The Effects of Avatar-based Customization on Player Identification

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ABSTRACT

Games allow players to perceive themselves in alternate ways in imagined worlds. Player identification is one of the outcomes of gameplay experiences in these worlds and has been shown to affect enjoyment and reduce self-discrepancy. Avatar-based customization has potential to impact player identification by shaping the relationship between the player and the character. This mixed method study aims to fill the gap in the identification literature by examining the effects of avatar-based customization on players’ identification with and empathy towards their characters in a massively multiplayer online game, Lord of the Rings Online (LotRO). Participants (N = 66) played LotRO either in customization or in no-customization groups for about ten hours in four sessions over two weeks in a controlled lab setting. Data were collected through interviews, surveys and observations. Results showed both time and avatar-based customization positively impacted players’ identification with their avatars. Self-Determination Theory is used to interpret results.

Keywords: Avatars, Customization, Empathy, Identification, Mixed Method, MMOs

INTRODUCTION

Media researchers have been writing about the ramifications of assuming technologically mediated identities since the inception of online virtual worlds (see Turkle, 1994; 1995). These virtual environments can provide anonymity and the freedom from the conventions of our everyday identities in areas such as gender, age or social status. They also offer opportunities to take on various personae, create or adopt new identities without fear of disapproval by members in their real-life social circle (Turkle, 1995).

There are multiple types of virtual worlds (i.e., social, gaming, educational) with various affordances. Massively multiplayer online games (MMOs) have emerged to be one of the most popular gaming genres over the last decade, and have been studied from various perspectives (e.g., player demographics, addiction, socialization, player motivations). This popularity is partly because MMOs’ affordances allow players to temporarily become a game character and adopt the salient characteristics of that character (Looy, Courtois & de Vocht, 2010). As detailed in the following section,
player identification with the avatar/character is central to how players experience the game. For instance, identification impacts player engagement with, and enjoyment of, the game (Klimmit, Hefner & Vorderer, 2009). Determining aspects of games, such as avatar customization, that improve players’ identification with their characters would be of interest to game designers as well as educators who choose games for their students.

Avatar customization is an understudied factor when it comes to identification. Yet, it allows making each character different in MMOs by providing various combinations of attributes, adornments/physical properties, skills, and traits (Dickey, 2007). This customization experience may help the player to get into the mindset of the character, increasing the likelihood of affecting his/her self-identity. This paper examines players’ identification with their characters over several gameplay sessions, varying the participants’ ability to customize their characters, and poses the following main research question and two exploratory research questions:

RQ1: Is there a relationship between engagement with initial avatar customization and players’ identification with and empathy toward their avatars?

RQ2: Does players’ identification with and empathy toward their characters change over time?

The background section below clarifies the theories and present previous studies that guided the formation of the research questions. Following the background, the methods section introduces the participants and describes the study. Before proceeding, however, it is worth clarifying the difference between avatar and character. Avatar is defined as the embodiment of the user in virtual environments (e.g., Ducheneaut, Wen, Yee, & Wadley, 2009). Characters in games are fictional identities within the narrative setting of the game. In this paper, “avatar” and “character” are used interchangeably because the research design does not differentiate avatar customization from character customization.

BACKGROUND

Many scholars have discussed the important role of online identities in videogames and virtual worlds in development and exploration of real selves (Turkle, 1995; Thomas 2007; Gee 2003). In these technologically mediated social virtual environments, players establish digital identities using a combination of modalities including text, audio and visuals. Such identity construction is necessary to communicate with others and with the virtual environment. Avatars are the most commonly used expression of identity in virtual worlds (Hamilton, 2009). Visual characteristics of an avatar, name, as well as abilities of player characters, provide users with an expression of identity and an opportunity for extended identity formation (Turkle, 1995).

Self-representation is intentional within the given choice structure of a virtual world. For example, initial character creation choices may indicate how the player expects the avatar to function as a channel for her identity. Considering part of identity formation is thinking about what type person we want to be (Arnett, 2010, p.340), and virtual worlds can function as “identity construction environments” (Bers, 2001, p. 365). In these environments, users can explore and experiment with the dynamic nature of identity by interacting with and through their avatars (Kafai, Fields, & Cook, 2010). Similarly, Turkle (1995) describes the creation of an identity in virtual environments (MUDs) as fluid and multiple. She states that in virtual worlds, “people are able to build a self by cycling through many selves” (Turkle, 1995, p.178). Players manage their identities through playing different characters in MMOs (Taylor, 1999). In other words, people cycle through their possible selves, defined as “the cognitive manifestation of enduring goals, aspirations, motives, fears, and threats” (Markus & Nurius, 1986, p. 954). Such identification facilitates identity develop-
ment, especially during adolescence (Erickson, 1968). In a similar vein, McDonald and Kim (2001) report that young videogame players perceive no distance at all relative to their game protagonists, and “identify quite closely” with them (p. 254).

Looy, Courtois and de Vocht (2010) call for more attention to the concept of identification in game studies. Playing computer games is enjoyable, partly because players can enter imagined worlds beyond their real-life experiences and perceive themselves in alternate ways. Consequently, studying players’ identification with their avatars in a virtual environment can be crucial for understanding their gameplay experiences. Cohen (2001) defines identification with media characters as “an imaginative experience in which a person surrenders consciousness of his or her own identity and experiences the world through someone else’s point of view (p. 248).” Adapting this definition to video games, some researchers state that identification allows for experimentation with one’s identity by temporarily adopting aspects of the identity of the target videogame character (e.g., a famous hero, a historical figure, a sportsman) (Klimmt, Hefner, Vorderer, 2009; Looy et al., 2010). Identification, therefore, is conceptualized as a temporary shift in players’ self-perception (Klimmt, Hefner, Vorderer, Roth, & Blake, 2010). However, player identification with characters is complicated because of the multiplicity of roles (e.g., subject, audience, director, user etc.) that a player takes during gameplay (Flannagan, 1999). For example, when someone plays a videogame with an avatar, she is both the avatar/player-character and the player at the same time. When the player exerts agency over the avatar to interact with objects, events and other players, this is mediated both by the player character’s abilities and player’s abilities, and those have consequences to the avatar within the designer created game world (Murphy, 2004). In MMOs, players do not observe autonomous social entities performing on screen, instead they make characters perform through character-generated actions, also called emotes. An avatar’s representation of the player’s motions and intentions has a great impact on identification (Hamilton, 2009) and a perceptual integration with the avatar, namely the player’s awareness of her presence both in her body and in the screen (Dove, 2002).

