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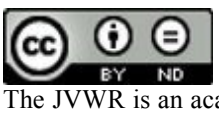

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Harsh Words and Deeds:

Systematic Content Analyses of Offensive[1] User Behavior in the Virtual Environments of Online First-Person Shooter Games

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Abstract

While the virtual environments of online games can foster healthy relationships and strong communities, some online games are also marred by antisocial and offensive behavior. Such behavior, even when relatively rare, influences the interactions and relationships of users in online communities. Thus, understanding the prevalence and nature of antisocial and offensive behaviors in online games is an important step toward understanding the full spectrum of healthy and unhealthy interactions and relationships in virtual environments. Extensive research has explored video game content produced by game developers, such as violence, profanity, and sexualized portrayals, but much less research has systematically examined potentially problematic content produced by players in online games. While potential effects of antisocial and offensive online game content are not well understood, a first step toward exploring this concern is systematic documentation of offensive user-generated content in online games. To that end, two large-scale content analyses measured a range of

[1] This paper contains strong language which may be offensive to some readers.

offensive user-generated content, including utterances, text, and images, from a total of more than 2,500 users in popular first-person shooter video games. Findings indicated that some content, such as profanity, was frequent among users who spoke during games. More offensive and potentially harmful content, such as racial slurs, was proportionally very rare, but frequent enough to be encountered often by regular players. Results of this initial investigation should be interpreted tentatively, do not suggest that relationships in online shooter games lack healthy elements, and should not be generalized to other online game communities until further research is conducted.

1. Background and Rationale

1.1. Online Relationships in Virtual Environments and the Role of Antisocial and Offensive User Behavior

Online games, like a broad variety of other virtual communities ranging from online discussion forums to immersive virtual worlds (see Rheingold, 1993), serve as digital social spaces in which users engage in social interactions, form interpersonal relationships, and build social capital (Steinkuehler & Williams, 2006; Williams, Ducheneaut, Xiong, Zhang, Yee, & Nickell, 2006). For many, online games and virtual environments can often be a space for healthy social interaction, development of supportive social relationships, and construction of social capital (Steinkuehler & Williams, 2006; Yee, 2006; 2007). In surveys, majorities of online game players report establishing close friendships with players they have met in virtual game environments, with many also reporting meeting them in person, being attracted to or dating them, and discussing sensitive issues with them that they would not discuss with other friends (Cole & Griffiths, 2007; Yee 2006). The virtual environments in online games have also been venues for prominent social rituals associated with closer interpersonal relationships, such as weddings (Turkle, 2005) and memorial ceremonies (Gibbs, Mori, Arnold, & Kohn, 2012).

However, the same online games that can be home to positive social connections and healthy interpersonal relationships are not immune to more malevolent social actors. Just as players can form meaningful interpersonal relationships and communities in the virtual environments of online games, those relationships and communities can be affected by antisocial behavior within the game environments. One prominent anecdotal example of the extent to which virtual relationships in online games can be disrupted by antisocial behavior occurred in the online role-playing game *World of Warcraft* in 2006, where players assembling to memorialize a recently deceased player found their game characters ambushed by another group of players (Luck, 2009). Many other anecdotes in virtual worlds recount similar instances of "griefing," or prankish behavior that disrupts others' game play experiences and may cause financial or other material loss (Bakioglu, 2008). Antisocial and offensive behavior in online games ranges from insults and harassment (Fox & Tang, 2014; 2016) to elaborately staged portrayals of virtual rape (Dibbell, 1994).

There is ample research evidence that some users in online games and virtual environments engage in destructive anti-social behavior such as racism and sexual harassment (Fox & Tang, 2014; 2016; Kolko, Nakamura, & Rodman, 2012; Salter & Blodgett, 2012; Tang & Fox, 2016). Further, there is some preliminary evidence that online users' objectionable behavior in video games may influence the same outcomes commonly studied in research on game content, such as hostile expectations and other forms of aggression (Eastin, 2007). At worst, online game user behavior may even take the form of known online threats to well-being such as cyberbullying (Dehue, Bolman, & Völlink, 2008). Such behavior is a part of the social milieu in which social relationships occur in online games, and can impact interpersonal relationships within the virtual environments of online games. Put simply, destructive, anti-social and sometimes fleeting interactions and relationships can sometimes be as much a part of the social fabric of virtual environments as are close, healthy

friendships. Therefore, it is crucial to understand and document the type and amount of antisocial and offensive behavior in online games. This baseline information could inform investigations of the potential influence this type of content might have on the game playing experiences in general, as well as the relationships and interactions in online games and other virtual environments more broadly.

