게임 기획 및 디자인

An Exercise to Explore Avatar Customization and Gender Swapping

Katherine Scheck[*], Dong Yeop Lee[**], Byung Pyo Kyung[***], Seuc Ho Ryu[***],
Dong Lyeor Lee[***], Wan Bok Lee[***]
Dept. of Game Design, Kongju National University
katscheck@gmail.com, {popodean, kyungbp, seanryu, ezer, wblee}@kongju.ac.kr

게임 유저의 아바타 성별 선택의 측도(測度)에 관한 연구

캐서린 쉑[*], 이동엽[**], 경병표[***], 유석호[***], 이동열[***], 이완복[***]
공주대학교 게임디자인학과

ABSTRACT

Avatars are a visual representation of users in a virtual world such as an MMORPG. These avatars are often seen as representations or idealizations of the user's actual self. However, this view does not account for the prevalence of two behaviors: multiple avatars and 'gender swapping'. An exercise and questionnaire were created to study avatar customization practices across players outside the context of any particular game to understand better user motivations in creating their virtual selves. A preliminary trial of the exercise showed little correlation between age or gender and gender swapping. While those of non-traditional sexuality were more likely to gender swap, half of traditional sexuality also swapped. Finally, the personality trait, Openness to Experience, showed promising correlation with gender swapping.

Keywords : Avatar(아바타), Customization(맞춤변형), Gender Swapping(성교환), MMORPG

요 약

아바타는 <나의 분신>이라 불리는 사이버상에서 캐릭터를 이르는 단어로, 본 연구에서는 MMORPG 게임에서 자신을 치장하며 실제 자기표현과 이상화(理想化) 기능을 하는 캐릭터로 정의하였다. 본 연구를 통해 멀티 아바타와 성별 전환 사이에서 작동하는 유병률(有病率)을 설명하는 것을 목적으로 하였다. 본 실험을 위하여 선행된 방법은 유저에게 지정된 게임 연습과 질문을 미리 제공하였고, 이는 선행적으로 사용자에게 게임 동기를 발생하여 아바타 생성에 도움을 주고자하는 것이 목적이었다. 본 연구를 통해 연령, 성별과 성전환 사이에 상관관계를 살펴보았고, 비 전형적인 방식에서는 성전환 가능성이 높아졌고 일반 참가자 또한 절반의 성전환 선택의 경향을 보여주었다. 마지막으로, 경험의 성격 특성에 대한 경험에 대한 개방성은 성별과 유사한 상관관계를 보였다.

---

1. Introduction

1.1 Study Background and Rationale

Most familiar with video games are also familiar with the concept of an avatar. For the purpose of this discussion, an avatar is a visual representation of a user in a virtual world, such as an MMORPG. Most of these avatars are animated and customizable.

There are a number of reasons for studying avatar customization: purely psychological-- understanding the nature and psyche of players and how they play; from a business and design perspective to anticipate the needs of players in both high and low customization environments; and there are a few studies using avatar manipulation and customization in pro-social training[1,2].

The current prevailing understanding of avatars is that they are a representation or projection of a player or his idealized self[3], though a few perspectives also see virtual communities and worlds as a way to experiment and reinvent one's identity[4].

A problem with the notion of avatars merely as an extension and projection of a player's actual self or idealized self is that it fails to account for two widespread and important player behaviors.

The first is owning more than one avatar. 78% of players of the Taiwanese MMORPG *Fairyland Online* have at least two avatars, and 58% have at least three[5]. Another study, "Body and Mind" found that the average number of avatars per player in *World of Warcraft* is 12; 8 in *Maple Story* and 3 in *Second Life*[6]. Our current understanding would interpret these figures as a highly

unlikely number of players with multiple personalities.

The second behavior is the practice of gender swapping-- that is, male players using female avatars and female players using male avatars. Between 20% and 60% of players in various virtual worlds have practiced gender swapping[5][6]. While previous studies have found that those with non-traditional sexuality or gender identification are more likely to swap genders[5], the sheer numbers suggest that non-traditional sexuality and gender identity do not fully explain this behavior. This study also aims to demonstrate this.

