I’m not a Transvestite: Antecedents and Consequences of Gender Swapping in Online Games

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Abstract
This study examines the antecedents and consequences of gender swapping in online games. While previous studies considered gender swapping as abnormal or a minuscule exception in self-presentation, this study hypothesizes that people swap their genders for a rational benefit. To study this, a survey was conducted with 318 male players of Massively Multiplayer Online Role Playing Games. Findings indicate that players swap their gender in the virtual world to gain benefits under the condition of anonymity rather than for representing sexual identity; that is, male players who swap their gender tend to display patterns of behavior conventionally displayed by females in the virtual world. Gender swapping also creates an emotional attachment to avatars increasing item purchase as players want to decorate them.

1. Introduction

A virtual world is defined as a computer-based simulated environment where individuals assume an identity as an avatar [22]. Avatar generally refers to an electronic image that represents—and is manipulated by—a computer user [29]. In the virtual world, individuals interact with each other as well as with the environment using their avatars [23]; scholars have viewed avatars as an extended self in the virtual world [4]. Going by this, the relationship between users with the avatar can become meaningless if the avatar does not represent the identity of the users, thereby making identity an important issue related with avatars. According to Donath [13], “knowing the identity of those with whom you communicate is essential for understanding and evaluating an interaction.” However, as avatars can be created and altered by players, the flexibility of identity construction provides them with extraordinary freedom for deviating from or altering their offline identities as well [20]. The most dramatic example is gender swapping.

The phenomenon of “gender swapping” (using an avatar that is the opposite gender from oneself) frequently happens online, especially in the gaming context. According to Bergstrom, Jenson, and de Castell [6], more than 20% of World of Warcraft [47] players showed gender discrepancy between player and avatar. Despite the existing phenomenon of gender swapping, little attention has been paid to articulating the reasons and impact of swapping. Thus, the current study explored the factors affecting gender swapping in an online gaming environment and diverse behaviors resulting from gender swapping. Going against the assumption of previous literature, this paper assumed that the gender swapping resulted from a rational choice in association with practical benefits. Consequently, game players were expected to behave differently after swapping their gender to maintain consistency of choice.

Based on the online survey of males who have experience in playing Massively Multiplayer Online Role Playing Game (MMORPGs), this study examined not only the antecedents but also the consequences of the behaviors associated with gender swapping in the virtual world.

2. Literature Review and Hypotheses

Gender and identity in the virtual world. Scholars have long recognized the importance of identity in the online environment [13]. Within online worlds, identity is marked primarily by an avatar, which is a visual representation of players. Thus, avatars have been studied with relation to identity. Previous literature showed that most people reported a preference for avatars that matched their gender [32]. Additionally, the more closely an avatar resembles its user, the more likely the user is to have a positive
attitude towards it [38]. In a virtual world, however, there is no rule that players must select their offline gender for their character. In fact, gender swapping frequently occurs.

Gender swapping refers to the phenomenon where one chooses an avatar of a different gender from one’s biological sex [36]. Gender swapping has traditionally been considered a negative behavior, much like a deception or gimmick. For instance, in an early version of online gaming called Multi-User Dungeon (MUD) environments, gender swapping was considered deceptive play for which a player should be banned [20]. Although some recent studies have investigated deceptive self-presentation behaviors in the context of impression management [10], players who swapped their genders have often been considered homosexual or sexually deviant [20].

Going against previous literature that players generally have a negative attitude towards or disfavor gender-discrepant avatars, we assumed that users who swap their genders are satisfied with their avatars and thus continue using them. Based on this assumption, we have suggested a research model embracing the antecedents and consequences of gender swapping.

2.1. Antecedents of gender swapping.

*Gender schema.* Sex is a biological term that defines a person as male or female based on his/her genes [30]. However, gender is a multidimensional construct that encompasses the many ways our society is differentiated on the basis of sex [9]. Although gender includes various complexities attributed to social and psychological characteristics, it has been traditionally modeled in research through the artificial dichotomization of masculine and feminine [31]. These dichotomy makes people have stereotypes or myth about sexuality. For example real men is the combination of male and masculine, real women is the combination of female and feminine, gay is flamboyantly feminine men, lesbian is very masculine women.