1.2. Research on Content and Effects of Video Games and Virtual Worlds

A first step toward understanding the role of offensive user behavior in online game environments is systematic documentation of such content. Vast amounts of research have chronicled the content of video games, virtual worlds, and other online and offline game environments, including prevalence of violence, portrayals of gender and sexualization of characters, prevalence of profanity, and more (e.g., Beasley & Standley, 2002; Dietz, 1998; Dill & Thill, 2007; Downs & Smith, 2010; Ivory, 2006; Ivory, Williams, Martins, & Consalvo, 2009; Smith, Lachlan, & Tamborini, 2003; Waddell, Ivory, Conde, Long, & McDonnell, 2014; Williams, Martins, Consalvo, & Ivory, 2009). Much of this research has been prompted by concerns about the potential negative effects of such content. Some suspected effects, such as possible effects of violence in games on player aggression, have been studied extensively (e.g., Anderson, Shibuya, Ihori, Bushman, Sakamoto, Rothstein, & Saleem, 2010; Elson & Ferguson, 2015; Elson, Mohseni, Breuer, Scharkow, & Quandt, 2014; Ferguson, 2007; Sherry, 2001). Other possible effects, such as the potential influence of sexualized gender portrayals (Behm-Morawitz & Mastro, 2009), portrayals of body image (Barlett & Harris, 2008), racial cues (Lee & Park, 2011), and profanity (Holz Ivory & Kaestle, 2013), are less studied, but have been examined.

1.3. The Importance of Systematic Content Analysis of User Behavior in Online Games

While there is some debate over the extent to which video game content can have various antisocial effects on players (Bushman, Gollwitzer, & Cruz, 2015; Elson & Ferguson, 2015; Elson et al., 2014; Hall, Day, & Hall, 2011; Ivory, Markey, Elson, Colwell, Ferguson, Griffiths, Savage, & Williams, 2015), and particularly whether any such effects merit policy attention (Ferguson, 2013), the large body of literature on video-game content and its effects has almost completely eschewed systematic content analysis of one form of increasingly prevalent and potentially problematic video game content: offensive content generated by player behavior in online games. While popular commercial video games have historically been played by users alone or in groups with peers, many of the most popular game genres are now played online (Limperos, Downs, Ivory, & Bowman, 2013).

Much of the literature on video games' social impact has focused on the social effects of game content designed by the games' developers and programmers, but some of the most common content many video game players encounter is the speech, text, and player logos and other images created by their peers online. This content is largely undocumented in research and is not rated or described by industry ratings systems because it is emergent and dynamic in nature. One of the largest video-game content analyses to date (Williams et al., 2009) included only 30 minutes of play in one online video game (*World of Warcraft*); the authors of that study noted the need for more systematic analysis of online game content. Many of the existing systematic content analyses fail to address the fact that online game environments serve as much more than vehicles for delivery of pre-packaged game content to a large audience. Like other virtual communities (see Rheingold, 1993), online games are digital social spaces (Steinkuehler & Williams, 2006), and many users' motivations for playing online games are social rather than focused on game content, mechanics, and achievements (Yee, 2006; 2007). Thus, the existing systematic content analyses of digital games that only document

"built-in" game content to the exclusion of the content of users' behavior and social interaction miss much of the actual content and messages that make up online game players' relationships and experiences.

1.4. Documenting Offensive User Behavior in Online Games

While largely ignored by content analyses, player-generated content may also be more worthy of concern than much of the content that has received more attention. As the debate over effects of "pre-packaged" game content continues, user-generated content remains unaddressed by ratings systems, so there is little guidance for consumers about what user-generated content to expect in addition to the "built-in" game content (e.g., violence, profanity) documented in game ratings systems. The existing research on concerns about offensive user behavior has mostly come in the form of user surveys (e.g., Fox & Tang, 2014; 2016; Tang & Fox, 2016) and interpretive case studies (e.g., Kolko et al., 2012; Salter & Blodgett, 2012). To complement this evidence, there is a need for large-scale systematic content analyses to document rates of offensive user behavior. Such analyses will provide benchmarks describing the rates of problematic content encountered by online game players, provide guidance for parents and advisory groups regarding online game play, and provide researchers with evidence about the prevalence of problematic social behavior to explore with social research and interventions. Existing systematic content analyses of video games have given much attention to the content that is in games when they leave the factory, but the most problematic content may be generated by players themselves right under the proverbial noses of a population of empirical content analysis researchers that—for the most part—fret over published game content while neglecting potential social concerns about online user behavior.