Interestingly, while these two behaviors are not highly correlated with explanations implied by the view of avatars solely as expression, they are highly correlated with one another; that is, players with multiple avatars are more likely to gender swap at least one of them[5]. This suggests a different motivation for both behaviors and unexplored motivations for the way players customize their avatars and even how they play games in general.

This research may also extend to low customization environments. In 2009, 85% of game characters were "white" and 80% were male; these proportions were even higher in primary characters[7]. Meanwhile, as early as 2004, the Entertainment Software Association reports that 43% of players were female[8]. Remarkably little data is kept on race/ethnicity and sexuality of players. Nevertheless, this homogeneity of characters can stunt content development and bore-- or even frustrate-- players and, perhaps more importantly, potential players. Welcoming more diverse characters to the gaming market can increase

expression space for some players while increasing exploration space for others.

By showing that players regularly and voluntarily choose (and sometimes prefer) to use avatars with stark differences with their own identities, we can show that players are not only tolerant of, but may actually enjoy or prefer playing as characters who are notably different than themselves as well as the unique experiences these characters offer.

1.2 Characteristics of Swappers

The team studying *Fairyland Online* asserts that gender swapping is correlated with older players[5] and suggests a possible relationship with mature psychological traits. "Body and Mind" found gender swapping particularly prevalent in *Second Life*, which also attracted older users[6]. However, neither study is specific or conclusive on this point.

In *Fairyland Online*, females swap more often than males. However, in "Body and Mind," males are found to swap more often. This could be a difference in market-- *Fairyland Online* is primarily played in Taiwan while the others have more western or world-wide audiences-- or a difference in the games themselves.

These two factors are clearly of interest, though they remain inconclusive. As such, they will receive some special attention in this study.

While studies have related personality traits of players to the perceived personalities of their avatars[3], there is still room to relate personality traits to play style itself. In this study, we predict that high Openness to Experience on the five factor personality mode

l1) will relate to a desire for exploration in games. It this case, such a desire for exploration may lead to more variety in avatar customization, including gender swapping, perhaps one of the most extreme divergences from one's own identity.

2. Materials and Methods

2.1 Materials

2.1.1 Avatar Customization and Questionnaire

The exercise and debriefing questionnaire were created and distributed via internet using Google Forms[9]. Participants customized avatars using the character generator for Adventure Quest Worlds(AQW)[10].

[Fig. 1] AQW Character Generator on Default Settings

The AQW generator was chosen for its

---

1) a. McCrae &Costa - these seem to be the two major researchers and developers of these instruments. The NEO PI (and NEO PI-R) (~240 items) as well as the NEO-FFI (~60 items) and its variations both come from these researchers. anyone interested in creating new or translated versions of these assessments, should cite these authors. these are the two papers i thought were most relevant.

simplicity, accessibility, and relative modesty. Visitors to AQW do not need to create an account before using the avatar generator. It has six character dimensions: Class, Gender, Hair Style, Hair Color, Skin Color, and Eye Color. Although participants were not asked to play the game, class is the only factor which effects mechanical features and abilities. While many games offer some variant of "race" (usually fantastic races such as elves or orcs) or species, the generator has a sufficient array of colors for hair, eyes, and skin to allow imaginative players to play as a wide array of creatures and races, real and fantastic. This simplicity is accessible to first-time users and non-gamers. It is also brief so as to not burden participants. Participants estimate spending less than 10 minutes on their first avatars and often less on subsequent avatars.
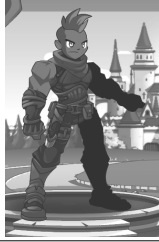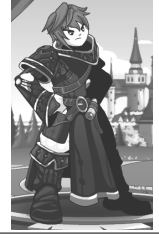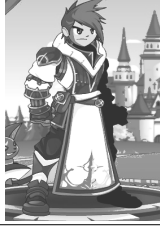
[Table 1] shows a variety of avatars customized by participants (brightness and contrast have been slightly altered for better viewing in grayscale). This demonstrates the style of the game as well as the range of possibilities available to players. Skin colors range from natural beiges, browns, yellows, and pinks to unnatural reds, blues, and greens. Hair and eye colors span the rainbow.

