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White Man's Virtual World: A Systematic Content Analysis of Gender and Race in Massively Multiplayer Online Games

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Abstract

Based on previous research indicating that character portrayals in video games and other media can influence users' perceptions of social reality, systematic content analyses have examined demographic trends in the way video game characters are portrayed. Although these studies have extensively documented character portrayals in traditional console and computer video games, there is a lack of content analyses examining character portrayals in the very popular massively multiplayer online game (MMO) genre. Such studies are needed because many characters in MMOs are customized avatars created by users, which may lead to different trends in character demographics. This content analysis examined representations of gender and race among 417 unique characters appearing 1,356 times in 20 hours of recorded content from four popular commercial MMOs, which was generated by five recruited users. Characters tended to be disproportionately male and white, with females and racial minorities appearing much less often. Implications for potential effects on users' perceptions of social reality are discussed.

1. Introduction

Increasingly, video game users have seen their entertainment options expand beyond traditional console-based games to include more and more persistent massively multiplayer online games (MMOs). These online games occupy a substantial amount of leisure time for millions of game players. Recent research indicates that the average MMO user spends more than 25 hours a week using the popular online games, with MMO use often displacing game players' exposure to other traditional media (Williams, Yee, & Caplan, 2008).

There is evidence in the existing literature that sexism and racism are noteworthy concerns among some video game player communities (Fox & Tang, in press; Kolko, Nakamura, & Rodman, 2012; Salter & Blodgett, 2012). While the cultural causes of such intolerance may be complex, a possible socializing influence on video game users' stereotypical perceptions and behavior regarding gender and race may be in the content of the games they play. Given that MMOs are a substantial part of some users' media diets, MMO play may have a socializing influence on some heavy players' perceptions of social reality. For example, previous longitudinal investigations have found that MMO players' perceptions of real-life crime may be shaped by the extent of their exposure to violence encountered in an MMO (Williams, 2006). Video game use has been shown to foster the development of gender stereotypes (Behm-Morawitz & Mastro, 2009) and to threaten the racial identity of non-white players (Lee & Park, 2011).

These results are not surprising given a large body of content analyses finding disproportionate portrayals of gender and race in console-based video games, with male and white characters overrepresented at the expense of female characters and characters representing most racial minorities (e.g., Beasley & Standley, 2002; Dietz, 1998; Williams, Martins, Consalvo, & Ivory, 2009). However, while the content of traditional video game use has been extensively investigated, the content of MMOs has been relatively underexplored. This is a shortcoming in the existing research on video game content, not only because MMOs are very popular, but because MMOs provide users with an unprecedented role in determining the game characters' demographic makeup through the creation of user-customized avatars.

Although similar to many traditional console-based games in terms of theme and plot, MMOs are substantially different from console-based games because they are populated at any given time by thousands of avatars whose appearance is determined by the game users. While most console-based games involve one or a few user-controlled characters interacting with a large group of computer-controlled characters created by the game producers, a mix of computer-controlled agent characters and customized user-controlled avatars inhabit MMOs. These MMOs allow users to control the way they represent themselves in the games' virtual environments by personalizing their avatars' appearance along a multitude of potential characteristics. For example, MMO users can vary the appearance of their avatars by choosing gender, skin tone, hairstyle, and height (Ducheneaut, Wen, Yee & Wadley, 2009). The opportunity to manipulate one's identity in MMOs has important implications for research on the representation of gender and race in online video games, as Williams, Martins, Consalvo and Ivory (2009) argue that user avatars represent an increasingly important source of character portrayals for online games. However, the portrayal of characters in MMOs has been more or less unexamined in systematic content analyses.

The present study addressed this gap in existing research through a systematic content analysis of gender and race among 417 unique characters appearing 1,356 times in 20 hours of content from four popular commercial MMOs. This analysis is intended to provide baseline data about portrayals of

gender and race in MMOs to tell us more about what content users encounter in these popular games and what possible social effects of these games' content might be worth investigating in the future. After reviewing previous literature related to the representation of gender and race in traditional and online video games, this paper describes the research questions investigated by this study, details the sample and coding protocol used to complete the content analysis, reports the study's findings, and discusses the implications and limitations of the study.