1.5. The Present Research: Initial Benchmarks of Offensive Online First-Person Shooter User Behavior

To complement existing survey and case study evidence, we need to know what user-generated content players are likely to encounter in order to proceed with research and discussion related to effects, policy, and parental recommendations. This article details a series of two large-scale systematic content analyses of online video game player behavior conducted to address the shortage of baseline data regarding the prevalence of offensive user-generated content in online play. These analyses focus on the popular first-person shooter genre, one of the most popular online game genres, and one that affords its participants the type of brief, shallow, and fleeting online social interaction with that may be most conducive to irresponsible and inconsiderate social behavior (see Rheingold, 1993). That said, the online first-person shooter genre is a popular one, and though encounters between players might not be as long-term and symbiotic as in some other online game environments (see Steinkuehler & Williams, 2006; Williams et al., 2006), the genre may also be marked by more player interaction than in some online environments where players share a virtual space but direct interactions are sparse (Ducheneaut, Yee, Nickell, & Moore, 2006). Interview evidence indicates that first-person shooter games serve as a forum for development and maintenance of social relationships (Xu, Cao, Sellen, Herbrich, & Graepel, 2011). While there are a broad range of online game communities meriting exploration, this is a first attempt to provide systematic content analysis benchmark data for prevalence of offensive user behavior in player communities for one popular online game genre.

Study 1 is a content analysis of problematic behavior in verbal utterances made across 713 observed online players of two console "shooter" games. Based on its results, and in replication and extension of its method, Study 2 is a content analysis of utterances, text names, and user logos from 1,866 online users of two console versions of another "shooter" game. Analyses of player behavior in online shooter games are not representative of user behavior in other genres and formats of online

games and virtual worlds, and the extent to which the samples represent user behavior even in other online first-person shooter games is not known, so this study is only one of many needed to document rates of problematic player behavior. These studies were designed to provide a first step toward baseline data about problematic online user-generated game content in multiple player communities for one particular online game genre as a guide for future content analyses, effects research, and online community policy discussion.

2. Study 1: Utterances in *Call of Duty: Black Ops* and *Halo: Reach* for Xbox 360

2.1. Method

Sample. Four undergraduate students unfamiliar with the study's rationale, design, or topic were each recruited to play three hours of individual sessions on the Xbox 360 console in the Xbox Live online multiplayer community while their game play was recorded on a DVD recording device. Each of the recruited players played two popular first-person shooter games, *Call of Duty: Black Ops*, and *Halo: Reach*, for approximately 90 minutes of each game. Players were instructed to alternate their play between "team" matches and individual "free for all" matches to provide variety in content generated. Data were recorded unobtrusively; the recruited players were instructed to play as they would normally play, and they did not use headset devices to interact with other players online. Essentially, the recruited players were only present in the online game to allow other players' online behavior to be recorded, and the recruited players' actions were not included in the data set. The approximately 12 hours of game time (6 hours for each game) generated by all recruited players included a total of 89 individual game matches, each about 10 minutes in duration or less, which featured a total of 713 online players whose play and online behavior was captured during the recorded sessions.

Coded variables. A series of ratio-level variables were coded detailing characteristics of players' verbal utterances during game matches; for each variable, the number of individual utterances from each player matching the variable's criteria were counted over the duration of the match. Coded variables for each player were:

Total utterances: The number of deliberate utterances by character per session. Each time a player spoke, then stopped with the game's indicator of microphone use turning on, then off, for example, was coded as a separate utterance.

"*Seven dirty words*:" The number of utterances containing the words "shit," "piss," "fuck," "cunt," "cocksucker," "motherfucker," and "tits" or any variation of them (e.g., "shithead") (Ivory et al., 2009).