2.1.2 Ten Item Personality Inventory

The five-factor personality model is a well validated and heavily used measure of personality partitioning personality dimensions into five main factors: Extraversion, Conscientiousness, Agreeableness, Emotional Stability (formerly Neuroticism), and Openness to Experience. The Ten-Item Personality Inventory(TIPI) was developed by Gosling, et.

al to quickly measure these five dimensions[11]. It consists of ten items scored (five of which are reverse scored) on a 7-point Likert scale. Thus, "1" indicates a low presence of a single personality factor, while "7" indicates a high presence. This study administered this TIPI to participants with a particular interest in the Openness factor.

[Table 1] Sample Avatars Customized by Participants

Male	Female
Warrior	
Rogue	
Mage	
Healer	

2.2 Procedure

Participants were asked to customize between three separate avatars. They were also asked to upload screen captures of the avatars for verification and further study. They then coded (e.g. "What hair color did you choose?") and evaluated (e.g. "Do you like this avatar?") each avatar. They then completed the TIPI[11] and finally, participants completed a demographic questionnaire which included questions about their gaming experience, age, sexuality, and gender.

3. Results

3.1 Sample

Twenty-three(23) individuals participated and responded: 12 male, 10 female, and 1 individual who refused to identify sex, but identified as masculine, so was coded as male for analysis. One(1) female identified as "Gender Queer." All other participants identified their gender traditionally, with males as masculine and females as feminine. Age ranged from 15 to 50 years, with a mean of 26.7 years (sd=8.8). Sixteen(16) participants identified as heterosexual, 3 as bisexual, and 4 and some other non-traditional sexuality. Although homosexual was an option for this demographic, no participants chose it. Three participants (female, ages 40, 47, 50) were determined not to play games regularly by answering "0" to the number years they have been playing games. Most participants were from the United States of America and identified as Caucasian/white.

3.2 Overview

Overall, 65% (n=15) of the participants created at least one gender swapped avatar, and 4 of these swapped twice. Four(4) participants created a gender-swapped first avatar, and 10 had swapped their first or second avatar. 35% of participants never swapped avatars(see [Table 4]).

3.3 Age and Sex

A Chi-Squared analysis showed no correlation between age ($p \approx 1$) or sex (p=0.98) and gender swapping. The first finding is in contrast with previous findings that older gamers are more likely to gender swap, while studies are divided on whether males or females are more likely to gender swap[5,6]. Previous findings may be confounded by limiting their samples to the population of a single or a few games. The prevalence and characteristics of gender swappers seems to vary by the virtual world in which players chose to congregate.

[Table 2] Swapping Behavior by Age

Age	Swapped	Not	Total
> 27	12	9	21
< 26	15	11	26
Total	27	20	47

[Table 3] Swapping Behavior by Sex

Sex	Swapped	Not	Total
Male	19	8	27
Female	10	10	20
Total	29	18	47

Removing the three with no gaming experience does shift these results toward

[Table 4] Trends in Swapping Behaviour

Swap Status	Round1			Round2			Round3		
	had swapped	1s time swapping	not swapped	had swapped	1s time swapping	not swapped	had swapped	1s time swapping	not swapped
n(m:f)	7(3:4)	na	40(21:19)	14(9:5)	9(6:3)	24(11:13)	21(12:9)	11(6:5)	15(7:8)
Heteronormal: NOn-heternormal	1:3	na	15	6:4	4:1	10	8:7	2:3	8

agreement with previous finding, but weren't enough to improve correlation. Also, heterosexual males made up the majority of those who swapped their second avatar, while most females did not swap until their final avatar(see [Table 4]).

