals to see a game character as more human and lead them to have empathic responses to the effects of violent acts. Thus PTI may aid in reducing any transfer effects of media violence to real world conditions. The effects of PTI may reflect the power of suggestion, and may have implications for any situation in which one is trying to induce a state of empathy in a participant. Empathy relies on one's ability to take the perspective of another<sup>27</sup>.

Next time you are deeply engaged in playing a video game or watching a movie, try to be conscious of what it is you are thinking, the self-talk involved, and how you are imagining yourself in the context of the game or movie world. Notice the feelings of reward when watching or guiding a character to achieve a goal, or the feelings of sadness when a tragedy occurs with a character of who you admire. Why do dramatic endings elicit such strong emotions? It may be that we merge identities with the character in a narrative to the point that we experience character's emotions or imagine our own emotions within contexts similar to the character's conditions. This merging of identities may help us understand the deeper aspects of a narrative. This understanding may be the very place from which a sense of presence can be formulated when the framework in an immersive environment<sup>4</sup> accommodates the transference of one's perceptions out of the real world and into a virtual one.

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