2. Literature Review

2.1 Representations of Gender and Race in Traditional Console-Based Video Games

Media can be a powerful force in shaping perceptions of social reality, including media users' perceptions of gender roles and the social role of ethnic groups (Behm-Morawitz & Mastro, 2009; Comstock & Cobbey, 1979; Mastro & Behm-Morawitz, 2005; Mastro, Behm-Morawitz, & Ortiz, 2007; Rivadeneyra, Ward, & Gordon, 2007). Just as representations of gender and race are often unrealistic in media such as television (Harwood & Anderson, 2002) and magazines (Soley and Reid, 1988), the distribution of gender and race in video games is frequently unrepresentative. For example, a comprehensive content analysis of video game characters across 150 popular commercial video games found that male and white characters were overrepresented at the expense of women and most other ethnic groups (Williams et al., 2009). Incongruities were further heightened when differentiating between primary and secondary characters, as white males were even more likely to be featured as the primary protagonist controlled by the user. Underrepresentation of women and non-white ethnic groups has also been observed by earlier content analyses of gender and race in video games which have found only 13% of characters were female (Beasley & Standley, 2002; Dietz, 1998) and more than 87% of leading characters were white (Heintz-Knowles, Henderson, Glaubke, Miller, Parker, & Espejo, 2001).

These trends in character representation have been attributed to the corresponding demographics of game designers, as Williams (2006) argues the absence of non-white, female characters in games can be explained by the absence of females and minority designers in the gaming industry. Given this assertion and the consistently disproportionate representations of gender and race in previous studies of video game content, it is possible that the demographic representations of characters in console-based games may remain disproportional until there is a substantial change in the demographic makeup of people involved in game design and production. However, it is possible that these trends in character portrayals may change in the case of MMOs because of the users' role in determining the characteristics of many of the characters encountered in those games.

2.2 A New Frontier: Character Demographics in MMOs and other Virtual Worlds

MMOs feature regular interaction between user-created avatar characters online. Although the extent of customization options for users' avatar characters varies between MMO games, the ability to choose the skin tone and gender of one's avatar is a common feature across MMO games (Ducheneaut et al., 2009). Given that the prevalence of customized user avatars has given MMO users an unprecedented role in determining the demographics of video game characters, previous findings about representations of gender and race in traditional console-based games may not be generalizable to the content of MMO games. While prior research has yet to systematically examine portrayals of character gender and race in MMO games, some studies have examined relationships between MMO users' characteristics and the way those users represent themselves with MMO avatar characters (Bessière, Seay, & Kiesler, 2007; Ducheneaut et al., 2009; Huh & Williams, 2008; Hussain & Griffiths, 2008).

Some investigations of avatar customization choices in MMOs have focused on the concept of gender bending, or the frequency with which users choose to employ avatars with genders opposite to their offline biological sex. Estimations of gender bending's occurrence fluctuate across different studies of online games, ranging from 15% of users in *EverQuest* (Huh & Williams, 2008) to more than half of all male players in *World of Warcraft* (Hussain & Griffiths, 2008; Yee, Ducheneaut, Yao, & Nelson, 2011). Subsequent research additionally suggests that the identities users choose vary according to the demographics and related goals of the game environment (Ducheneaut et al., 2009; Nowak & Rauh, 2008). For example, Ducheneaut and colleagues (2009) suggest that users of *World of Warcraft* choose opposite gendered avatars for the purpose of standing out within a predominantly male population, while users of *Second Life* may prefer an idealized, same-gender virtual self to mediate interactions in a more gender-balanced population. Phenomena such as gender-bending by MMO users further underscore the possible need for a thorough examination of the gender makeup of virtual world characters (Huh & Williams, 2008; Hussain & Griffiths, 2008). Therefore, we ask:

RQ₁: How frequently are male and female characters represented across massively multiplayer online games?

RQ₂: Does the representation of male and female characters vary between massively multiplayer online games?

In addition, previous studies have yet to examine the distribution of character race among characters in MMOs. Though previous research on user demographics in the MMO *EverQuest II* found that 87% of MMO players were white (Williams et al., 2008), it remains unclear whether users' replicate their offline race or engage in virtual identity exploration through the selection of avatar skin color. As a result, we ask:

RQ₃: How frequently are different ethnic groups represented across massively multiplayer online games?