3.4 Gender ID and Sexuality

In this study, all seven participants who identified as a non-traditional gender or sexuality swapped at least one avatar. However, outside of the three of this group that created a gender swapped "main" or first avatar, the other four did not swap genders until their final avatar. Half of heteronormal participants created a gender swapped avatar during the course of the exercise, and most of those who swapped their second avatar were heterosexual males(see [Table 4]).

3.5 Openness to Experience

The mean Openness to Experience of this group was 5.72 (on the TIPI's 7 point scale). In each round of customization, the mean of those who had swapped avatars was consistently higher than those who hadn't swapped yet (shown in [Table 5]). While those who had not swapped by the end of the exercise was much closer to the reported

normative mean of 5.41, the mean Openness of those who had not swapped remained quite high at 5.87. A chi-squared analysis revealed a much higher correlation between high Openness (O>5.7) and gender swapping (p=0.37). While this is far from statistically significant, it is a much more promising predictor than the other factors analyzed in this study.

[Table 5] Average Openness

Term	Round 1	Round 2	Round 3
Had Swapped	5.98	6.11	5.82
Had Not Swapped	5.61	5.82	5.52

[Table 6] Swapping Behavior by Openness

Openness	Swapped	Not	Total
> 5.7(high)	15	9	24
< 5.7 (low)	12	11	23
Total	27	20	47

3.6 Conclusion

Age and gender appear to be poor predictors of gender swapping as motivations and characteristics of swappers seem to vary by virtual environment. While those with

non-traditional sexuality and gender identity seem to be unopposed to swapping, many will do so later in their play experience and enough hetero-normal participants swapped to suggest that one's sexuality is also not the best explanation for the behavior. Meanwhile, Openness to Experience, while not statistically significant at this sample size, shows radically stronger correlation and may provide some insight in subsequent trials. This indicates that avatar customization may not only serve as a means of expression, but also a means of exploration.

4. Discussion

Although the results of this study were encouraging, with such a small sample, it is difficult to show statistical significance. Therefore obtaining a larger and better sample would be ideal, especially for obtaining information from those less experienced in gaming.

This questionnaire also includes a battery of questions and dimensions not analyzed here, not the least of which are the other four personality factors. We could also explore other differences, such as race or how fantastic or realistic avatars are. Particularly interesting might be preferred classes as a factor of personality. With a larger sample size and deeper analysis, such an exercise could prove very informative into how and why players play the way they do.

Appendix A
Sample Questionstionnaire Items

[A1]Q: What HAIR COLOR does this FIRST avatar have? A: Black, Brown, Yellow/Blonde, Gray, Light Grey or White, Dark Red, Light red, Pink, Purple, Blue, Orange, Green, Blue Green

[A2]Q: Do you think this hair color is NATURAL or UNNATURAL? A: [Scale (1) Very Natural, (5) Very UNNATURAL]

[A3]Q: I like this avatar. A: Strongly Disagree (coded 1), Disagree, Don't Agree or Disagree, Agree, Strongly Agree (coded 5)

[A4]Q: I make time to play games. A: Yes, No

[A5]Q: About how many years do you think you've been playing games? A: [open, numerical] "0" indicates "does not play games regularly."

[A6]Q: How old are you? A: [open, numerical]

[A7]Q: What sexuality do identify yourself? A: Heterosexual, Homosexual, Bisexual, Decline to answer, [other, open]

REFERENCES

[1] Yee, Nick, and Jeremy N. Bailenson. "Walk a mile in digital shoes: The impact of embodied perspective-taking on the reduction of negative stereotyping in immersive virtual environments." Proceedings of PRESENCE (2006): 24-26. Web. 3 Oct. 2014.

[2] Dolgov, I., et al. "Effects of Cooperative Gaming and Avatar Customization on Subsequent Spontaneous Helping Behavior." Computers in Human Behavior 33 (2014): 49-55. SCOPUS. Web. 30 Sep. 2014.