In addition to avatars’ abilities to represent players’ intentions, previous studies determined various player behaviors, features of avatars, and characteristics of virtual worlds, that facilitate identification. Among these features are fondness for a character (Cohen, 1999), attractiveness of avatars (Kim, Lee, & Kang, 2012), the capabilities of the character (Newman, 2002), point-of-view (Lim & Reeves, 2009), and physical resemblance of avatars to their users in body shape, race, age, and facial features (Maccoby & Wilson, 1957; Williams, 2011). Players’ perceived similarity to their characters (or similarity identification) has been called the mirror hypothesis (Chandler & Griffith, 2004). The mirror hypothesis refers to the theory that viewers tend to relate favorably to on-screen characters who are either like themselves (the mirror), or ones who represent someone the viewer would like to be (the magic mirror). The magic mirror relates to another type of identification: wishful identification. In wishful identification, the observer desires to emulate the character, either in general terms as a role model for future action or identity development, or in specific terms which extend responses beyond the viewing situation or by imitating a particular behavior (Hoffner & Buchan, 2005; Hoffner & Cantor, 1991; Von Feilitzen & Linné, 1975). Wishful identification provides a glimpse of “what if,” and these glimpses are powerful predictors of future behavior (Cohen, 2001).

Identification assumes both emotional and cognitive connections between the player and her avatar (Cohen, 2001). In a study on human brain process about identification with game characters/avatars, Ganesh, van Schie, de Lange, Thompson, and Wigboldus (2011) found that the extent of players’ feelings and felt absorption greatly impact identification. This study also showed that the intense emotional involvement with an avatar resembles the level of intimacy one experiences when interacting
with a close other (Ganesh et al., 2011). However, there are differing perspectives on the role of empathy in the mechanism of identification. For instance, Cohen (2001) views empathy as being a part of identification, whereas Hefner, Klimmt and Vorderer (2007) argue that the identification process between the player and the avatar will be less empathy driven than those between the reader/viewer and protagonist because empathy is typically an emotion towards an external entity. More recently, Looy et al.’s (2010) survey study found that player identification predicts empathy. However, there is a lack of literature on the possible role of empathy in the mechanism of player identification with videogame characters.

In addition to its role in identity development, researchers have discovered various psychological and behavioral effects of player identification. Studies have found that identification with player characters reduces self-discrepancy (e.g., Bessiere, Seay, & Kiesler, 2007) and influences players’ self-efficacy and trust within their virtual communities (Kim, Lee, & Kang, 2012). In an online survey study, Ducheneaut, Wen, Yee and Wadley (2009) found that visitors of online virtual worlds who perceive a smaller psychological difference between their avatar and themselves are generally more satisfied with their avatars and spend more time online.

Identification also positively affects players’ intention to purchase game items to increase their competitiveness and improve avatars’ appearance (Park & Lee, 2011). Through such mechanisms, increased identification may enhance player engagement, motivation, and enjoyment. For instance, Klimmt et al. (2010) conducted two experimental studies with male players and showed that enacting a character or role in a military themed first-person shooter game affected players’ identity state and increase their game enjoyment. Identification is not only important for male players in MMOs or in fighting games, but is also important for female players. Reijmersdal, Jansz, Peters, and Noort’s (2013) survey study with female players of a pink game, goSupermodel (WatAgame ApS., 2013), showed that girls who spent more time playing the game reported more identification. They also found a positive relationship between identification with game characters and female players gaming motivation.

The degree of control players have over their avatars (e.g., character’s movement, choice of avatar appearance) may affect their level of identification with their avatars. Direct control over their character can imbue players with a sense of agency and may also increase their positive affect in the game (Hefner, Klimmt & Vorderer, 2007). For instance, Schmierbach, Limperos, & Woolley (2012) showed that when participants customized their raccecars in a racing game their enjoyment increased. Although players did not customize their avatars in this study, they played the game by controlling their racecar. Therefore, we may expect that customization of racecars in a race game and customization of avatars in a role playing game may have similar psychological impact on player experiences. In a similar vein, Ganesh et al.’s (2011) neuroimaging study revealed that avatar related self-identification is related to the experience of agency and control over the observed body. These results imply a relationship between control over the avatar and self-identification.

Despite the results and implications of the studies noted above, Shaw (2011) points to a lack of empirical research on the extent to which control over the avatar strengthens the relationship between the avatar and the player, especially in longer experimental studies. The majority of the literature written on such a relationship has been performed through either a theoretical approach (e.g., Murphy, 2004; Hamilton, 2009) or surveys/interviews that specifically address only the questions around identification (e.g., Shaw, 2011; Looy, Courtois & de Vocht, 2010; Reijmersdal et al., 2013). This study aims to contribute to the literature by examining the effect of player control, specifically avatar-based customization, on players’ identification with their avatars.
AVATAR-BASED CUSTOMIZATION

Many virtual worlds offer users ways to customize their experiences, either through built-in options or the ability to create or obtain add-on software modules as seen in games such as World of Warcraft (WoW) (Blizzard, 2004) and Star Wars: The Old Republic (SWTOR) (Bioware, 2011). Avatar customization is a main form of customization in many MMOs, and several studies have found that avatar customization and playing with customized avatars impact gaming experiences (e.g., Trepte & Reinecke, 2010; Turkay & Adinolf, 2010; Turkay, 2012), learning in games (Okita, Turkay, Kim, Murai, 2013), subsequent behaviors after gameplay (e.g. Dolgov, Graves, Nearents, Schwark, & Brooks Volkman, 2014), and increase players’ emotional attachment to their characters (Waggoner, 2009; Shaw, 2011). A subset of these studies made connections between avatar customization and players’ identification with their characters.

For instance, studies of aggression in videogames (Fischer, Kastenmuller, & Greitemeyer, 2010; Holligdale & Greitemeyer, 2013) found evidence that avatar customization may amplify the psychological effects of video games through increased identification with one’s character. In their study with 30 children who played one of three advergames with differing levels of avatar customization, Bailey, Wise and Bolls (2009) found that customization of game avatars can affect both subjective feelings of presence and psycho-physiological indicators of emotion during gameplay, which may make players’ experiences more enjoyable. Bailey et al.’s (2009) study was one of the first to examine avatar customization with physiological measures. However, the games they used were not multiplayer, and the participants played the games for a very short time, making generalization difficult. There is also evidence that identification facilitates customization behavior. A survey study found that WoW players who strongly identify with their characters more often like to role-play, create background stories about their avatars, and have a stronger interest in customizing the appearance of their character (Looy et al., 2010).

There are different types of customization. Turkay and Adinolf (2010, p. 1841) suggested that customization is grouped into three broad categories in MMOs:

**Type I:** Customization that affects game mechanics and dynamics directly and therefore has a direct effect on individual player gameplay. Customizing talent trees in WoW is an example of this type of customization;

**Type II:** Customization that does not affect game mechanics and dynamics. Avatar appearance customization is an example of this type of customization. Although it does not directly affect gameplay, it may affect a player’s enjoyment of the game;

**Type III:** Customization that does not affect game mechanics and dynamics directly but may affect player performance, such as interface customization, may have an effect on players’ gameplay experience.