RQ₄: Does the representation of ethnic groups vary between massively multiplayer online games?

3. Method

3.1 Sample

Characters from a total of four commercially popular massively multiplayer online games were analyzed. These games were chosen based on sales figures from the NPD Group for 2010 (NPD Group Data, 2010), which identified *World of Warcraft*, *Guild Wars*, *Dungeons and Dragons Online*, and *RuneScape* as the most popular MMO games for that year. Given that the four games selected accounted for 61% of the North American MMO market (Bayer, 2010), these four MMOs represent the majority of the MMO content encountered by MMO users during that year.

Five undergraduate students recruited from a student gaming organization at a major university were each randomly assigned to play two of the four MMOs used in this study. These students had extensive prior experience with MMO games, which is consistent with the type of game player recruited to generate game content in prior content analysis research (Beasley & Standley, 2002; Downs & Smith, 2010). For each game, 2.5 hours of game content were sampled from each of two separate players, resulting in five total hours of content for each game and a total sample of 20 hours of content across the four separate MMOs. Although previous studies have typically recorded segments of 20 to 30 minutes for each video game included in their samples (e.g., Beasley & Standley, 2002; Downs & Smith, 2010;

Williams et al., 2009), this study included five hours of content per MMO game given the longer time commitments characteristic to MMO gameplay (Yee, 2006). Two users were assigned to play each MMO to ensure that the content included in the sample for each game represented the game experience of multiple users rather than the idiosyncratic experience of only one user. Prior research has typically only employed one player to generate game content (Beasley & Standley, 2002; Downs & Smith, 2010; Williams et al., 2009). The sex, physical appearance, name, and server of the users' character avatars were also randomly generated so that any avatar or server-dependent game content (e.g., instances where users' characters start the game in a region populated by characters with similar appearance) would be determined randomly and not by a user decision. The users' game sessions were digitally recorded on a high-end desktop computer for later coding.

3.2 Unit of Analysis

Data for variables under study were coded for each unique game character that a user's character avatar encountered during a 2.5-hour MMO game session. A character was included in the sample if a user's character avatar interacted with that character or viewed the character's basic information using the game interface. Specifically, the protocol guiding whether a character was coded was operationalized as to whether that character's avatar and name icon appeared as "selected" in the game's user interface, a sign that the user's character was somehow engaged with that character in the game environment. The sample included 417 such characters encountered in the 20 hours of MMO content sampled.

3.3 Coded Variables

Gender. Each character was coded as "male," "female," or "not applicable." Non-human anthropomorphic characters without an apparent gender (e.g., animals; characters with a non-human-like morphology) were coded as "not applicable." This treatment of quasi-human characters is consistent with the protocol of previous video game content analyses (e.g., Downs & Smith, 2010; Williams et al., 2009).

Race. Characters were assigned an apparent race based on the heuristic cue of avatar skin color and subsequently coded as "White," "Black," "Hispanic," "Asian/Pacific Islander," or "Native American." Nonhuman anthropomorphic characters without features consistent with human racial characteristics (e.g., skin tone variation not typically present among humans) were coded as "not applicable." This protocol is consistent with the treatment of race utilized by previous content analyses (e.g., Downs & Smith, 2010; Williams et al., 2009).

Number of appearances. The number of times each unique character appeared in a game session was recorded so that analyses could account for the unequal prevalence of different characters' appearances in the recorded game content. This variable was operationalized as the number of separate times the same character (or an identical version of that character in the case of some computer-controlled characters) appeared during users' 2.5-hour game session.

Character type. Characters were identified as either a customized avatar character controlled by another game user or a computer-controlled agent character created by the game designer. This distinction was made using information provided in the games, such as the text and icons accompanying characters in the game display.

3.4 Coding and Reliability

A total of four graduate student coders were trained in the coding protocols and completed coding for all variables for all characters in the 20 hours of recorded MMO content. Each 2.5-hour game session was randomly assigned to one of the coders, with two sessions randomly assigned to all coders (without the coders' knowledge as to which sessions were assigned to multiple coders) to allow assessment of intercoder reliability.