[3] Bessière, Katherine, A. Fleming Seay, and Sara Kiesler. "The Ideal Elf: Identity Exploration in World of Warcraft." CyberPsychology & Behavior 10.4 (2007): 530-35. Web. 03 Oct. 2014.

[4] Turkle, Sherry (1997-09-04). Life on the Screen: Identity in the Age of the Internet (pbk. ed.). Simon & Schuster. ISBN 0-684-83348-4.

[5] Lou, Jing-Kai, et al. "Gender swapping and user behaviors in online social games." Proceedings of the 22nd international conference on World Wide Web. International World Wide Web Conferences Steering Committee, 2013. Web. 3 Oct. 2014.

[6] Ducheneaut, Nicolas, et al. "Body and mind: a study of avatar personalization in three virtual worlds." Proceedings of the SIGCHI Conference on Human Factors in Computing Systems. ACM, 2009. Web. 03 Oct. 2014.

[7] Williams, D., N. Martins, M. Consalvo, and J. D. Ivory. "The Virtual Census: Representations of Gender, Race and Age in Video Games." New Media & Society 11.5 (2009): 815-34. Web.

[8] "Esential Facts about the Computer and Video Game Industry 2004." Entertainment Software Association. 2004. Web. <http://www.scribd.com/doc/125494009/ESA-Essential-Facts-2004>

[9] Scheck, K. Avatar Creation. Google Forms. <http://goo.gl/forms/yhvLJkEo5>

[10] Adventure Quest Worlds character generator. <http://www.aq.com/landing/>

[11] Gosling, Samuel D., Peter J. Rentfrow, and William B. Swann Jr. "A very brief measure of the Big-Five personality domains." Journal of Research in personality 37.6 (2003): 504-528. Web. 3 Oct. 2014.

[12] Costa, P. T. and McCrae, R. R. (1992). Revised NEO Personality Inventory (NEO PI-R) and NEO Five-Factor Inventory (NEO-FFI).

[13] McCrae, R. and Costa, P. (2004). A contemplated revision of the NEO Five-Factor inventory. Personality and Individual Differences, 36(3):587 - 596.

Katherine Scheck(캐서린 쉑)

2011 School of Liberal Arts (Asian Studies),
    Coe College, USA, Bachelor
2013년 3월-현재 공주대학교 게임디자인학과 석사과정

관심분야 : Game Content, Game Character Design

이 동 엽(Lee, Dong Yeop)

2002년 10월 De Montfort University(Master of Arts)
2013년 8월 상명대학교 감성공학과 (감성공학박사)
2014년 3월-현재 공주대학교 게임디자인학과 조교수

관심분야 : 게임디자인, 게임 모델링, 멀티미디어

경 병 표(Kyung, Byung Pyo)

1994년 3월 일본 큐슈예술공과대학 예술공학과 정보전달
    전공 (예술공학석사)
2002년 3월-현재 공주대학교 게임디자인학과 교수

관심분야 : 게임디자인, 컴퓨터그래픽, 멀티미디어

유 석 호(Ryu, Seuc Ho)

1997년 2월 뉴욕공대 커뮤니케이션아트 졸업(공학석사)
2003년 3월-현재 공주대학교 게임디자인학과 교수

관심분야 : 게임디자인, 멀티미디어

이 동 열(Lee, Dong Lyeor)

1994년 3월 일본 큐슈예술공과대학 예술공학과 정보전달
    전공 (예술공학석사)
2002년 3월-현재 공주대학교 게임디자인학과 교수

관심분야 : 게임캐릭터디자인, 컴퓨터그래픽, 멀티미디어

이 완 복(Lee, Wan Bok)

2004년 2월 KAIST 전자전산학과 전기 및 전자공학
    전공 (공학박사)
2007년 3월-현재 공주대학교 게임디자인학과 교수

관심분야 : 게임프로그래밍, 시뮬레이션, 이산사건시스템