Other strong profanity: The number of utterances (not total words) containing strong excretory words [e.g., "asshole"], sexual words [e.g., "pecker"], and other words that evoke strong emotion and offense [e.g., "bitch"], but are not on the "seven dirty words" list (Ivory et al., 2009).

Mild profanity: The number of utterances (not total words) containing words that are considered to have some degree of profanity, rudeness, or offensiveness, but which are not widely considered to evoke strong emotion and offense, such as "hell," "damn," "crap," and "slut," and "Christ," "Jesus," and "God" if uttered in vain (Ivory et al., 2009).

Total Profanity: The number of utterances containing profanity, which includes the utterances containing any of the "seven dirty words," "other strong profanity," and "mild profanity" variables above.

Racial slur utterances: The number of utterances containing an offensive reference to ethnicity or race by insulting or denigrating members of a racial or ethnic group.

Gender slur utterances: The number of utterances containing an offensive reference to gender by insulting or denigrating members of the male or female gender.

Sexual orientation slur utterances: The number of utterances containing an offensive reference to sexual minorities by insulting or denigrating a sexual orientation.

Religion slur utterances: The number of utterances containing an offensive reference to religious groups by insulting or denigrating persons of a particular religious affiliation.

Mental illness slur utterances: The number of utterances containing derogatory references to mental illness.

Verbal aggression: The number of utterances containing "hostile connotation and, more specifically, expressions of negative affect, verbally abusive utterances including character and competence attacks, negative comparisons, profanity, or references to destruction or physical harm" (Eastin, 2007, p. 457).

Direct insults: The number of utterances containing an insult made directly toward another player (e.g., "You suck," "loser," etc.).

Direct threats: The number of utterances containing a threat made directly toward another player (e.g., "I'll kill you").

Direct accusations: The number of utterances containing an accusation of misconduct made directly toward another player (e.g., "You're cheating").

Indirect insults: The number of utterances containing an insult made indirectly about a player, as in team games where all players cannot hear the player (e.g., "This guy sucks").

Indirect threats: The number of utterances containing a threat made indirectly about a player, as in team games (e.g., "I'll kill this guy").

Indirect accusations: The number of utterances containing an accusation of misconduct made indirectly about a player, as in team games (e.g., "This guy is cheating").

Sexual utterances: The number of utterances containing a reference to sexual activity or sexual innuendo.

Drug-related utterances: The number of utterances containing a reference to drugs or drug use.

Alcohol-related utterances: The number of utterances containing a reference to alcohol or alcohol use.

Coding and Reliability. The unit of analysis for the study was the online speech from each of the 713 individual players appearing in the study, and the unit of enumeration was the total number of utterances by each player meeting the criteria for each of the measured utterance-related variables. Two undergraduate student coders were trained in a coding protocol for this content analysis. All matches were randomly assigned to one of the two coders, with an overlap of 13 matches (yielding 227 individual player cases) assigned to both coders for assessment of intercoder reliability. Intercoder reliability for the variables was assessed using Pearson's *r* given the variables' ratio level of measurement, and was acceptable for all variables: .95 for total utterances, .99 for "seven dirty words" utterances, .89 for mild profanity utterances, .99 for total profanity utterances, and 1 for all other utterance variables.

2.2. Results

Of the 713 players, 72 (10.09%) players said any recorded utterances (though in some cases, utterances from players on opposing teams in team matches and players in "private chat" mode were not audible). The 72 players who made recorded utterances made a total of 1,106 utterances. Data are reported at two levels of analysis: 1) the percentage of players making any utterances (n = 713) who made at least one utterance including content from the coded categories, and 2) the percentage of total observed utterances (n = 1,106) that included content from the coded content categories. See Figure 1 for proportions of both players and utterances with content for each coded category.

Profanity. Of the 72 players making utterances, 39 (54.20%) used profanity in one or more utterances, with 21 (29.2%) using seven dirty words, 9 (12.50%) using other strong profanity, and 18 (25.00%) using mild profanity. Of the 1,106 total utterances, 109 (9.9%) contained profanity, 56 (5.1%) contained seven dirty words, 31 (2.80%) contained other strong profanity, and 33 (2.98%) contained mild profanity.

