The Effects of Avatar-based Customization on Player Identification in Extended MMO Gameplay

Selen Turkay, Harvard Initiative for Learning and Teaching, Harvard University

Introduction

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 of MMOs' affordances to allow players to temporarily become a game character and adopt the salient characteristics of that character (Looy, Courtois, Vocht, 2010). As the background below will outline in detail, players' identification with their avatars/characters impacts their gameplay experiences (e.g., enjoyment in Klimmt, Hefner, &Vorderer, 2009). Determining aspects of games that improve players' identification with their characters would be of interest to game designers as well as educators who choose games for their students. One potential game aspect that may influence how players identify with their characters/avatars is avatar-based customization.

Avatar customization is an understudied factor when it comes to identification. It allows making each character different in MMOs by providing different combinations of attributes, adornments/physical properties, skills, and traits (Dickey, 2007). This experience may help the player identify with the character, increasing the likelihood of affecting his/her self-identity. Avatars and characters mean different: Avatars are the embodiment of the user in virtual environments whereas characters are fictional identities within the narrative setting of a game. In this paper, "avatar" and "character" will be used interchangeably because this research study was not set up to differentiate avatar customization from character customization.

This paper expands the literature on digital identities constructed within virtual worlds, specifically MMOs, by examining novice players' identification with their characters over multiple gameplay sessions varying avatar-based customization. Therefore, the following research question is asked: How does avatar-based customization interact with the number of gameplay sessions to predict players' identification with their avatars?

Background

Looy et. al., (2010) call for more attention to the concept of identification in game studies. Playing computer games is engaging, partly because players can enter imagined worlds and perceive themselves in alternate ways. Consequently, studying player identification with avatars in a virtual environment is potentially crucial for understanding 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 argue that identification allows for experimentation with one's identity by temporarily mentally becoming a famous hero, sportsman or supermodel, adopting aspects of the identity of the target videogame character (Klimmt et al., 2009). However, player identification with characters is complicated because of the multiplicity of roles (e.g., subject, audience, director, user) a player takes during gameplay (Flanagan, 1999). When a player exerts agency over the avatar to interact with objects, events and participants, this is mediated both by the player character's abilities and player's abilities, and those have consequences to the avatar within the game world (Murphy, 2004). In MMOs, players also make their characters perform various social actions through emotes. An avatar's representation of the player emotions and intentions has a great impact on identification with the avatar (Hamilton, 2009) and a perceptual integration with the avatar -- player's awareness of her presence both in their body and in the screen (Dove, 2002).

Previous studies determined player behaviors, attributes of avatars and virtual worlds that facilitate identification. Among these features are avatar attractiveness (Kim, Lee, & Kang, 2012), character abilities (Newman, 2002), avatar choice (Lim, 2006), and physical resemblance of characters to their users (Maccoby & Wilson, 1957). Players' perceived similarity to characters is also called mirror hypothesis (Chandler & Griffith, 2004). The mirror hypothesis refers to the fact 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 & Buchanan, 2005). Wishful identification provides a glimpse of "what if," and these glimpses are powerful predictors of future behavior (Cohen, 2001).

Players' direct control over their characters can imbue them with sense of agency and may increase their positive affect in the game (Hefner, Klimmit, & Vorderer, 2007). Ganesh et al.'s (2012) neuroimaging study revealed that

avatar related self-identification is related to the experience of agency and control over the observed body. This find implies a relationship between player control over the avatar and self-identification with the avatars.

Despite these implications, there is a lack of empirical research that studies the extent to which control over the avatar strengthens the relationship between the avatar and the player (Shaw, 2011). The majority of the literature written on such a relationship has been through either theoretical approach (e.g., Murphy, 2004) or surveys/ interviews that specifically address the questions around identification (e.g., Looy et al., 2010). This study aims to contribute to the literature by examining the effect of user control, specifically avatar-based customization, on player identification with avatars.