This stereotypes have influenced the researches on gender swapping. Some researchers suggest that players can use avatars that depart from their offline physical sex, since they consider their avatars as an expression of their identity. For example, Huh and Williams [20] argue that gender swapping is more prevalent among homosexual players because they identify more with a different psychological gender than their genetic sex. It seems that they assume homosexual as having physical body with different psychological gender. However, it’s not true that homosexuals have opposite gender identity. Although we presuppose that homosexuals have feminine identity, we can’t conclude that avatar is extension of self-identity.

Other researchers have contended that gender swapping might not be related to identity at all, but esthetic, pragmatic choice, or just fun. As opposed to some perspectives that consider gender swapping is a subversive or experimental act, they argue that people do so, just it is routine or common behavior [54]. Actually, many male players prefer gender swapping to enjoy esthetics of watching a female avatar form or practical reasons [21, 53, 54].

Do people really use the avatar to represent their sexual identity? Previous literature assumes that the avatar as an extension of the self. However, if players do not consider an avatar as an extension of themselves, their gender identity may not affect the selection of an avatar. To examine whether gender identity affects avatar selection or not, we measured individual gender schema using the Bem Sex Role Inventory (BSRI) [5], a scale for measuring gender roles. Gender schema explains how individuals take on a gender in society. In other words, gender is a concept related to identity, representing the degree to which we think of ourselves as masculine or feminine. The BSRI consists of three sections of 20 items each that measure masculinity, femininity, or neutrality. As this study included male MMORPG players in the survey, the femininity items of the BSRI were used to investigate whether gender identity affects gender swapping. If players represented their gender identity with an avatar in the virtual world, male players who were feminine would likely to swap their gender (i.e., choose female avatars). If not, gender identity would not be considered a major factor affecting gender swapping.

**H1:** Gender schema (femininity) is positively related to the gender swapping

*Perceived anonymity.* Contrary to the physical world, communication in the virtual world has relatively fewer identity cues. For example, in an offline situation, people can easily confirm identity through nonverbal cues such as facial expression, gestures, and intonation. However, users online can easily conceal their identity cues under the condition of anonymity. Because of the fewer social cues online than in face-to-face communication, people in online relationships can both benefit and suffer from the relative anonymity. The benefit is that people have more space for freedom and experimentation, while the cause for suffering is that relationships can become empty without the commitment that identity offers [40]. In many cases, anonymity is the imperative condition for gender swapping since there is still some opprobrium or hassle created by gender swapping. In

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fact, male users who use female avatars seems to be often criticized among gamers. For example, when new playable races were added to World of Warcraft [47] through the first expansion package, called “The Burning Crusade,” one of them was called the “Blood Elf.” The Blood Elf had rather feminine features, unlike previous masculine characters. Since then, players using the Blood Elf have become the target of criticism for players of the previous version of the game. They were treated as gay or “kinky” players who liked only female characters. That is, when the online environment is perceived to guarantee high anonymity, it can prove to be a favorable condition for gender swapping. Therefore, hypothesis is proposed as follows.

H2: Perceived anonymity is positively related to the gender swapping.

Perceived benefit. Some previous literature has examined the purpose of gender swapping beyond identity [21, 28]. This literature has discovered that players more frequently swap their gender due to practical benefits or purposes. For example, some female players engaged in gender swapping as an experiment enabling them to overcome restrictions in real life or in order to prevent unsolicited male approaches. On the other hand, male users engaged in gender swapping because they wanted to enjoy advantages of being a female in society [21]. It is generally known that the female persona has a number of positive social advantages in a male-oriented environment, as male players tend to show more prosocial behavior towards females [17, 42]. These studies showed that practical benefits or purposes can directly affect gender swapping. Thus, male players engage in gender swapping to enjoy advantages in an online environment.

H3: Perceived benefit is positively related to the gender swapping.

2.2. Consequences of gender swapping.

Socially amiable behavior. Some previous literature has reported that avatars can lead to behavioral changes in users [20, 27, 28, 44, 45]. Specifically, Yee and Bailenson [44] showed that participants assigned to more attractive avatars were more intimate with strangers than were those assigned to less attractive avatars. This behavioral change can be explained by the Proteus Effect, according to which users in an online environment conform to the persona of the avatars they present themselves as. In addition, Yee, Bailenson, and Ducheneaut [45] demonstrated that behavioral changes stemming from the virtual environment transferred to subsequent face-to-face interactions.