Scott's π was used to assess intercoder reliability for the categorical measures of character gender ($\pi = .76$) and race ($\pi = .81$). Pearson's r was used to determine intercoder reliability for the continuous measure of total number of character appearances ($r = .81$). Intercoder reliability for all variables was acceptable.

4. Results

4.1 Character Gender

The first research question asked how frequently male and female characters were represented in the overall sample. Analyses were first carried out for unique characters, then repeated for the total number of appearances by all characters. As Figure 1 shows, male characters represented 62.59% ($n = 261$, 95% CI = 57.85%-67.09%) of the unique characters in the sample, female characters represented 13.67% ($n = 57$, 95% CI = 10.70%-17.29%) of the unique characters in the sample, and 23.74% ($n = 99$, 95% CI = 19.91%-28.05%) of the characters in the sample did not have an apparent gender. This means that of the 318 characters who had an apparent gender, 82.08% ($n = 261$, 95% CI = 77.49%-85.90%) were male and 17.93% ($n = 57$, 95% CI = 14.10%-22.52%) were female.

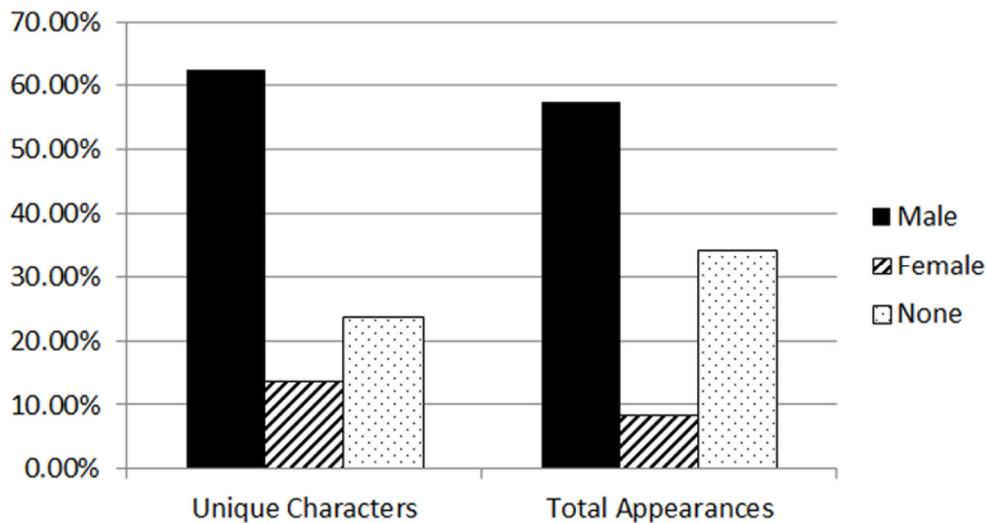


Figure 1: Gender representation for unique characters and total character appearances, all games ($n = 417$ characters, 1,356 appearances).

Gender prevalence for the total appearances among all characters followed a similar pattern. Male characters accounted for 57.38% ($n = 778$, 95% CI = 51.74%-63.02%) of total character appearances, female characters accounted for 8.41% ($n = 114$, 95% CI = 7.05%-10.00%) of total character appearances, and 34.22% ($n = 464$, 95% CI = 31.74%-36.79%) of total character appearances

in the sample were by characters with no apparent gender. This means that of the 892 appearances by characters who had an apparent gender, 87.22% ($n = 778$, 95% $CI = 84.87\%-89.25\%$) were appearances by male characters and 12.78% ($n = 114$, 95% $CI = 10.75\%-15.13\%$) were appearances by female characters.

The second research question asked if gender representation was consistent across the four games that constituted the sample. Analyses were first carried out for unique characters, then repeated for the total number of appearances by all characters. A chi-square analysis comparing prevalence of unique characters' gender across the MMO games found significant differences in gender prevalence between games ($\chi^2 = 14.34$, $p = .026$). As Table 1 shows, all games featured a majority of male characters, though the prevalence of characters with no apparent gender and female characters differed somewhat across games. A chi-square analysis comparing total character appearances across games also found significant differences in gender prevalence between games ($\chi^2 = 205.33$, $p < .001$). All of the games in the sample featured more appearances by male characters than by female characters, but the total proportion of male character appearances was particularly high for *Dungeon and Dragons Online*, the total proportion of female character appearances was relatively high (though still less than half) for *Guild Wars*, and the proportion of appearances by characters with no apparent gender was particularly high for *World of Warcraft*.