Customization

Self-representation is intentional within the given choice structure of a virtual world. The visual characteristics of an avatar, the name, as well as character abilities provide users with an expression of identity and an opportunity for extended identity formation (Turkle, 1995). Many games allow avatar customization to some extent on these aspects. Developments in graphics technologies allow players to create their game characters and design physical attributes within the constraints of a given game. In their study of aggression, Fischer, Kastenmuller and Greitemeyer (2010) found evidence that avatar customization may amplify the psychological effects of video games through increased identification with one's character, and, in turn, identification with a game character may increase game enjoyment (Klimmt et al., 2009). A survey study found that World of Warcraft players who strongly identify with their characters have a stronger interest in customizing the appearance of their character (Looy et al, 2010). In addition, character creation was reported to increase players' attachment to their characters (e.g., Shaw, 2011).

Duration of the Study

Previous empirical studies (e.g., Hitchens, Drachen, & Richards, 2012) relied on a short time (between 8 and 45 minutes) to draw conclusions regarding players' identification with their characters. However, MMOs are long-term games, and gameplay experience may change over time (Schultheiss, 2007). Identity and players' sense of self, and what is salient to players, can change as they spend time in a game (Turkle, 1995). Thus, a reliable study of player experiences in MMOs should take place over a significant time period. Based on data on players' average gameplay time per character per week, this study's procedure involved about 10 hours of gameplay, which was divided into four sessions of 2.5 hours per session over two weeks (see Ducheneaut, Yee, Nickell, & Moore, 2006).

Method

Participants and Design

Sixty-six participants (32 males, 34 female) completed the study. Participants were not expert MMO players, were not current MMO players, and had not played Lord of the Rings Online (*LotRO*) (Warner Bros., 2014). The average age of participants was 25.63. The experiment employed a between-subjects design with 33 participants in customization group (CG; 17 females, 16 males) and 33 participants in no customization group (NCG; 17 females, 16 males). Participants were assigned to one of the two groups by gender. A preliminary analysis showed no significant differences between groups in their age (t = 0.72, *n.s.*), or MMO experiences (t = 1.32, *n.s.*).

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 complete 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.

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 all three types of customization (Turkay & Adinolf, 2010). For example, avatar appearance, skills, and the game interface customizations; 2) Usability and playability; and 3) The match between the lab computers and technical requirements of the game.

Identification was assessed with a 22-item 5-point Likert-type scale, which was developed and tested by Looy et al. (2010). This scale includes 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), and Embodied Presence (5 items) (e.g., I feel like I am inside my character when playing). Cronbach's α for identification scale items per session were measured in the current study and found to be satisfactory (0.842 to 0.954).

Beside survey questions, semi-structured interviews were conducted after each session to allow participants to "tell" their gameplay experience without prompting them on the topic of identification. A general language was used to ask open-ended questions (e.g., Tell me about your experience this session) and determine the extent of player identification with their characters.

Procedure and the Setting

Potential participants were provided with an online survey after they showed interest in participating 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 a gaming computer. They were briefed on the study's procedure, and were told that they were going to finish the game tutorial in the first gameplay session, which lasts about 1.5 to 2 hours. Then, the CG participants created their *LotRO* game characters. There was no time limit for character creation. The procedure was the same for the NCG, except that they did not create their avatars but were assigned to pre-generated avatars.

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

Participant's computer was separated from the main area with screens 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 NCG's choices. Participants had no direct line of sight to the researcher.

Data Analysis

Independent samples *t*-tests were conducted to test differences between CG and NCG per session. RM-MANOVAs were used to measure the possible change in players' identification with their characters over four sessions. Semi-structured interviews were analyzed thematically. A second set of analysis was conducted on participants' use of first, second or third person pronouns when discussing their characters. This method was used previously by Hitchens et al. (2012)'s study of identification. They asked participants to discuss various events and actions in the games they played and analyzed the interview transcript based on their pronoun use. SPSS 19 was used for the analysis of quantitative data and Nvivo 9 is used to analyze qualitative data.

Results

Effect of Customization on Identification

Independent samples *t*-tests revealed statistically significant differences between CG and NCG (see Table 1) for all three subparts 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 after the second onwards. Assuming the normality of the data, RM MANOVA was conducted to assess the difference between CG and NCG in the amount of change in their ratings on the three factors of the Identification scale.