Another study examined the direct relationship between the gender of avatar and behaviors. Huh and Williams [20] found that female players did behave differently when they gender swapped, showing a more masculine behavioral pattern—even more so than men in one case. Lehdonvirta et al. [27] found that avatar gender influences helped seeking behavior, independent of physical sex. Recent research based on interaction and profile data from an MMORPG showed the gender-related behavioral changes of previous literature [28]. For example, female players exhibited a rather drastic transformation into a male-like aggressive, achievement-oriented character when pretending to be a male avatar. Additionally, players engaged in lengthier conversations when their avatars were of different genders, regardless of the true gender of players, even though an avatar does not completely mask the real persona. In addition, female avatars profited more than did male avatars from trade.

This literature seems to indicate that the gender of an avatar affects behaviors in the virtual world. Although the underlying mechanism is not clear, there are possible explanations regarding behavioral changes resulting from gender swapping. According to Lehdonvirta et al. [27], gender as perceived by other participants shapes their expectations of an individual, which in turn influences that individual’s behavior. Otherwise, the individual adjusts his or her own behavior to be consistent with the gender of his or her self-representation, independent of the perceptions of others. Therefore, based on this literature, hypothesis is posited as follows.

H4: Gender swapping is positively related to the socially amiable behaviors in an online game.

Item purchase. Selling items is one of the most important business models in digital platform services. One of the popular cases is the “freemium model,” as Chris Anderson [1] suggested. This model provides free service to customers, often as a strategy for attracting users, and then sells a premium level to some of them. In the gaming industry, for example, although most games provide their services free to customers, they can gain profit through in-game item sales. Therefore, previous studies of online item purchase focused on the factors affecting purchase decisions [18, 25, 26].

Regarding virtual item purchase, previous literature has examined the effect of gender. Generally, male players more frequently purchase items than do females. However, depending on the function of the item, female players show higher purchase intention than do males in some cases. Actual usage of the items
is classified into two categories. One is functional, which refers to using the item to enjoy advantages in the game. The other is decorative, referring to items purchased for their hedonic and social attributes [26]. In the case of decorative items, females tend to show higher purchase intention. For example, women have stronger intentions than do men to purchase decorative digital items for self-presentation [25].

If gender swapping players purchase more items, there can be two possible explanations. First, players who are deindividuated in virtual environments may adhere to a new identity that is inferred from their avatars. In turn, they will purchase decorative items in order to appear to behave as females do. Second, although players choose opposite gender avatars without consideration of their identity to gain in-game benefits, they will gradually come to feel an emotional bond with this avatar. This, in turn, can affect item purchase.

**H5: Gender swapping is positively related to the item purchase in an online game.**

![Figure 1. Research Model](image)

*Emotional attachment.* If the players consider their avatar as an object, not as another self, they can have an emotional attachment toward their avatars. Emotional attachment is defined as an affectionate tie between two specific people. The tie binds them together in space and endures over time. Such attachments are possible not only between two persons, face-to-face, but also between people and non-personal mediums such as mobile phones [41] or consumer brands [39]. Therefore, as a non-personal medium, there can be an emotional attachment between a player and an avatar. In addition, players who have strong emotional attachment with their avatars will purchase items for their avatar, in much the same way that parents buy toys for their children and pet owners pamper their pets. Regarding the relationship among gender swapping, emotional attachment, and item purchase, the following hypotheses are proposed.

**H6: Gender swapping is positively related to the emotional attachment to their avatar in an online game.**
H7: Emotional attachment is positively related to the item purchase in an online game.

Overall, based on the above review, a structural model examining factors predicting gender swapping in an online environment and the diverse behaviors resulting from gender swapping is proposed (See the Figure 1).

3. Method

3.1. Sampling and Survey Procedure

In September 2013, an online survey was conducted to collect data from South Korean individuals. A professional survey company administered the survey. The sample consisted of male players who have experience in playing MMORPGs. MMORPGs are appropriate for studying gender swapping because players assume the role of a character and take control over many of the character’s actions. For practical reason, it was difficult to find females revealing gender swapping intention. MMORPG studies have reported that gender swapper is much more likely to be men [6, 51, 52]. Furthermore previous literature suggest that there might be differences in factors affecting gender swapping intention between male and female [21]. Thus, we focused on the gender swapping of male players in this study.

South Korea is well known for its computer gaming culture. Widespread access to the Internet supports a computer gaming environment and makes computer gaming a popular culture in South Korea. Many people enjoy playing locally developed MMORPGs (e.g., Lineage [48], ArcheAge [49], and Blade & Soul [50]). According to the game chart in Korea [35], the MMO/MMORPG genre has 52% of the domestic market share. Therefore, South Korea is suitable for online-game-related research, especially targeting MMORPGs.