Players use different strategies to create and customize avatars depending on their goals, game developers’ goals and affordances of virtual worlds. For example, players may customize their avatars’ appearance (cosmetic customization) to reflect their aesthetic views or dress-up (Fron, Fullerton, Ford Morie, & Pearce, 2007; Kafai et al., 2010). Players may also customize their characters with a functional goal in mind. In Kafai et al.’s (2010) study, one type of functional customization for Whyville (1999) users was to disguise within the community (e.g. Gender swapping to hide one’s actual gender). In MMOs, players may also choose a certain character class to fit a desired role within the game such as being able to heal other players.

It is likely that functional and cosmetic customization may result in differing levels of identification with characters. For instance, when players customize their character appearance similar to their real life physical appearance, their perceived similarity with their characters
may increase, whereas if they customize their characters to be strong and invincible their wishful identification may increase more than other identification aspects. However, in this study, cosmetic and functional customization (via choosing rewards, and character race) were not manipulated separately. Instead, players either customized both avatar appearance and avatar abilities or did not customize at all. Therefore, the rest of this paper refers to the combination of cosmetic and functional avatar customization as avatar-based customization, and explores the impact of avatar-based customization on players’ identification with their characters.

DURATION OF THE STUDY

Previous empirical studies (e.g., Schneider, Lang, Shin, & Bradley, 2004; Hitchens, Drachen, & Richards, 2012) relied on a relatively short playing time (between 8 minutes and 45 minutes) to draw conclusion regarding players’ identification with their characters. However, MMOs are long-term games, and gameplay experiences may change over time as players gain expertise, form relationships within the game community, and develop their goals (Schultheiss, 2007). Thus, a reliable study of player experiences in these games requires play over a significant period of time, and certainly for more than one experimental session. In a similar vein, Klimmt et al. (2010) suggested that game-character identification may emerge from significant playing time and Reijmersdal, Jansz, Peters, and Noort (2013) stated that this possibility should be further investigated. Based on data about players’ gameplay time, the average time of play per character in one week is 10.2 hours (Ducheneaut, Yee, Nickell, & Moore, 2006), and a regular player plays about 100-150 minutes per game session (Mahmassani, Chen, Huang, Williams & Contractor, 2010). With this in mind, this study’s procedure involved about 10 hours of gameplay for each subject, divided into four sessions of 2 to 2.5 hours per session over two weeks.

METHOD

Participants and Design

Volunteers were invited to participate in this study, which took place at a medium-sized university, using fliers that outlined the study and promised 50 US dollars to people who would be selected. Respondents were screened to ensure their availability for the duration of the study, and also to ensure they were not expert game players. Expertise was measured in prescreening with multiple-choice questions about gaming habits, number of MMOs they played, and how long they played those MMOs. Seventy-five people were selected after screening. After the study began, one participant experienced motion sickness, and eight had scheduling conflicts. Thus, sixty-six participants (32 males, 34 female) completed the study.

Based on the screening questionnaire, the majority of the participants were not expert MMO game players. None of the participants were current MMO players, none said they had played an MMO in the last year, and only three had played an MMO for more than a month. Participants’ familiarity with Lord of the Rings was also measured by asking about their experience in, watching related movies, playing card, board and video games, and reading Tolkien’s books. None of the players had played Lord of the Rings Online (LotRO) (Warner Bros., 2013). The participants’ average age was 25.63, which is very close to the average age of MMO players (M = 26.6) as reported in a previous, large scale study (Yee, 2006).

The study employed a between-subjects design with 33 participants in the customization group (CG; 17 females, 16 males) and 33 participants in the no customization group (NCG; 17 females, 16 males). Participants were assigned to one of the two groups by gender. In the CG, participants were given various choices in the game, such as the opportunity to choose their game character’s specialties, skills, gender, and appearance, as well as in-game rewards after they completed quests. In the NCG, the participants were assigned to well-constructed...
pre-designed avatars with efficient character skills and quest rewards were chosen for them that would maximize their character abilities. In the NCG, avatar gender and participant gender were matched (See Figure 1 for female avatar examples).

A preliminary analysis showed no significant differences between groups in their age ($t = 0.72$, $p = .477$), Lord of the Rings familiarity ($t = 0.94$, $p = .348$) or MMO experiences ($t = 1.32$, $p = .195$).

**MATERIALS AND APPARATUS**

**Stimulus**

Lord of the Rings Online (*LotRO*) was used for the study. *LotRO* is a fantasy type MMO based on the books by J.R.R. Tolkien. In searching for an appropriate stimulus, three factors were taken into consideration: 1) Availability of avatar-based customization (Turkay & Adinolf, 2010). For example, being able to customize the character appearance and character skills; 2) Usability and playability; and 3) The technical requirements of the game.

Three different game accounts were generated for the study. At the time of data collection, *LotRO* was housed on 19 different servers; each server appeared as different instances of the same world. Players can play in one of these *LotRO* worlds, and some servers are more populated than others. Each account allows five characters per server. Using multiple accounts made it possible for participants to play in populated servers. This maximized the possibility of social interaction within the game. Participants used gaming-optimized PCs for the study, and wore a headset while playing.

Identification and empathy were assessed with a 21-item 5-point Likert-type scale, developed and tested by Looy et al., 2010. Based on previous literature, three main dimensions were identified: Wishful Identification (6 items), e.g., If I could become like my character, I would; Perceived Similarity (6 items), e.g. My character is like me in many ways; Embodied Presence (5 items), e.g., I feel like I am inside my character when playing. Similar to Looy et al., (2010) study, this study also examined players’ empathy towards their characters with 4 items, e.g., I am upset when my character dies. Empathy items developed by Looy et
al. (2010) were based on Davis (1983) and Cohen’s (2001) conceptualization of empathy that involves emotional reactivity to others. Both authors agree upon empathy involving emotion. Cronbach’s α for the three dimensions of the identification scale per session were measured in the current study and found to be satisfactory (ranging from 0.842 to 0.954).

Engagement with avatar customization was assessed with a 5-point Likert scale survey, which was developed and tested by O’Brien & Toms (2010). Cronbach’s α for the adapted scale was 0.813. In addition, participants rated the importance of different avatar customization parts (e.g., hair style, weight, height) by using a 5-point Likert scale. As explained above, this study did not manipulate different types of customization. In order to investigate how the outcomes of two main avatar-based customization (appearance and skills) may correlate with different sub-parts of the identification scale, participants were asked to rate two 5-point Likert scale items (i.e., “How my character looks is important”, “what my character can do is important”) after the first and the last play session.

While survey questions asked about identification, empathy, and engagement directly, semi-structured interviews were conducted to allow participants to “tell” their gameplay experience without prompting them on the topic of identification. These interviews were conducted after the first and the last session with all participants. A subset of participants was interviewed after the second (n = 27) and third (n = 18) sessions as well. This resulted in a total of 12 people who were interviewed after every session. General, open-ended questions were asked (e.g., Tell me about your experience this session.) to determine the extent of player identification with their characters.