Aggression, threats, accusations, and insults. Of the 72 players making utterances, 13 (18.1%) exhibited verbal aggression, 7 (9.7%) directly insulted other players, 4 (5.6%) directly threatened other players, 6 (8.3%) made direct accusations against other players, 4 (5.6%) indirectly insulted other players, and 1 (1.4%) made indirect accusations against other players. None of the players (0.00%) made indirect threats. Of the 1,106 total utterances, 30 (2.72%) contained verbal aggression, 9 (0.81%) contained direct insults, 9 (0.81%) contained direct threats, 16 (1.45%) contained direct accusations, 9 (0.81%) included indirect insults, and 1 (0.09%) contained indirect accusations.

Slurs. Of the 72 players making utterances, 2 (2.8%) used racial or ethnic slurs, 1 (1.4%) used a slur related to gender (1 total gender slur utterance), 3 (4.2%) used a slur related to sexual orientation, 1 (1.4%) used a slur related to religion, and 1 (1.4%) used a slur related to mental illness. Of the 1,106 total utterances, 2 (0.18%) contained racial or ethnic slurs, 1 (0.09%) contained a slur related to gender, 6 (0.54%) contained a slur related to sexual orientation, 3 (0.27%) contained a slur related to religion, and 2 (0.18%) contained a slur related to mental illness.

References to sex, drug use, and alcohol. None of the players made references to sex, drug use, or alcohol.

2.3. Discussion

This first systematic content analysis of utterances made by players in first-person shooter games provided both “proof of concept” regarding the viability of reliable measurement and coding of offensive player behavior, as well as some initial baseline data about offensive utterances that a player might expect to encounter during typical online play in two popular first-person shooter games. Findings indicate that while most sampled players in these games did not talk online during play, those who did tended to talk several times per match, about half used profanity, and a minority of them made a number of noteworthy offensive utterances. The overall prevalence of profanity and aggression is much higher than the prevalence of more objectionable content such as slurs, though given that more than 1% of players made utterances for each of the coded categories, the likelihood of a player encountering all of the content we examined is high over the course of several online game play sessions.