	Levene's		Independent Samples t-test			CG		NCG	
	F	*p*	*t*	*p*	η^2	*M*	*SD*	*M*	*SD*
Perceived Similarity 1	3.52	0.065	-3.20	.002	0.14	2.56	1.08	1.81	0.83
Perceived Similarity 2	1.46	0.231	-3.54	.001	0.17	2.53	0.98	1.76	0.77
Perceived Similarity 3	3.68	0.060	-3.39	.001	0.15	2.65	0.98	1.92	0.76
Perceived Similarity 4	10.39	0.002	-4.07	.000	0.21	2.79	1.09	1.85	0.75
Wishful Identification 1	2.57	0.114	-2.15	.035	0.07	2.34	0.93	1.89	0.79
Wishful Identification 2	1.92	0.170	-3.23	.002	0.14	2.37	0.91	1.71	0.73
Wishful Identification 3	2.65	0.109	-3.03	.004	0.13	2.52	0.98	1.85	0.81
Wishful Identification 4	2.76	0.101	-3.21	.002	0.14	2.61	1.14	1.80	0.90
Embodied Presence 1	0.02	0.892	-1.94	.056	0.06	2.51	1.06	2.02	0.98
Embodied Presence 2	0.19	0.663	-2.05	.044	0.06	2.53	1.02	2.04	0.92
Embodied Presence 3	3.01	0.088	-2.60	.011	0.10	2.84	1.07	2.21	0.89
Embodied Presence 4	0.19	0.661	-4.07	.000	0.16	3.08	1.11	2.19	1.00

Table 1. Statistics for Identification Subsections for Each Session

Since the *Box's M* value of 176.23 is associated with a $p < .001$, *Pillais' Trace* was used for the multivariate tests. A statistically significant MANOVA effect was obtained for Group, *Pillais' Trace* = 0.20, $F(3, 61) = 4.96$, $p < .01$, $\eta^2_{partial} = .20$. The multivariate effect size was estimated at 0.20, which implies that 20% of the variance in the canonically-derived dependent variable was accounted for by customization. A statistically significant MANOVA effect was also obtained for Sessions, *Pillais' Trace* = 0.26, $F(9, 55) = 2.13$, $p = .042$, $\eta^2_{partial} = .26$, but not for the interaction between Group and Sessions. *Pillais' Trace* = .123, $F(9, 55) = 0.86$, *n.s*.

Qualitative Findings on Identification

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 character in the last interview ($n = 39$) than the first interview ($n = 20$). Over four interviews, 90% of the CG mentioned their characters, compared to 50% of NCG players. CG participants also used the pronoun "I" (or "my character") more than NCG did while discussing their feelings about or events related to their characters (72% vs. 35% of the time) (e.g. "I fought with a group of monsters"). NCG participants 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. This shifting maybe caused because they were still in the process of forming a relationship with their characters.

Compared to NCG, CG's conversations included more instances of perceived similarity with their characters, both about appearance and about behavioral characteristics. For example, [P59], was accepting all the quests in the game and when I 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 majority of the quotes on perceived similarity came from their stories 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…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 from CG in this category 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 from the last interview exemplifies why he chose his character:

…I chose my guy because I wanted to be right there in the middle of the fight… 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, CG, M)

Participants talked about both functional and cosmetic character customization. Initial character creation and avatar customization were mentioned mostly as cosmetic customization. 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. It was also fun, as the game goes along, to keep customizing it by adding more weapons and I liked

changing colors and all."

In summary, a majority of the participants formed some form of a relationship between their characters, though this occurred more often for CG than NCG. For some participants, characters were a representation of themselves; for others, they were nothing but mere toys or vehicles. In all cases, the type of relation and identification with characters was dynamic and changed over time. In addition to character creation and avatar customization, socialization and 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 avatar aspects they felt more associated with the character by "taking ownership" of it. Another explanation might relate to the distance between real self and ideal self. Customization may allow players to create characters closer to their ideal self, which may increase identification with their characters.

CG players felt that their characters were similar to themselves and wished to be like their characters more than their counterparts did. Players' Perceived Similarity 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 CG players chose their characters to represent some aspect of themselves, such as a skill (e.g., playing an instrument) or physical characteristic (e.g., hair, eyes, built). This match and the psychological aspect of the act of choosing might have increased CG players' identification with their characters by creating a channel to relate to their characters. 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 (a goal that they determined to a certain aspect). This goal setting is motivating for people and goal achievement may decrease the gap between real and ideal self (Latham & Locke, 1979).