**Setting**

The gaming computer in a research lab used during this study was separated from the main area with screens and resided in its own cubicle to avoid distraction. The researcher had a table in an adjoining cubicle, where a second monitor, keyboard and mouse were placed. These were connected to and mirrored the participant’s computer, allowing the researcher to directly observe gameplay, and manipulate the NCG’s choices. Participants had no direct line of sight to the researcher during the session. The setting remained the same throughout the study.

**Procedure**

As noted earlier, potential participants were provided with an online survey after they showed interest in the study. This survey collected demographic data (e.g., gender, age, occupation) and gaming experiences. Participants who were invited to participate in the study were provided with an informed consent document upon first entering the laboratory for the experiment.

After each participant read and signed the informed consent document, they were placed in front of the gaming computer, and were briefed on the study’s procedure. They were told that they were going to finish the game tutorial in the first gameplay session, lasting about 1.5 to 2 hours. Then, the CG participants created their *LotRO* game characters. There was no time limit for character creation. Upon completing the character creation process, CG participants filled out a survey to measure their engagement with character customization. Using a 5-point Likert scale survey, participants also rated the importance and the degree of similarity of the customized avatar to themselves in 12 different elements of avatar customization (e.g., height, weight, hair color). The study procedure was the same for the NCG, except that they did not create their avatars and did not answer subsequent avatar customization related questions. NCG participant were assigned to well formed, but pre-generated characters.

Throughout the study, participants in the CG were allowed to make choices to customize their character skills and equipment, and they saw their choices reflected on their character by equipping of new gear. The researcher made choices for the NCG on avatar-based functional customizations through mirrored controls, as
described above. NCG participants would also not be able to see the changes reflected on their avatars when they equipped new gear. This was accomplished by a function called “Cosmetic Outfit” in LotRO.

Data Analysis

Independent samples \( t \)-tests were conducted to test differences between CG and NCG per session. RM-MANOVA were used to measure the possible change in players’ identification with, and their empathy toward, their characters over four sessions. Pearson correlations were conducted to test the direction and strength of a relationship between engagement with initial avatar customization and CG players’ identification with their characters after each session.

Semi-structured interviews were analyzed thematically. Also, a second set of analysis was conducted based on the participants’ use of first or third person pronouns in discussing the player characters in the games they played. This method was used previously in Hitchens et al. (2012)’s study of identification with characters. They asked participants to discuss various events and actions in the games they played and analyzed the interview transcript based on their pronoun use. For more explanation about the analysis see Hitchens et al. (2012).

RESULTS

Avatar Customization/Character Creation (Only CG)

The average time spent on character creation was 12:23.018 (twelve minutes 23 seconds and 18 milliseconds). On average, participants spent 06:43.574 on race and class selection and 05:39.442 on avatar appearance and name selection.

In general, participants had a positive attitude toward customizing their avatars, and reported a moderate level of engagement with customization process \( (M = 3.81, SD = 0.62) \), and felt in control of their customization experience \( (M = 4.00, SD = 1.03) \). For example, one of the players [P35] talked about her engagement with avatar customization as, “I had no expectation and interest at the beginning of the task. However, I saw getting drawn into… started to care a lot.”

Importance and Identification

The most important avatar customization aspect for participants was hairstyle \( (M = 4.39, SD = 1.03) \) followed by hair color \( (M = 3.85, SD = 1.15) \) and eye color \( (M = 3.70, SD = 1.47) \). When all the participants’ results were examined, avatars’ height \( (M = 2.60, SD = 1.55) \) was rated as the least important avatar customization element. On average, participants highly cared about how their character looked \( (M = 4.15, SD = 1.23) \). In fact, there was a statistically significant positive correlation between importance score and engagement with avatar customization \( (r = 0.491, p = .002) \).

Significant correlations were found between the importance score and Wishful Identification after each of the four sessions, between importance and Perceived Similarity after all but the first session, between importance and Embodied Presence after the last two sessions (See Table 1 for Pearson correlation coefficients). No significant relationship was found between players’ reported empathy and importance of avatar customization aspects.

In order to examine the possible impact of different types of customization on identification, another set of correlations was conducted between the three dimensions of identification and on items “How my character looks is important” (outcome of cosmetic customization) and “What my character can do is important” (outcome of functional customization). Results indicate that character appearance is more strongly related to identification than character abilities (See Table 2).

Engagement with Avatar Customization and Identification

Results show that there is no statistically significant correlation between engagement with avatar customization and subscales of
identification after the first session. However, engagement was significantly correlated with all of the subscales of identification after the fourth session (See Table 3).

These results imply a possible impact of time on player identification with their characters, which is examined below.

**Effect of Customization on Identification**

Independent samples t-tests revealed statistically significant differences between CG and NCG (See Table 4) for all three dimensions of the identification scale. After each session, participants statistically significantly differed in Perceived Similarity and Wishful Identification, in favor of CG. CG reported a significantly higher sense of Embodied Presence than NCG.

| Table 1. Pearson correlations between importance of avatar customization and subscales of identification |
|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|
|                                           | Session 1 | Session 2 | Session 3 | Session 4 |
| Perceived Similarity                       | 0.270     | 0.391*    | 0.452**   | 0.645***  |
| Embodied Presence                          | 0.128     | 0.158     | 0.426*    | 0.463**   |
| Wishful Identification                      | 0.484**   | 0.454**   | 0.441*    | 0.591***  |
| Empathy                                    | 0.070     | 0.094     | 0.157     | 0.230     |

\[ p < .05; **p < .01; ***p < .001 \]

| Table 2. Pearson correlations between outcomes of two main avatar-based customization (cosmetic and functional) and subscales of identification |
|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|
|                                           | Session 1 | Session 4 |
|                                           | Cosmetic | Functional | Cosmetic | Functional |
| Perceived Similarity                       | 0.359*   | 0.289      | 0.663*   | -0.007     |
| Embodied Presence                          | 0.311    | 0.262      | 0.358*   | 0.105      |
| Wishful Identification                      | 0.448**  | 0.241      | 0.569**  | 0.078      |
| Empathy                                    | 0.331    | 0.332      | 0.367*   | 0.031      |

\[ p < .05; **p < .01; ***p < .001 \]

| Table 3. Pearson correlations between engagement with avatar customization and subscales of identification |
|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|--------------------------------------------------|
|                                           | Session 1 | Session 2 | Session 3 | Session 4 |
| Perceived Similarity                       | 0.007     | 0.258     | 0.350*    | 0.509**   |
| Embodied Presence                          | -0.085    | 0.145     | 0.425*    | 0.536**   |
| Wishful Identification                      | 0.267     | 0.487**   | 0.480**   | 0.513**   |
| Empathy                                    | -0.009    | 0.112     | 0.330     | 0.417*    |

\[ *p < .05; **p < .01; ***p < .001 \]
after the second, third and the fourth gameplay sessions.

Assuming the normality of the data, RM-MANOVA was conducted to test for a possible difference between the CG participants and NCG participants in the amount of change in their ratings on the three factors of the Identification scale. Table 5 summarizes the results of the multivariate tests.