The company’s national consumer panels contained about 680,000 panelists, proportionally representing the Korean population by gender and age. A total of 2,584 panelists were contacted initially, of which 526 began the survey. Of these, 112 respondents were screened out and 84 respondents dropped due to incomplete questionnaires, leaving 330 subjects to complete the survey. The response rate was 12.8%. Finally, 318 valid samples were used for the analysis. Twelve respondents were excluded because they had not mentioned the exact name of the MMORPG they had experience in playing. The age divisions of the final samples are as follows: 10s = 10.1%; 20s = 26.4%; 30s = 46.9%; and over 40 = 16.7%.

3.2. Measurement and Scale Reliability

Gender schema. To measure gender schema, the short form of the BSRI was adopted [8]. The BSRI, particularly the short form, is still widely used as a measure of gender-related attributes. Because all respondents are males, only items measuring femininity were used, to ensure parsimony of measurement. Each item consists of a feminine adjective (e.g., understanding, sympathetic, eager to soothe hurt feelings), and players must rate how much each adjective applies to them. Each item was measured on a five-point scale, and the Cronbach’s alpha was .899.

Perceived anonymity. Perceived anonymity measures the extent to which a person perceived the online environment as anonymous. It was measured using three items adopted from Zhong, Bohns, and Gino [46] and represented the game player’s perception of a virtual environment (e.g., “In general, I think my identity isn’t known to others in online environment.”). Each item was measured on a five-point scale, and the Cronbach’s alpha was .839.

Perceived benefits. It consisted of three items related to the perception of an advantage for a female avatar in the game environment (e.g. “People are more likely to cooperate with female avatars.”). Three items were answered on a five-point scale, with a reliability score of .858.

Gender swapping. Gender swapping measured the extent to which a person played an opposite gender avatar. The three measurement parameters were the degree of time spending as a female avatar, the degree of female avatar ownership, and the degree of enjoyment in playing as a female avatar. This was measured on a five-point scale, and the Cronbach’s alpha was .894.

Socially amiable behavior. Social behaviors included three social components—socializing (i.e., I have more interest in chatting with other players when I play as a female avatar.), relationship (i.e., I have the desire to form meaningful relationships with others when I play as a female avatar.), and teamwork (i.e., I am more satisfied with contributing to the group when I play as a female avatar.) [43]. This was measured on a five-point scale, and the Cronbach’s alpha was .763. Although the Cronbach’s alpha was lower than other constructs, it still exceeded the recommended threshold [33].

Emotional attachment. Emotional attachment was measured with five items adopted from Thomson, MacInnis, and Park [39]. It represents the strength of
an affectionate tie between one person and a specific non-personal medium (e.g. “My avatar captivates me,” “My avatar makes me delighted”). The Cronbach’s alpha was .902.

*Item purchase behavior.* Item purchase was measured by adopting the items used by Kim, Chan, and Kankanhalli [25]. Three items measured likelihood of purchasing online items (e.g. “My willingness to buy digital items for my avatar is high.”). The Cronbach’s alpha was .928.

For a detailed explanation of questionnaire items and descriptive statistics, please refer to Appendix 1.

4. Results

4.1. Measurement Model

To validate the measurement model, reliability and validity analyses were conducted. The convergent validity of the model was examined using the average variance extracted (AVE) and composite reliability for each construct. For the adequate convergent reliability, all AVE values should be greater than .5 [15], while all composite reliability values was should be greater than .7 [34].

Discriminant validity was assessed by comparing the square root of the AVE for each construct against the inter-construct correlation estimates [15]. The square root of the AVE of each construct was found to be greater than any other corresponding inter-construct correlation coefficients.

4.2. Structural Model

The overall fit of the structural model was evaluated with various fit indices. The values of each index are as follows: normed chi-squared ($\chi^2 / df = 1.949$), goodness of fit (GFI = .865), normed fit index (NFI = .883), comparative fit index (CFI = .939), root mean square error of approximation (RMSEA = .055), and Tucker-Lewis index (TLI = .931). All fit indices
met the recommended threshold criteria [7, 19, 24]. Consequently, the fit to model was found to be satisfactory.