Table 1: Gender representation for unique characters and total character appearances across games ($n = 417$ characters, 1,356 appearances).

Game	Unique Characters			Total Appearances		
	Male	Female	None	Male	Female	None
D & D Online	61.5%	19.2%	19.2%	73.0%	5.5%	21.5%
Guild Wars	66.3%	16.8%	16.8%	66.7%	17.4%	17.4%
RuneScape	61.3%	13.3%	25.3%	63.2%	8.7%	28.1%
World of Warcraft	61.3%	7.3%	31.4%	35.8%	7.4%	56.9%
Total (All Games)	62.6%	13.7%	23.7%	8.4%	57.4%	34.2%

4.2 Character Race

The third research question asked how frequently different ethnic groups were represented in the overall sample. Analyses were first carried out for unique characters, then repeated for the total number of appearances by all characters. As Figure 2 shows, white characters made up 43.41% ($n = 181$, 95% $CI = 38.73\%-48.20\%$) of the unique characters in the sample, while black characters accounted for 3.84% ($n = 16$, 95% $CI = 2.38\%-6.14\%$) of the sample and no human racial group was apparent for the other 52.76% ($n = 220$, 95% $CI = 47.96\%-57.50\%$) of the characters. Hispanics, Asian/Pacific Islanders, and Native Americans were not represented by any of the characters in the sample. Although slightly more than half of the characters were not identified with any apparent human racial group, this means that of the 197 characters who did have an apparent racial group, 91.88% ($n = 181$, 95% $CI = 87.22\%-94.94\%$) were white and 8.12% ($n = 16$, 95% $CI = 5.06\%-12.78\%$) were black.

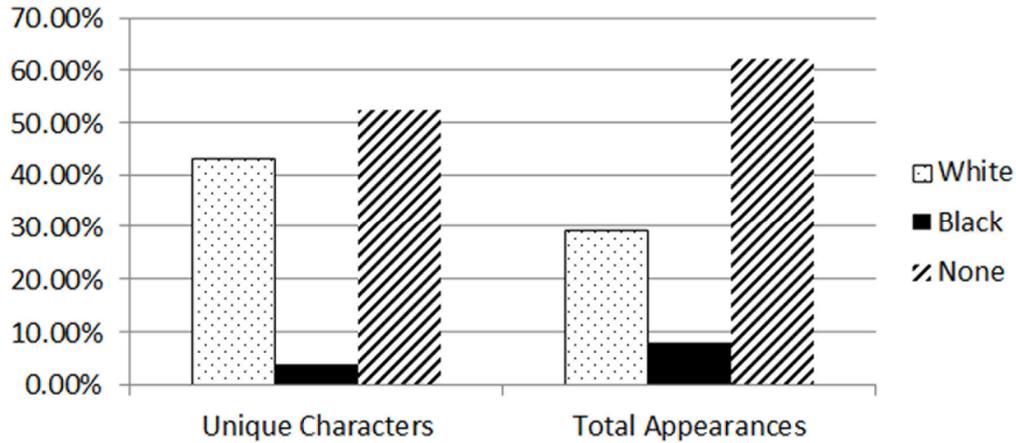


Figure 2: Race representation for unique characters and total character appearances, all games (n = 417 characters, 1,356 appearances).

Trends were similar for analyses of racial prevalence among the total appearances of all characters. White characters accounted for 29.57% (n = 401, 95% CI = 27.20%-32.06%) of total character appearances, black characters accounted for 7.89% (n = 107, 95% CI = 6.57%-9.45%) of total character appearances, and 62.54% (n = 848, 95% CI = 59.93%-65.07%) of total character appearances in the sample were by characters who were associated with no apparent racial group.