Since the Box’s M value of 176.23 is associated with a $p < .001$, Pillai’s Trace was used for the multivariate tests. Statistically significant multivariate effects were found for the main effects of Group, Pillai’s Trace $= .20$, $F (3, 61) = 4.96, p = .004$, $\eta^2_{\text{partial}} = .20$ and for Sessions, Pillai’s Trace $= .26$, $F (9, 55) = 2.13, p = .042$, $\eta^2_{\text{partial}} = .26$, but not for the interaction between Group and Sessions, Pillai’s Trace $= .123$, $F (9, 55) = 0.86, p = .569$. The examination of the means shows why the interactions may not be significant; the groups differed significantly on dependent variables at the end of the first session.

Tests of the Between-Subjects effects table indicate that there is a significant main effect of Group on Perceived Similarity, Wishful Identification, and Embodied Presence (See Table 6). Tests of Within-Subjects Contrasts showed a statistically significant linear relationship between sessions and Embodied Presence, $F (1, 63) = 10.81, p < .002, \eta^2_{\text{partial}} = .15$.

In order to estimate mean differences between sessions for each dependent variable, repeated tests were conducted. Results show

Table 4. Statistics for identification subsections for each session

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<th>Levene’s</th>
<th>Independent Samples (t-Test)</th>
<th>CG</th>
<th>NCG</th>
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<td>$t$</td>
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<tr>
<td>Perceived Similarity 4</td>
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<tr>
<td>Wishful Identification 1</td>
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<td>.114</td>
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<tr>
<td>Wishful Identification 2</td>
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<tr>
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<tr>
<td>Embodied Presence 1</td>
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<tr>
<td>Embodied Presence 2</td>
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<td>Embodied Presence 3</td>
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<td>Embodied Presence 4</td>
<td>0.19</td>
<td>.661</td>
<td>-4.07</td>
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Table 5. Multivariate tests

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<th>Effect</th>
<th>Pillai’s Trace</th>
<th>$F$</th>
<th>df</th>
<th>Error $df$</th>
<th>$p$</th>
<th>Partial $\eta^2$</th>
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<tbody>
<tr>
<td>Between</td>
<td>Intercept</td>
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<td>173.73</td>
<td>3</td>
<td>61</td>
<td>.000</td>
</tr>
<tr>
<td>Subject</td>
<td>Group</td>
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<td>4.96</td>
<td>3</td>
<td>61</td>
<td>.004</td>
</tr>
<tr>
<td>Within</td>
<td>Sessions</td>
<td>.258</td>
<td>2.13</td>
<td>9</td>
<td>55</td>
<td>.042</td>
</tr>
<tr>
<td>Subject</td>
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<td>9</td>
<td>55</td>
<td>.569</td>
</tr>
</tbody>
</table>
that there is a statistically significant difference between Sessions 2 and 3 for all of the dependent variables (See Table 7, 8 and 9). An examination of Figure 2, 3 and 4 also helps us to understand the change between sessions.

**Empathy**

A set of independent samples t-tests was conducted to investigate differences between CG and NCG for each game session on players’ Empathy ratings. Results show that CG players had more empathy towards their avatars than did NCG (See Table 10).

A mixed ANOVA was conducted to assess whether there were group differences and differences between the average ratings of the four sessions. The following assumptions were tested: (a) independence of observations, (b) normality, and (c) sphericity. Independence of

**Table 6. Tests of between subjects effects of group on identification**

<table>
<thead>
<tr>
<th>Source</th>
<th>Measure</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
<th>p</th>
<th>Partial η²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group</td>
<td>Perceived Similarity</td>
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<td>10.55</td>
<td>15.11</td>
<td>.000</td>
<td>.19</td>
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<tr>
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<td>Wishful Identification</td>
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<td>1</td>
<td>6.73</td>
<td>9.59</td>
<td>.003</td>
<td>.13</td>
</tr>
<tr>
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<td>1</td>
<td>6.40</td>
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<td>.11</td>
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<tr>
<td>Error</td>
<td>Perceived Similarity</td>
<td>43.96</td>
<td>63</td>
<td>0.70</td>
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<td></td>
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<tr>
<td></td>
<td>Wishful Identification</td>
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<td>63</td>
<td>0.70</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Embodied Presence</td>
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<td>63</td>
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</table>

**Table 7. Test of within-subjects contrasts for perceived similarity**

<table>
<thead>
<tr>
<th>Session 1 vs. Session 2</th>
<th>SS</th>
<th>F</th>
<th>p</th>
<th>Partial η²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session 2 vs. Session 3</td>
<td>1.19</td>
<td>5.84</td>
<td>.019</td>
<td>.09</td>
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<tr>
<td>Session 3 vs. Session 4</td>
<td>0.17</td>
<td>0.50</td>
<td>.482</td>
<td>.01</td>
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**Table 8. Test of within-subjects contrasts for wishful identification**

<table>
<thead>
<tr>
<th>Session 1 vs. Session 2</th>
<th>SS</th>
<th>F</th>
<th>p</th>
<th>Partial η²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session 2 vs. Session 3</td>
<td>1.23</td>
<td>5.79</td>
<td>.019</td>
<td>.08</td>
</tr>
<tr>
<td>Session 3 vs. Session 4</td>
<td>0.05</td>
<td>0.22</td>
<td>.644</td>
<td>.00</td>
</tr>
</tbody>
</table>

**Table 9. Test of within-subjects contrasts for embodied presence**

<table>
<thead>
<tr>
<th>Session 1 vs. Session 2</th>
<th>SS</th>
<th>F</th>
<th>βp</th>
<th>Partial η²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Session 2 vs. Session 3</td>
<td>3.49</td>
<td>8.44</td>
<td>.005</td>
<td>.12</td>
</tr>
<tr>
<td>Session 3 vs. Session 4</td>
<td>1.12</td>
<td>2.81</td>
<td>.099</td>
<td>.04</td>
</tr>
</tbody>
</table>
observations is met, but normality was not met for three sessions. The Shapiro-Wilk test showed that we reject the hypothesis that the data come from a normal distribution. The tests were conducted by assuming normality. Mauchly’s Test of Sphericity indicated that the assumptions of sphericity had been violated, \( X^2(5) = 31.23, p < .001 \). Thus, the Greenhouse-Geisser correction was used to correct degrees of freedom. Results indicated a statistically significant main effect of sessions, \( F(2.31, 147.95) = 11.42, p < .001, \eta^2_{\text{partial}} = .15 \), and of groups, \( F(1, 64) = 8.91, p = .004, \eta^2_{\text{partial}} = .12 \). However, the interaction between session and group was not statistically significant, \( F(2.31, 147.95) = 0.70, p = .512 \). A test of within-subjects contrasts showed a significant linear relationship between sessions and the participants rating of their empathy toward their characters, \( F(1, 64) = 19.93, p < .001, \eta^2_{\text{partial}} = .24 \) (See Figure 5).