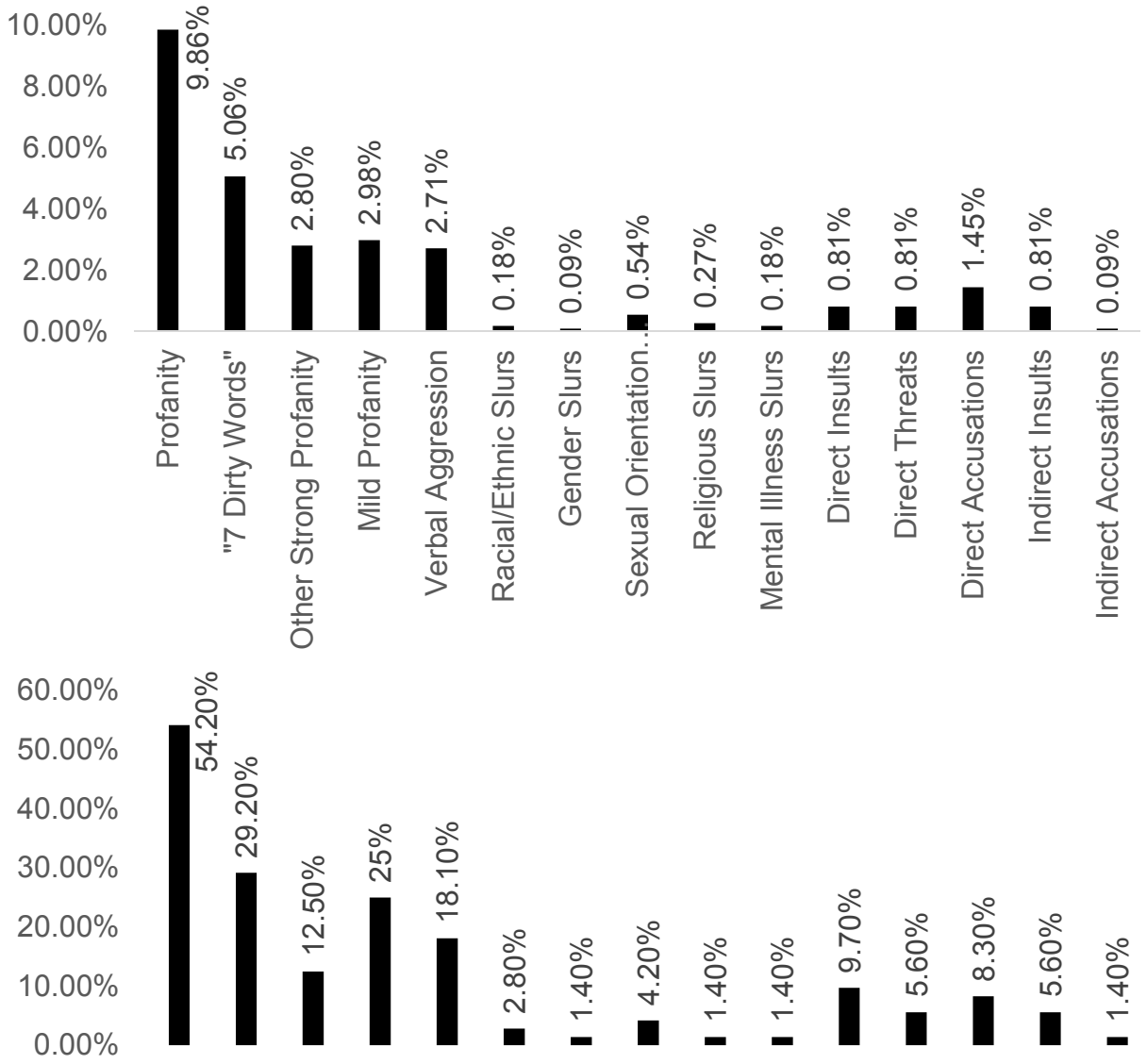

Figure 1: Proportion of total utterances (top; n = 1,106) and total players making utterances (bottom; n = 72) containing coded content.

3. Study 2: Utterances and User-Generated Text and Images in *Call of Duty: Black Ops II* for Playstation 3 and Xbox 360

To follow up, a larger content analysis was conducted, which expanded on the sample, involved multiple console formats, and added an analysis of user-generated text and images as well as the user-generated utterances examined in Study 1.

3.1. Method

The second study followed the same general approach as Study 1, but with some changes. First, a different game and console were used to replicate findings across different game formats. Second, in addition to player utterance variables, data for online players' user name text and user "logo" images were also coded for offensive content. Third, a larger sample was obtained using versions of one game product across two separate consoles and corresponding online game network communities.

Sample. Five undergraduate students unfamiliar with the study's rationale, design, or topic were each recruited to play approximately six hours of video game time (three per console) in individual recorded sessions. Recruited players played online sessions of *Call of Duty: Black Ops II* for the PlayStation 3 and corresponding online PlayStation Network and the Xbox 360 and corresponding online Xbox Live service, alternating between team and "free for all" matches as in Study 1. The approximately 30 hours of game time generated by all five recruited players included a total of 229 individual game matches, each about 10 minutes in duration or less.

This total sample was reduced, however, by circumstances that elapsed during the coding process when one of the trained undergraduate coders was injured in an ATV accident. Head and eye injuries introduced difficulties for the coder's in-progress work. The coding decisions for this coder, which included 57 unique matches as well as the overlap of 59 matches, were discarded from the sample. Thus, the final coded sample for analysis consisted of 172 recorded matches, which featured appearances from a total of 1,866 online players whose play and online behavior was captured during the recorded sessions. The removal of one coder's work from the sample due to injury did not systematically bias the remaining sample, as the cases coded had been randomly assigned, and the size of the sample was deemed to remain adequate when compared to similar published systematic manual content analyses of characters and players in online games and virtual worlds (e.g., Beasley & Standley, 2002; Dietz, 1998; Dill & Thill, 2007; Downs & Smith, 2010; Ivory, 2006; Ivory et al., 2009; Smith et al., 2003; Waddell et al., 2014; Williams et al., 2009), so matches assigned to the coder whose work was affected by injury were not reassigned.

Coded variables. Study 2 included some variables from Study 1 and some original variables.

Utterance variables. The coded variables for utterances in Study 2 were mostly included in Study 1, with some variables combined or removed based on Study 1 results to reduce redundancy and account for low prevalence. (Additionally, some variables that did not demonstrate adequate intercoder reliability were also eliminated from analyses reported here.) For profanity, the "seven dirty words" and "other strong profanity" categories were combined into a single "seven dirty words and other strong profanity" variable, and the mild and total profanity variables were retained as used in Study 1. For aggression, accusations, and threats, the variables related to direct and indirect insults were retained as used in Study 1, while the variables related to accusations and threats were removed and replaced with a variable measuring utterances of frustration. For slurs, the categories for slurs related to race, gender, religion, and sexual orientation were combined into a single slur variable. The coded variables related to references to drugs and alcohol were removed.