The fourth research question asked if racial representation was consistent across the four games that constituted the sample. Analyses were first carried out for unique characters, then repeated for the total number of appearances by all characters. A chi-square analysis found significantly different racial distribution across games ($\chi^2 = 35.00$ p < .001). As Table 2 shows, this was mainly due to some differences between games as to whether White characters were represented more often than characters with no apparent human racial association. For example, *Dungeons and Dragons Online* and *RuneScape* featured a majority of white characters while *Guild Wars* and *World of Warcraft* featured a majority of characters without an apparent human racial association. For all games, though, black characters represented a small minority of characters, and *World of Warcraft* featured no black characters at all in this particular sample.

Table 2: Race representation for unique characters and total character appearances across games (n = 417 characters, 1,356 appearances).

Game	Unique Characters			Total Appearances		
	White	Black	None	White	Black	None
D & D Online	52.9%	3.9%	43.3%	30.1%	17.6%	52.4%
Guild Wars	40.6%	7.9%	51.5%	43.5%	5.31%	51.2%
RuneScape	56.0%	5.3%	38.7%	44.4%	5.9%	49.7%
World of Warcraft	31.4%	0.0%	68.6%	18.0%	0.0%	82.0%
Total (All Games)	43.4%	3.8%	52.8%	29.6%	7.9%	62.5%

Repeating the chi-square analysis for all character appearances also identified significantly different racial distribution across games ($\chi^2= 216.80 p < .001$). As with the results for unique characters, this was mainly due to differences between games in terms of the relative prevalence of appearances by White characters and by characters with no apparent human racial association, though appearances by Black characters did constitute a larger minority of the appearances in *Dungeons and Dragons Online* than in other games.

4.3 User-Controlled Avatar Characters and Computer-Controlled Agent Characters

Given that this research was motivated in part by interest in whether the presence of customized user-controlled avatar characters would influence gender and racial representation among MMO characters, supplementary analyses explored how many characters in the sample were user-controlled avatar characters and how many of them were computer-controlled agent characters. User-controlled characters actually made up only 4.07% ($n = 17$, 95% CI = 2.56%-6.43%) of the unique characters in the sample, while computer-controlled characters comprised 95.92% ($n = 400$, 95% CI = 93.57%-97.44%) of the unique characters. User-controlled characters accounted for only 2.29% ($n = 31$, 95% CI = 1.62%-3.23%) of total character appearances, with computer-controlled characters making 97.71% ($n = 1,325$, 95% CI = 96.77%-98.39%) of the character appearances in the games.

Although user-controlled characters were not common in the sample, their gender and racial makeup was slightly more equitable than the overall sample. As Figure 3 shows, 76.47% ($n = 13$, 95% CI = 52.74%-90.45%) of user-controlled characters were male and 23.53% ($n = 4$, 95% CI = 9.56%-47.26%) of user-controlled characters were female. None of the user-controlled characters had no apparent gender. Male user-controlled characters accounted for 87.10% ($n = 27$, 95% CI = 71.15%-94.87%) of appearances by user-controlled characters in the sample, while female user-controlled characters accounted for the other 12.90% ($n = 4$, 95% CI = 51.34%-28.85%) appearances by user-controlled characters.

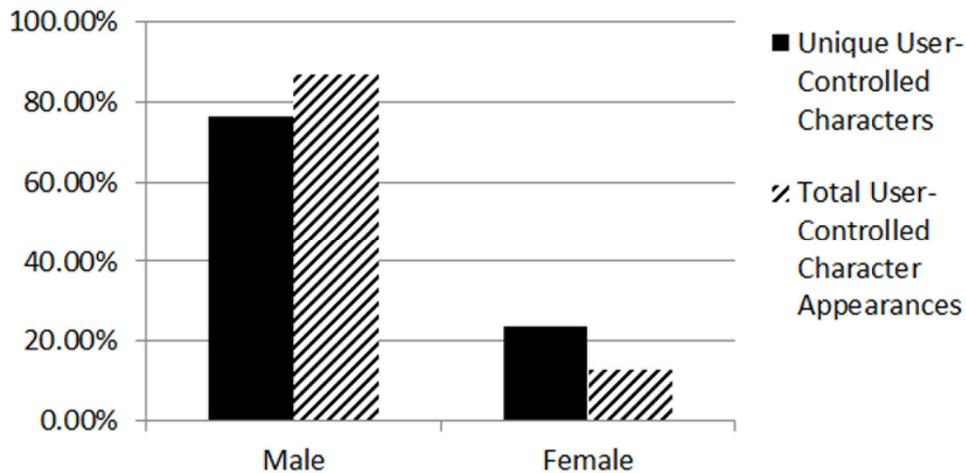


Figure 3: Gender representation for unique user-controlled characters and total user-controlled character appearances, all games ($n = 17$ characters, 31 appearances).