In summary, quantitative analyses showed that both avatar-based customization and time impacted participants’ identification with and empathy towards their characters. For CG participants, importance of avatar customization was significantly correlated with identification with their characters. Most notably, there was a significant linear relationship between participants’ experienced Embodied Presence (how much players felt like they were the characters embodied in the game) and sessions. There was no interaction between groups and time meaning that, though CG started ahead, the change over time was similar for both groups in their identification with their characters. CG participants’ engagement with character creation in the first session had a stronger relationship with their identification with their characters as the sessions proceeded.

The quantitative results indicate that since the rate of increase is about the same for both groups, there must be other factors, independent of the treatment, that impact identification. Below are qualitative findings that aim to provide perspective on this possibility.

![Figure 2. Estimated marginal means of perceived similarity over four sessions](image-url)
Both groups talked about their characters in the interviews when they were asked to recount their experiences. A comparison over time showed that twice as many participants mentioned their characters during the last interview (n = 39) than during the first interview (n = 20). Over four interviews, 90% of the CG mentioned their characters, compared to 50% of NCG players. CG Participants used the pronoun “I” (or “my character”) more than NCG did while discussing their feelings about or events related to their game characters (72% vs. 35% of the time) (e.g. “I fought with a group of monsters”). NCG mostly used “s/he” or “the character” to refer to their avatars. However, both CG and NCG alternated between referring to their character in the first and third person while telling their experiences. This shift may indicate an ongoing process of forming a relationship with their characters.

Compared to NCG, CG’s conversation included more instances of perceived similarity with their characters. This similarity was not only about appearance, but also about characters’ behavioral characteristics. For example, [P08] said, “I think she is kind of like me… sometimes I get lost and I go off the wrong direction… sometimes … [play] too bold.” Another participant, [P59], was accepting all the quests in the game and when asked why she did that, she replied “… My character is kind of like me. She cannot say no.” This association was facilitated by character creation in the first session and built up over time, and the majority of responses about perceived similarity came from their interviews in the last two sessions. For example, [P7] reflected on her character in the last interview as “I chose this character… So whether he’s the kind of people I admire or the kind of people I think I am, there is some similar things that I have or I want to have… connected with me.” This quote also exemplifies
her choice of the character being a boundary between her ideal (other) and real self.

Wishful identification is about players’ desire to be like their LotRO characters and was also exemplified by several participants. The most common quotes in this category from CG participants were about how they wanted to be represented by aesthetically pleasing avatars. Some were more interested in their characters’ skills or functionality. For example, [P53]’s quote exemplifies how he chose his character based on what he wanted to do in the game:

…I chose my guy because I wanted to be right there in the middle of the fight... I didn’t want to be the person in the back healing people or doing long-distance shots I think that had positive effect... I can sustain a lot more damage. I enjoyed that part I felt like I was my character... Being able to just give in and swing the axe... so that was rewarding... (P53, Interview 4, CG, M)

Although not as common as in CG, some NCG players bonded with their avatars. For

Figure 4. Estimated marginal means of embodied presence over four sessions

Table 10. Means and standard deviations of the participants’ empathy scores

<table>
<thead>
<tr>
<th>Levene’s</th>
<th>Independent Samples t-Test</th>
<th>CG</th>
<th>NCG</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$F$</td>
<td>$p$</td>
<td>$t$</td>
</tr>
<tr>
<td>Empathy 1</td>
<td>0.44</td>
<td>.510</td>
<td>-2.36</td>
</tr>
<tr>
<td>Empathy 2</td>
<td>0.54</td>
<td>.467</td>
<td>-2.21</td>
</tr>
<tr>
<td>Empathy 3</td>
<td>1.03</td>
<td>.315</td>
<td>-2.78</td>
</tr>
<tr>
<td>Empathy 4</td>
<td>1.24</td>
<td>.269</td>
<td>-3.17</td>
</tr>
</tbody>
</table>
example, [P18] felt quite immersed in the game, creating a strong connection with her alter ego, Aydal, over each session. In the last session, the game became more challenging and her character got killed. This experience made a big impact on her; she became very anxious and her hands shook. This connection to her avatar seemed to be extreme.

Below [P18] explains how her character’s increased competence might have contributed to such connection:

_Hmmm... I don’t know I feel like it is the small stuff... like when you trying to... you are growing in the beginning levels and when you get better when you reach another level you can do more things and you start to feel more than what you are and be happy for yourself... that kind of stuff contribute to how I built the connection... it is all the small stuff made me like the character more... (P18, Interview 4, NCG, F)_

Achievements and experiences in the game help players “feel good” or “be proud” of themselves. For example, [P40] talked about how she liked non-player characters’ compliments on her achievements “…I like that when they complemented my character... but I’m pretty sure it is standardized… it’s like oh you did well very good fighter.”

Social context was also an important factor for players’ identification with their characters. Examples of two different perspectives are from [P59] and [P70]. In the third session, [P59] formed a fellowship (a group) with other players, which is a common practice in MMOs. She stated that “…I actually think that I am the character. But, before, I was not so connected with my character. Yeah, doing the quest together [with other players] I was very self-conscious...” Quite different from this experience was [P70]’s stance when she was asked and declined to join a fellowship consisting of higher level of players. She said “…if they think that my character is a novice
then I’m also a novice player. I don’t want to be seen that way by others. I don’t want to reveal my identity [that I am a novice player]. I just pretend that I’m such a good player who is really skillful so they all want to be friends with me...” Although she may identify with her character, she wants to make a good impression in the game.

Participants talked about both functional and cosmetic character customization. Character creation and avatar customization at the beginning of the first session was mentioned mostly as cosmetic customization. Some participants talked about both. Here is a representative quote from [P64] highlighting the process of character customization, “It was fun to create my own character to put multiple characteristics on it and it was also fun, as the game goes along, to keep customizing it by adding more weapons and all like changing colors and all.”

Participants in NCG reported less attachment and less empathy toward their characters. For example, [P3] talked about how she got used to her character dying in a battle “The character died once today… I think I’m getting used to watching my character dying, because I know she’s going to come back.” Similarly, [P9] talked about how, as time passed, she cared less about the character but more about the story that the character was embedded in.

A similar comment came from [P23] emphasizing his apathy:

*It [survey] was asking whether I would feel sorry when the character dies. No. I know that it’s a game character...It is enjoyable to play that character as it is but there is no relationship between me and the character. I could not find anything in him to identify with myself.* (P23, Interview 4, NCG, M)

When it comes to embodied presence, participants talked about a few different experiences that made them feel like their character was an extension of themselves. One of these experiences related to the game’s first person view. Third person view allows players see the back of their avatar on the screen and have the avatar present on the screen at all times. The first person view allows players to see the game world from their avatar’s eyes without seeing the avatar on the screen. Participants who tried first person view when playing reported an elevated feeling of embodied presence. The game’s 3D graphics and detailed real world modeling, incorporating animations and environmental details, facilitated such feelings as well.