Players' identification with 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 explained the initial variance among the players' identification. These differences between CG and NCG were maintained over four sessions. Player motivation or retention depends on their emotional connection with the game and extent how meaningful that connection is to them. 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 via quests in the game narrative (Schneider et al., 2004) and interaction with their avatars might have resulted in increased identification with and empathy toward their characters.

Self Determination Theory (SDT, Deci & Ryan, 1985) posits that autonomy, competence and relatedness are necessary for people's well-being. It 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 implies its power to give people sense of autonomy. In MMOs, players are introduced to more choices in the form of customization as they level up, but the most concentrated choice-making happens during the character creation. Results showed that participants spent considerable amount of time making decisions on 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 have 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.

In educational settings, viewing identity as dynamic rather than static facilitate students' growth mindset (Kolb & Kolb, 2009). Virtual worlds give users imagined worlds and tools to test various identities through active process of design. Avatar is the main tool users have for the identity exploration. Strengthening the relationship between the player and the avatar can facilitate identification through which people can form their identities (Weinreich & Saunderson 2003). This study showed that avatar-based customization facilitates players' identification with their characters by increasing their sense of autonomy and agency. Considering focused decision making during character creation in the beginning resulted in CG players' higher identification with their characters, educational game

designers should consider giving chances to players periodically to re-customize their characters' appearance and skills in addition to main avatar customization in the beginning. This may allow them to re-consider their goals with their characters as well as exert agency.

This study has many limitations. Results of the current study may not be fully applicable to other types of virtual environments. Different 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 (e.g., Yahoo! Answers). In that virtual environment, users may want to be identified more closely in terms of look to their real-selves due to the possible authority of being an answer giver. Realistic avatar appearance is also not possible to assign in many fantasy MMOs since the avatars are not always humans although mostly are humanoids.

It is also reasonable to think that experts may bring dramatically different expectation to their gameplay, customization practices and how customization may impact their relationships with their avatars. Therefore, players' identification with their characters may be strengthen by all other set of characteristics, such as socialization. Therefore, the results may also not be fully applicable to all player populations with different expertise.

LotRO is not designed as an educational game. The results of this study may differ in an educational game. The goals described of the game and player expectations of educational games are different than those in entertainment games. Students may create/treat their avatars differently if the game was educational. Future studies are needed to establish the impact of avatar-based customization for player identification in educational games, and how these relate to student learning.

In summary, identification was a strong emotion that contributed 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 avatar appearance on identification as well as to identify how differences in given customization choices constrain identification and identity exploration possibilities in virtual environments.

References

Chandler, D., & Griffiths, M. (2004) Who is the fairest of them all? Gendered readings of Big Brother 2 (UK). In E. Mathijs & J. Jones (Eds.), *Big Brother International: Format, Critics and Publics* (pp. 40–61). London, UK: Wallflower Press.

Cohen, J. (2001). Defining identification: A theoretical look at the identification of audiences with media characters. *Mass Communication & Society, 4*(3), 245-264.

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior,* New York, NY: Plenum Press.

Dickey, M. D. (2007). Game design and learning: A conjectual analysis of how massively mutliple online role-playing games (MMORPGs) foster intrinsic motivation. *Educational Tech Research Development*, *55*, 253-273.

Dove, T. (2002). The Space between: Telepresence, re-animation and the re-casting of the invisible. In: M. Reiser & A. Zapp, (Eds.), New screen media: cinema/art/narrative. London: BFI.

Ducheneaut, N., Yee, N., Nickell, E., & Moore, R. J. (2006)."Alone together?": Exploring the social dynamics of massively multiplayer online games. Proceedings of *the SIGCHI Conference on Human Factors in Computing CHI '06* (pp. 407-416). ACM, New York, NY.

Fischer, P., Kastenmüller, A., & Greitemeyer, T. (2010). Media violence and the self: The impact of personalized gaming characters in aggressive video games in aggressive behavior. *Journal of Experimental Social Psychology*, 46, 192 – 195.

Flanagan, M. (1999). Mobile identities, digital stars, and post-cinematic selves. *Wide Angle. 21*(1). 77–93.

Ganesh, S., van Schie, H.T., de Lange, F.P., Thompson, E., Wigboldus, D.H. (2011). How the human brain goes virtual: distinct cortical regions of the person-processing network are involved in self-identification with virtual agents. *Cereb Cortex. 22*(7), 1577-1585.