4.3. Hypotheses Testing

Figure 2 depicts the main path coefficient, t-values, and explained endogenous variable’s variances (R²). Five of the seven paths in the research model were supported. Gender schema was not associated with gender swapping (β = .064, p > .01, n.s.), which did not support H1. Rather, perceived anonymity (β = .473, p < .001) and perceived benefit (β = .169, p < .05) were found to be significantly related to gender swapping, supporting H2 and H3, respectively. Overall, approximately 21% of the variance in gender swapping was explained by these antecedent variables. Furthermore, gender swapping had a positive influence on socially amiable behaviors, supporting H4 (β = .111, p < .001); gender swapping explained approximately 11% of the variance in socially amiable behaviors. The direct relationship between gender swapping and item purchase was not supported (H5). However, this relationship was mediated by emotional attachment. Gender swapping affected emotional attachment, supporting H6 (β = .401, p < .001); gender swapping explained approximately 24% of the variance in emotional attachment. Emotional attachment was strongly associated with item purchase, supporting H7, and had a high path coefficient (β = .850, p < .001). Including income as a control variable was not significant. The Variance in item purchase explained by the structural model was 45%.

5. Discussion and Implications

The primary purpose of this study was to examine the antecedents and consequences of gender swapping in an online game. Findings of this study suggest that perceived benefits with anonymity increase the likelihood of gender swapping. Contrary to previous studies, gender identity being more feminine was not a significant predictor of gender swapping. Under the swapped gender context, male game players were more likely to show socially amiable behaviors traditionally considered as characteristic of females. Moreover, male game players are more willing to purchase game items to decorate their gender swapped avatars with the mediating role of emotional attachment to their avatar.

5.1. Theoretical Implications

This study has two theoretical implications about gender swapping and avatars. When new technologies are introduced, people tend to anticipate that it will subvert the existing regime and bring about a new order. Many people predict that new communication methods might resolve or at least alleviate social inequalities or political problems. This perspective is somewhat reflected in the gender swapping of avatars, suggesting that the tradition survives. That is, some researchers expected that gender swapping might disrupt sexual inequality or control power distributions by allowing people to experience opposite gender roles. For example, they thought that women who have less power within society can find some degree of relief from social oppression by playing a male avatar, or that sexual minorities can express their unveiled identity within an anonymity-conditioned environment.

Nonetheless, only a few people seem to use avatars in this way. Dill and Thill [12] reported that male characters are stereotyped as aggressive and female characters are sexually objectified. DiGiuseppe and Nardi [11] found several common gender stereotypes about users’ character choices in the game, such as females being more likely to choose certain groups of characters that are associated with supportive roles, while males are more likely to play characters that commonly involve physical warfare. In addition, people tended to consider their avatar as an object or tool, at least within the game context, not as an expression of the self. In line with this premise, we can infer that the motivation for gender swapping is more associated with practical benefits, rather than the expression of sexual identity.

The results of this study support this supposition. According to survey of male MMORPG players, gender schema (i.e., in this study, the degree to which a person is feminine) is not significantly associated with gender swapping. Rather, players swap their gender in an online environment to gain practical benefits, if their anonymity is guaranteed. Overall, results of this study support that gender swapping is not a strange behavior. Beyond prejudice, it shows that people swap their gender based on rational judgment for gaining practical benefits in the virtual world.

Regarding behavioral aspects, this study confirms that players’ behavioral patterns can be changed as a result of gender swapping. Previous literature suggested that avatars can lead to behavioral changes in users [20, 27, 28, 44, 45]. This study confirmed that gender swapping male players tend to behave as female players do. That is, male players who swap genders display socially amiable behaviors in a way that female players might have displayed. Additionally, they are emotionally attached to their
avatars, consequently leading them to buy more items to decorate their avatars.

Although the underlying mechanism is unclear, there can be two possible explanations. Gender, as perceived by other participants, shaped the other participants’ expectations toward the individual, which in turn influenced the individual’s behavior. Alternatively, the individual adjusted his own behavior to be consistent with the gender of his self-representation, independent of the perceptions of others. In other words, one considered an avatar as an objectified other, separated from self. Another considered it as the embodiment of the self. As we assume that gender swapping is more associated with practical benefits rather than expressions of sexual identity, the result of emotional attachment seems to support those who think of their avatar as an objectified other, separated from the self. At least in this study, an avatar is assumed to lead to behavioral changes due to a players’ conscious adjustment of behavior. It may theoretically contribute to the research related to avatars and behavioral changes.