For example, [P70] talks about her enjoyment related to detailed graphics and how this impacts her feeling of embodiment:

*I like the realistic characters and it is very detailed. I did not even imagine that I could laugh in the game. The gestures are so specific and detailed ... makes me feel I get immersed in the character.* (P70, Interview 4, CG, F)

In summary, a majority of the participants formed some form of a relationship with their characters, though this occurred more in the CG than NCG. For some participants, the characters were a representation of themselves; for others, the characters were nothing but mere toys or vehicles. In all cases, this relation and identification with characters was dynamic and changed over time. Sometimes, players’ sense of wishful identification with the character got quite strong, like in the case of [P18]. In addition to character creation and avatar customization, socialization, sense of accomplishment and the realistic game world increased participants’ identification with their characters. Perceived similarity was attributed to both physical appearance of the characters and characters’ player assigned personality. Embodied presence was facilitated by the game design and graphics as well as the game’s narrative.

**DISCUSSION**

Results showed that CG players identified with their characters significantly more than NCG did. The psychological aspect of making choices
might explain this result: because players chose their avatars’ aspects they felt more associated with the character by “taking ownership” of it. Another explanation might be related to the distance between real self and ideal self. Customization might have allowed players to create characters closer to their ideal self, which might have increased their identification with their characters. Within the CG, players spent considerable time customizing their character in the first session and their reported engagement was strongly related to their identification in the last session. This result implies that as players spent more time in the game with their customized avatars, their identification increases.

Correlational analysis between identification and two main outcomes of avatar-based customization (i.e., cosmetic and functional) indicates that cosmetic avatar customization was more strongly related to identification than functional customization for the players in this study. Considering players’ low expertise with MMOs, this result is expected. It may take more time for players to understand the goals of the character as result of their choices and identify with them, than to identify with the characters through aesthetic manipulations.

Although NCG players, who were given a character, did not identify with those characters as much as CG players did, some of the NCG players showed identification with the characters they were given. According to previous studies, a match in gender and ethnicity influences identification (e.g., Lim, 2006). This may help us understand NCG players’ identification with their characters. As mentioned previously, NCG players were assigned human avatars whose gender, hair color, skin color, and eye color matched with the players’. However, the impact of character creation/avatar customization was significantly more than mere gender match and appearance resemblance.

CG players felt their characters were more similar to themselves and wished to be like their characters more than their counterparts did. Players’ Perceived Similarity (gauging how much players perceived themselves and their characters as having common characteristics, e.g. physical appearance, social status), and Wishful Identification with their avatars as Within Subject variables did not significantly change over time. However, treatment had a moderate to large main effect on the differences in these variables.

Qualitative findings showed that many of the CG players chose their characters so that they possessed some aspect of themselves, such as a skill (e.g., playing an instrument) or physical characteristic (e.g., hair, eyes, built). Such matching along with the psychological aspect of the act of choosing might have increased CG players’ identification with their characters by creating a channel to relate with their characters. Trepte and Reinecke’s (2010) study supports this finding of the strong relationship between player-avatar similarity and identification. Character creation allowed players to create their own goals for the game. In turn, they started the game with a goal to accomplish for their characters. This initial goal setting is motivating for people as they engage in goal related tasks (Latham & Locke, 1979).

Throughout the study, CG reported significantly higher Embodied Presence than NCG did. Players’ Embodied Presence changed significantly over time. Treatment and sessions did not interact. This means that CG still felt more “present” in the game than NCG, but the rate of change in Embodied Presence was about the same for both groups. The significant change in Embodied Presence of CG players might be a result of increased player agency and social interaction through avatars (Taylor, 2002) as they progressed in the game. As players built a closer relationship with their avatars through continuous customization, their sense of being embodied by the avatars might have increased. Another reason for the increase might be that as players got more familiar with the game and with their characters, it became easier to immerse themselves in the game through their characters, and feel increased presence.

Players’ identification with and empathy toward their characters increased over the four sessions as they built a profile for their avatars. This was evidenced both by qualitative
and quantitative results. Although the rate of change was not significantly different for CG and NCG, customization corresponded to the initial variance among the players’ identification and empathy. These differences between CG and NCG were maintained over four sessions.

Player motivation or retention depends on their emotional connection with the game and how meaningful that connection is to the players. For CG players, having opportunities to acquire unique, visually appealing items to customize their experiences might have facilitated this emotional connection (Koehne, Bietz, & Redmiles, 2013). The fact that NCG players could not see their choices being reflected on their characters might have inhibited the construction of a relationship between the player and the character. For NCG, increased responsibility (e.g., goals given to them) through the game narrative (Schneider et al., 2004) and interaction with their avatars might have resulted in increased identification and empathy toward their characters.

Klimmit et al. (2009) propose that identification is never an absolute process in which the players’ entire identity is replaced by the identity of the character, but rather a partial alteration in self-perception. This partial alteration may allow players to both experience empathy towards their characters (the character as the other) and experience a merge with their character (the character as the self). In a way, there is an emotional task switching during the gameplay.

Empathy can also be a product of identification. One of the primary effects of identification is empathy towards the subject of identification (Nathanson, 2003; Looy et al., 2010). Perhaps, players feel empathy towards their characters after their identification process, or after the gameplay is over. The lack of differences in the results between empathy and identification can also be a consequence of the limitation of current measures used to investigate player identification and empathy. This study asked participants to report their identification and empathy after their gameplay was over. When players are not actively involved in the game by controlling their characters, these characters may become “the other” for them. Future studies should investigate ways to capture objective and subjective data during gameplay as well as via surveys after the gameplay is completed.

Self Determination Theory (SDT, Deci & Ryan, 1985) posits that autonomy, competence and relatedness are necessary for people’s well-being, and was used previously to explain motivational aspects of MMOs (Przybylski, Rigby & Ryan, 2010). As a meta-motivation theory, SDT can also be used as a lens to understand findings of the current study. Autonomy satisfaction, mostly utilized as the feeling of having control over an activity, is crucial in encouraging people to come back to do the same activity. The choice-making involved in customization may give people a sense of autonomy. In support of such an implication, Teng (2010) showed that customization increases gamer loyalty.

In MMOs, players are introduced to more choices in the form of customization as they level up and gain expertise, but the most concentrated and impactful choice-making happens during character creation. In line with this, results showed that participants spent considerable amount of time making decisions about their avatar appearance and character skills. The positive relationship between CG participants’ engagement with character creation in the first session, and their increased identification with their characters as the sessions proceeded, implies the character creation process has long-term effects on players’ experience, such as identification. It is safe to put forward that CG participants’ higher identification with their characters, compared to NCG participants, is due to the sense of agency and autonomy they felt as result of making various choices while customizing their characters in the first session. The improved sense of agency facilitated identification and empathy.