As shown in Figure 4, white user-controlled characters comprised 76.47% ($n = 13$, 95% CI = 52.74%-90.45%) of the total unique user-controlled characters, while another 11.77% ($n = 2$, 95% CI = 3.29%-34.34%) of the unique characters were black and a final 11.77% ($n = 2$, 95% CI = 3.29%-

34.34%) had no apparent human racial association. White user-controlled characters accounted for 77.42% ($n = 24$, 95% $CI = 60.19\%-88.61\%$) of total appearances by user-controlled characters, with black characters accounting for 16.13% ($n = 5$, 95% $CI = 7.09\%-32.63\%$) of user-controlled character appearances and user-controlled characters with no apparent human racial association making 6.45% ($n = 2$, 95% $CI = 7.09\%-32.63\%$) of user-controlled character appearances.

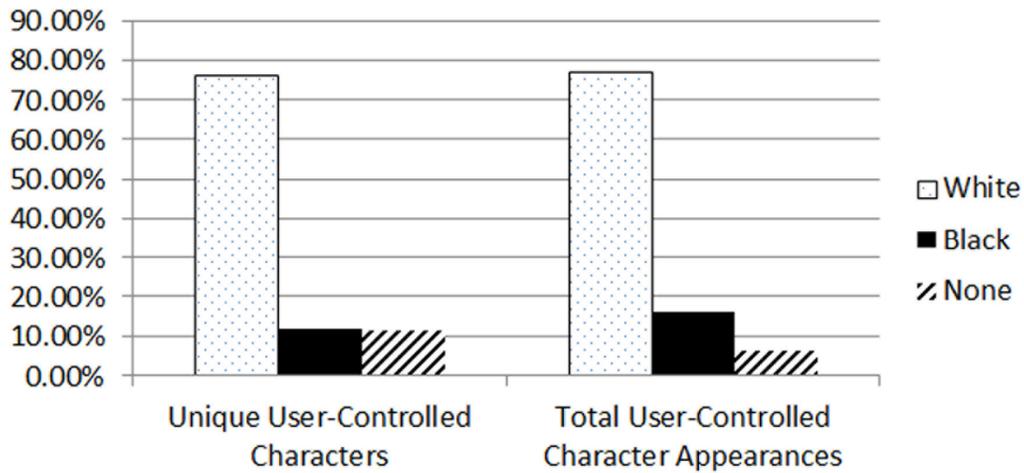


Figure 4: Race representation for unique user-controlled characters and total user-controlled character appearances, all games ($n = 17$ characters, 31 appearances).

5. Discussion

Though previous studies of gender and race in traditional console-based video games have found games' portrayals to be unrepresentative in favor of male characters and white characters, character portrayals in the increasingly popular genre of massively multiplayer online games have previously been relatively unexamined. An understanding of the content of these games is increasingly important, as users of MMOs report playing online games more frequently than their use of television and other popular media (Williams et al., 2008). Given that previous research has found that the extended use of online video games can lead to the cultivation of offline perceptions of social reality, (Williams, 2006), an accompanying examination of the popular but relatively under examined content of MMOs warrants comprehensive analysis. This study attempted to expand our understanding of how video game characters are represented in this novel game genre by identifying patterns of gender and race representation in MMOs to determine whether these patterns mirror those found by other research or whether MMOs exhibit new trends in the way they represent gender and race among their characters. Specifically, the study examined the distribution of character gender and race across 20 hours of video game content generated by five MMO players.