Hamilton, J.G. (2009). Identifying with an Avatar: A multidisciplinary perspective. *Proceedings of Cumulus Conference'09*. Melbourne, Australia.

Hitchens, M., Drachen, A., & Richards, D. (2012). *An investigation of player to player character identification via personal pronouns.* Proceedings of The 8th Australasian Conference on Interactive Entertainment: Playing the System. Auckland, NZ, New Zealand.

Hoffner, C., & Buchanan, M. (2005). Young adults' wishful identification with television characters: The role of perceived similarity and character attributes. *Media Psychology*, *7*(4), 325-351.

Kim, C., Lee, S., & Kang, M. (2012). I became and attractive person in the virtual world: Users' identification with virtual communities and avatars. *Computers in Human Behavior. 28*(1), 1663-1669.

Klimmt, C., Hefner, D. e., & Vorderer, P. (2009). The video game experience as "true" identification: A theory of enjoyable alterations of players' self-perception. *Communication Theory, 19*, 351-373.

Koehne, Benjamin, Bietz, Matthew J., & Redmiles, David. (2013). *Identity Design in Virtual Worlds.* Paper presented at the 4th International Symposium, IS-EUD 2013, Copenhagen, Denmark.

Kolb, A., & Kolb, D. (2009). The learning way: Meta-cognitive aspects of experiential learning. *Simulation & Gaming. 40*(3), 297-327.

Latham, G. P., & Locke, E. A. (1979). Goal setting: A motivational technique that works. *Organizational Dynamics, 8*(2), 68-80.

Li, D. D., Liau, A. K., & Khoo, A. (2013). Player–Avatar Identification in video gaming: Concept and measurement. *Computers in Human Behavior*, *29*(1), 257–263.

Lim, S. (2006). The effect of avatar choice and visual POV on game play experience (Unpublished doctoral dissertation). Stanford University, Stanford, CA.

Looy, J. V., Courtois, C., & Vocht, M. D. (2010). *Player identification in online games: Validation of a scale for measuring identification in mmorpgs.* Paper presented at the 3rd International Conference on Fun and Games, Leuven, Belgium.

Lord of the Rings Online [PC Game] (2014) Warner Bros. Entertainment Inc.

Maccoby, E. E., & Wilson, W. C. (1957). Identification and observational learning from films. *Journal of Abnormal Social Psychology*, *55*, 76-87.

Murphy, S.D. (2004). Live in your world, play in ours: The spaces of video game identity. *Journal of Visual Culture. 3*(2). 223-238

Newman, J. (2002). The myth of the ergodic videogame. *The International Journal of Computer Game Research. 2*(1). 1-8.

Przybylski, A. K., Rigby, C. S., & Ryan, R. M. (2010). A motivational model of video game engagement. *Review of General Psychology, 14*(2), 154-166.

Schultheiss D. (2007). Long-term motivations to play MMOGs: A longitudinal study on motivations, experience and behavior. In A. Baba (Ed.), *DiGRA 2007-Situated Play (Proceedings of Digital Games Research Association International Conference 2007)* (pp. 344–348). Tokyo, Japan.

Shaw, A. (2011). "He could be a bunny rabbit for all I care": Exploring identification in digital games. Proceedings of *DiGRA 2011: Think Design Play: The fifth international conference of the Digital Research Association (DIGRA).*

Turkay, S. (2012). User experiences with avatar customization in Second Life and Lord of the Rings Online. Proceedings on Teachers College Educational Technology Conference.

Turkay, S. & Adinolf, S. (2010). Free to be me: a survey study on customization with World of Warcraft and City of Heroes/Villains players. *Procedia of Social and Behavioral Sciences, 2*(2), 1840-1845.

Turkle, S. (1995). *Life on the screen: Identity in the age of Internet*. New York: Simon & Schuster.

Vasalou, A., & Joinson, A. (2009). Me, myself and I: The role of interactional context on self-presentation through avatars. *Computers in Human Behavior, 25,* 510–520.

Weinreich, P. & Saunderson, W. (Eds) (2003). *Analyzing identity: Cross-cultural, societal and clinical contexts.* London: Routledge.