The across the board increase in players’ identification with their characters over time may be due to an increased sense of competence as they accomplish goals in the game. For example, [P18], who was proud of her character’s accomplishments, identified with...
her character closely—this temporarily reduced her self-discrepancy (Higgins, 1987) and getting defeated shook her relationship with her character. Previous work with young adults found that strong characters were attractive, implying the importance of feeling successful, for wishful identification (Janz, 2005). Players’ need for relatedness might have encouraged them to create similar characters to themselves, thus fostering players’ perceived similarity. Another form of relatedness is relating to other player characters in the game. Playing with others and having common missions might have fostered players embodied presence, thus increasing overall identification with their characters.

Results also showed significant differences between Sessions 2 and 3 for the subscales of identification, whereas there was no difference between first two sessions and the last two sessions. The reason for this might be that during the first two sessions participants were still learning the game and the controls. Hamilton (2009) suggests that through the interaction with and via the avatar (through embodied interaction), players become coupled to the avatar. In such coupling, mastering the game controls is crucial, and it was after the second session that players got comfortable with game controls. In their SDT-based motivational model of video games, Przybylski, Rigby and Ryan (2010) emphasized the importance of mastery of game controls for player engagement and motivation. The findings of this study support this assertion. Mastery of controls might be the gateway to player’s identification with their characters.

Implications for Educational Games

While not tested in an educational game, the results of this study imply that allowing learners to customize their avatars in educational virtual environments may have beneficial effects in the areas of motivation and other areas that correlate with learning.

This study shows that avatar-based customization may increase students’ motivation. In educational settings, viewing identity as dynamic rather than static facilitates students’ growth mindset (Kolb & Kolb, 2009). Virtual worlds give users imagined worlds and tools to test various identities through active processes of design. An avatar is the main tool users have for identity exploration. Strengthening the relationship between the player and the avatar can facilitate identification through which students can form their identities (Weinreich & Saunders 2003). This study showed that avatar-based customization facilitates players’ identification with their characters by increasing their sense of autonomy and agency. Such processes can build students’ self-efficacy, resulting in higher achievement motivation (Ames, 1992). Considering that focused decision making during character creation in the beginning resulted in CG players’ higher identification with their characters, educational game designers should consider giving players periodic chances to re-customize their characters’ appearance and skills in addition to main avatar customization at the beginning of game-play. This may allow students to re-consider their characters’ goals, as well as increase their sense of agency.

Second, avatar-based customization may catalyze students’ learning. Mantovani and Castelnuovo (2003) state that identification might be an important factor in learning in virtual environments, increasing emotional impact and relevance, and Ganesh et al. (2011) showed that players remember avatar-related events more than non-avatar related events. The results of the current study suggest that when players customize their characters they will identify with their characters further and focus more on events related to their characters. When they don’t customize, they focus on the game’s narrative. We suggest that when teachers make decisions among different types of educational games to use in their classrooms, they should take into account both content and customization. If students learn best from the narrative, perhaps a game with less or no customization will help. If students learn best from the game system, or social interaction, customization may lend a helping hand. For instance, students may customize the appearance of their historical
protagonist in a history themed video game. This should help them to recall more of the actions and the speeches of the historical character in the videogame via the mechanism of player identification (Cohen, 2001).

Analysis of pronoun use (“I” v.s. “she/he” or “my character”) showed that CG participants used “I” more often to refer their characters when they were telling their game experiences. This perspective taking should increase students’ recall. For instance, in a study of first person vs. third person perspective taking, Lozano, Hard, and Tversky (2007), showed participants a video clip of a person assembling a piece of furniture and told them to verbally describe the process in either the first-person perspective or third-person perspective. Later, participants who described the process in the first-person perspective made significantly fewer errors. We may expect similar effects in video games where students take characters’ perspective rather than see their character as a separate entity.

Last, avatar-based customization may increase behavioral outcomes of serious games. For instance, if we aim to encourage students to exercise more or eat healthy through interactions within a game or virtual world, we should allow them to choose and customize their characters. Fox and Bailenson (2009) found that participants exercised more when they used a virtual representation of self rather than a virtual representation of other. We may expect that increased identification via customization would reinforce the effect of avatars on driving behavioral outcomes via gameplay. However, future research should investigate more clearly the impact of avatar-based customization on student learning, motivation and behavior, and examine whether customization increases player identification in various types of games (e.g., non-role playing games, games without narrative, educational games vs. commercial games).

LIMITATIONS

This study has multiple limitations. Its results may not be fully applicable to other types of virtual environments due to their structural differences, for example in their narrative and avatar customization processes. While MMOs are narrative driven gaming worlds, social virtual worlds such as Second Life usually do not have a built-in narrative. Narrative is known to impact player identification, (Schneider, Lang, Shin, & Bradley, 2004), and future research should address the possible mediating role of narrative on the impact of customization on players’ identification with avatars. They should ascertain under which conditions users identify more with their avatars in social virtual worlds. In a similar vein, implications for educational virtual environments should be viewed cautiously because LotRO is not an educational MMO and, while we believe educational-game implications can be (cautiously) made, this study did not test for learning.

Not all virtual worlds provide their users with similar types of customization options; some provide detailed customization (e.g., City of Heroes) others don’t. Studies have shown that customization tools available to users when designing avatars (Turkay, 2012) and the type of virtual environment may affect players’ online identity in absolute means (Koehne et al., 2013). For example, in Vasalou and Joinson (2009)’s study, participants were asked to create 2D avatars to represent themselves in an online forum (Yahoo! Answers). In that virtual environment, users may create avatars similar to their real-selves because they may want to be recognized as an answer giver. Realistic avatar appearance is also not possible in many fantasy MMOs since the avatars are not always humans, although most are humanoids. LotRO allows players to create humanoid characters, but the choices are still limited for each customized part.

This study did not manipulate different types of customization (see Turkay & Adinolf, 2010). When players create their characters, they don’t only make choices about their avatar’s
appearance, but also about their characters’ abilities (i.e., what they will do in the game). It is possible that these different type of customizations result in different behavioral, psychological and motivational outcomes. Future studies should differentiate the impact of different types of customization on players’ identification with and empathy toward their characters.

This study was conducted with novice MMO players. The results may not be fully applicable to players of varying expertise. It is reasonable to think that experts may bring dramatically different expectations to their gameplay, their customization practices, and how these may impact their relationships with their avatars.

Related to expertise, a longer study may find different results. Although this study involved significant amounts of gameplay, it is likely that as players gain more expertise, the impact of certain type of customization may become more salient and others may become weaker for increasing player identification with and empathy toward their characters.

CONCLUSION

In conclusion, identification was a strong contributor to players’ positive or negative game experiences. Avatar-based customization played an important role in players’ identification with their characters by increasing their sense of autonomy. Future studies are needed to differentiate the effects of customizing character skills from customization of avatar appearance as these relate to identification, as well as to examine how differences in given customization choices constrain or enhance identification and identity exploration possibilities in multiple virtual environments.

REFERENCES


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