5.2. Practical Implications

Contrary to previous researches that focused on gender swapping itself, this study explored the antecedents and consequences of gender swapping. Specifically, this study suggests that gender swapping can have practical implications, in that increases the chances of item purchase. Although gender swapping is not related to item purchase directly, it possibly increases players’ intention to buy through the mediating role of emotional attachment to the avatar, which in turn results from gender swapping. Since gender swapping players objectify their avatars, they gradually come to develop an emotional attachment to it, similar to the way in which people develop emotions toward pets or infants. Finally, gender swapping players tend to purchase more items for their avatars.

These results support that items that alter players’ appearances can be effective ways of increasing sales. Actual uses of the virtual items can be classified into two categories. One is functional (affording hedonic and social attributes) [26]. It is unclear that gender swapping male players purchase which type of items. However, previous literatures help in guessing the reason. According to Fahs and Gohr [53], male players often prefer the esthetics of watching a female avatar form. Boss [55] reported that players in virtual world don’t need to change the clothes of their avatar or set their hair, but many do, just to look right and feel comfortable. That is, they do gender swapping for practical or entertainment reasons. Of course, the underlying mechanism and which type of items were sold needs to be examined more thoroughly. Nevertheless, these results can have practical implications on the sale of items in online gaming.

5.3. Limitations and Suggestions

First, the study suggested that perceived benefits were an antecedent of gender swapping. However, this covered benefits that might differ from what female avatars socially have. For example, it only reflected how respondents thought that males seemed to treat female avatars favorably online. Although our methodology is relatively sound and plausible, other aspects such as individual satisfaction, motivation for play or various restrictions of online structures might lead to gender swapping. Thus, various aspects of benefits should be considered. Second, this study was based on an online survey, which could have been subject to self-selection bias. To investigate behavioral changes resulting from gender swapping, the complete interaction and profile data of the players from game might be better than a survey, even though it cannot include all behavioral aspects taking place outside of the online environment. Third, it is difficult to confirm the causal relationship between variables with cross-sectional survey data. To articulate the causes and impacts of gender swapping in online game, a longitudinal design or qualitative follow-up should be considered in future studies. Fourth, the survey included only MMORPG players. However, avatar users might have different usage patterns depending on the context. For example, the usage of avatars in business situations can be different from that in an MMORPG context. Therefore, gender swapping should be examined in various situations. Depending on the context, people can treat avatars as an object or as the embodiment of self. Finally, there may be sociocultural differences in gender swapping. Although this study used a South Korean sample, sociocultural factors can affect anything from preference of game genre to the playing pattern in the game context. Future research should incorporate a sociocultural component to ensure more robust results.

6. References


### Appendix 1. Questionnaire items

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<tr>
<th>Construct</th>
<th>Items</th>
<th>Statistics</th>
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| **GS**    | - understanding  
           | - sympathetic    
           | - eager to soothe hurt feelings  
           | - compassionate  
           | - affectionate  
           | - gentle  
           | - warm  
           | - tender  | Mean = 3.550  
           | S.D. = .632 |
| **PA**    | - In general, I feel anonymous in online environment.  
           | - In general, I think my decision go unnoticed in online environment.  
           | - In general, I think my identity isn’t known to others in online environment.  | Mean = 2.992  
           | S.D. = .812 |
| **PB**    | - Others seem to like playing game with female avatars.  
           | - People are more likely to cooperate with female avatars.  
           | - People are more willing to help female avatars.  | Mean = 3.339  
           | S.D. = .781 |
| **SW**    | - I spend more time in playing as a female avatar.  
           | - I have more female avatars than male avatars.  
           | - I prefer and enjoy playing as a female avatar.  | Mean = 2.812  
           | S.D. = .976 |
| **EA**    | - I feel emotionally connected to my avatar.  
           | - My avatar is like a real friend of mine.  
           | - I am very attached to my avatar.  
           | - My avatar captivates me.  
           | - My avatar makes me delighted.  | Mean = 2.971  
           | S.D. = 1.286 |
| **SB**    | - I have more interest in chatting with other players when I play as a female avatar.  
           | - I have the desire to form meaningful relationships with others when I play as a female avatar.  
           | - I am more satisfied with contributing to the group when I play as a female avatar.  | Mean = 3.265  
           | S.D. = .693 |
| **IP**    | - I would consider buying digital items for my avatar.  
           | - My willingness to buy digital items for my avatar is high.  
           | - The likelihood of purchasing digital items for my avatar is high.  | Mean = 2.981  
           | S.D. = 1.031 |