Generally, this study found that, as with research on console-based video games, characters in MMOs tended to be disproportionately male and white. Most characters in the sampled content were male, particularly among those characters who had an apparent gender. While many characters in the sample did not have an apparent association with a human racial group, those who did were overwhelmingly white, and black was the only other racial group represented at all. Although MMOs differ from other video game genres in many ways, it appears that gender and race representation may not be one of them. It should also be noted that these inequities cannot be explained away as simply a

reflection of the MMO user demographics. While the gender distribution of characters and character appearances in this sample is perhaps comparable to, though in cases slightly more male than, the MMO gender distributions of MMO users reported in recent surveys (e.g., Williams, Consalvo, Caplan, & Yee, 2009; Williams et al., 2008), the distribution of race among characters in our sample badly fails to represent the ethnic diversity of MMO users.

While we had speculated that the presence of user-created and user-controlled avatar characters might influence the gender and race makeup of MMO characters, user-controlled characters were relatively rare in the sample. This suggests that users of MMOs encounter computer-controlled agent characters much more frequently than user-controlled avatar characters, meaning that the decisions of game designers and producers still play a very strong role in the character portrayals that MMO users are exposed to while using MMO games. This finding is consistent with user behavior previously observed in the popular MMO *World of Warcraft* which found many users prefer to be “alone together” in virtual environments (Ducheneaut, Yee, Nickell, & Moore, 2006). Therefore, while users may enjoy the presence of an audience of user-controlled avatar characters while completing their virtual conquests (Ducheneaut et al., 2006), the most frequently-viewed character representations in MMOs may still be determined by games’ designers and producers rather than by the users.

It also appears that the presence of user-controlled characters may not have a large effect on the gender and racial makeup of MMOs. While the small group of user-controlled characters we encountered was slightly less disproportionately male and white, male and white characters still constituted a large majority of the user-controlled avatar characters in the sample. Although players of MMOs are provided the opportunity to customize the gender and skin color of their own avatar characters, users of MMOs in our sample seem to be—for the most part—replicating patterns of gender and race representation common to computer-controlled characters in MMOs, as well as in other video games, with their avatar character choices. Although the gender makeup of the small group of user-controlled characters is generally comparable to that found in recent surveys of MMO users (e.g., Williams et al., 2009; Williams et al., 2008), it certainly does not represent the span of races represented by MMO users. That said, a larger group of user-controlled character avatars should be sampled to provide a more full understanding of how MMO users represent their characters’ gender and race.

Non-human characters appeared frequently in the current sample and were more likely to appear than female or non-white characters. Prior research (Williams, 2006) has attributed the infrequent appearance of female characters to the predominance of male game designers, although it less clear why non-human characters are more likely to populate MMO games than non-white ethnic groups. While the design motivations for the frequent appearance of non-human characters are beyond the scope of the current study, the results nonetheless suggest that both creators and users of MMOs may further perpetuate disproportionately male and white character representations that have been observed in video game content for more than a decade. Although the precise implications of these unrepresentative portrayals for users’ perceptions of social reality are unclear, previous research on the effects of disproportionate representations of gender and race (Behm-Morawitz & Mastro, 2009; Comstock & Cobbey, 1979; Mastro & Behm-Morawitz, 2005; Mastro et al., 2007; Rivadeneyra, Ward, & Gordon, 2007) suggest concern about the way that the large and dedicated MMO audience may view gender and race in society.

While the present study focused specifically on the representation of gender and race in MMOs, there is a need for more research on the content of MMOs and related environments. Subsequent studies could examine other popular virtual worlds, as applications like *Second Life* and other social environments may contain demographic representations inconsistent with those of the MMO games

investigated here. Other content variables that have been widely investigated in console-based games, such as prevalence of sexualized portrayals, should also be examined in MMOs and other virtual worlds. Future research should also examine other indicators of race aside from character appearance, including the environment of the MMO or the dialogue used between characters. Finally, future investigations could supplement the present study with a content analysis of game content generated in even longer MMO game sessions with more developed MMO characters. Since more dedicated users of MMOs interact more frequently with other user-controlled avatar characters (Ducheneaut et al., 2006), future investigations could expand upon the foundation set by the current study to examine whether the content trends observed here continue to present themselves after scores of hours of game play.

Until then, however, this study provides useful baseline data describing the way gender and race tend to be portrayed in several popular MMOs. Unfortunately, though, it seems that while MMOs are something new compared to the video games that came before them, their representation of gender and race may not be new at all.

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