User names. For player names, coded variables assessed presence or absence of sexual references, references to drugs and alcohol, overall profanity, "seven dirty words" and other strong profanity, mild profanity, and slurs related to race, gender, religion, or sexual orientation.

User emblems. Coded variables for customized player emblems assessed images including the same variables as for player names, but with sexual reference categories including overall sexual references, mild sexual references, and explicit sexual references, and with a coded category for insults also included.

Coding and reliability. For utterance variables, the unit of analysis for the study was the online speech from each of the 1,866 individual players appearing in the study, and the unit of enumeration was the total number of utterances by each player meeting the criteria for each of the measured utterance-related variables. For user name and emblem variables, the unit of analysis was the presence or absence of content in each of the 1,866 individual players' user names and emblems.

The matches randomly assigned to the two coders included an overlap of 59 matches (yielding 633 individual player cases) for assessment of intercoder reliability. Intercoder reliability for the utterance variables was assessed using Pearson's *r* given the variables' ratio level of measurement, and was acceptable for all variables: .99 for total utterances, .88 for utterances with strong profanity including "seven dirty words," .81 for mild profanity utterances, .92 for total profanity utterances, .69 for direct insult utterances, .80 for indirect insult utterances, .69 for utterances with slurs related to race, gender, sexual orientation, or religion, and .78 for frustration utterances. User names and emblems were coded using Holsti's (1969) method given the variables' dichotomous level of measurement and was acceptable for all variables: 97.83% for user name sexual references, 99.00% for user name references to drugs and alcohol, 99.00% for user name profanity, 99.50% for user name "seven dirty words" and other strong profanity, 99.33% for mild profanity, 99.50% for user name slurs related to race, gender, religion, or sexual orientation, 98.33% for emblem sexual references, 98.33% for emblem mild sexual references, 99.33% for emblem explicit sexual references, 98.99% for emblem references to drugs or alcohol, 98.83% for emblem profanity, 99.67% for emblem mild profanity, 100.00% for emblem race, gender, sexual orientation, or religion slurs, and 98.66% for emblem insults.

3.2. Results

Utterances. Of the 1,866 players, 150 (8.04%) made any recorded utterances (in some cases, utterances from players on opposing teams in team matches and players in "private chat" mode were not audible). The 150 players who made utterances made a total of 1,869 utterances. For utterances, data are reported at two levels of analysis: 1) the percentage of players making any utterances (n = 150) who made at least one utterance including content from the coded categories, and 2) the percentage of total observed utterances (n = 1,869) that included content from the coded content categories. See Figure 2 for proportions of both players and utterances with content for each coded category. Of the 150 players making utterances, 81 (54.00%) used profanity, 69 (46.00%) used seven dirty words or other strong profanity, 42 (28.00%) used mild profanity, 21 (14.00%) used direct insults, 11 (7.33%) used indirect insults, 54 (36.00%) expressed frustration, and 15 (10.00%) used slurs related to race, gender, religion, or sexual orientation. Of the 1,869 total utterances, 304 (16.27%) contained profanity, 248 (13.27%) contained seven dirty words or other strong profanity, 77 (4.12%) contained mild profanity, 54 (2.89%) contained direct insults, 24 (1.28%) contained indirect insults, 131 (7.01%) contained frustration, and 31 (1.66%) contained slurs related to race, gender, religion, or sexual orientation.

User names. For user names and emblems, data are reported in terms of percentage of total recorded players (n = 1,866) whose usernames or emblems included content from the coded categories. See Figure 3 for proportions of players with user name content for each coded category,

and see Figure 4 for proportions of players with user emblem content for each coded category. Of the 1,866 players, 22 (1.18%) had a username that contained sexual references, 22 (1.18%) had a user name that contained references to drugs or alcohol, 16 (0.86%) had a user name that contained profanity, 12 (0.64%) had a user name that contained seven dirty words or other strong profanity, 8 (0.43%) had a user name that contained mild profanity, and 17 (0.91%) had a user name that contained slurs related to race, gender, religion, or sexual orientation.

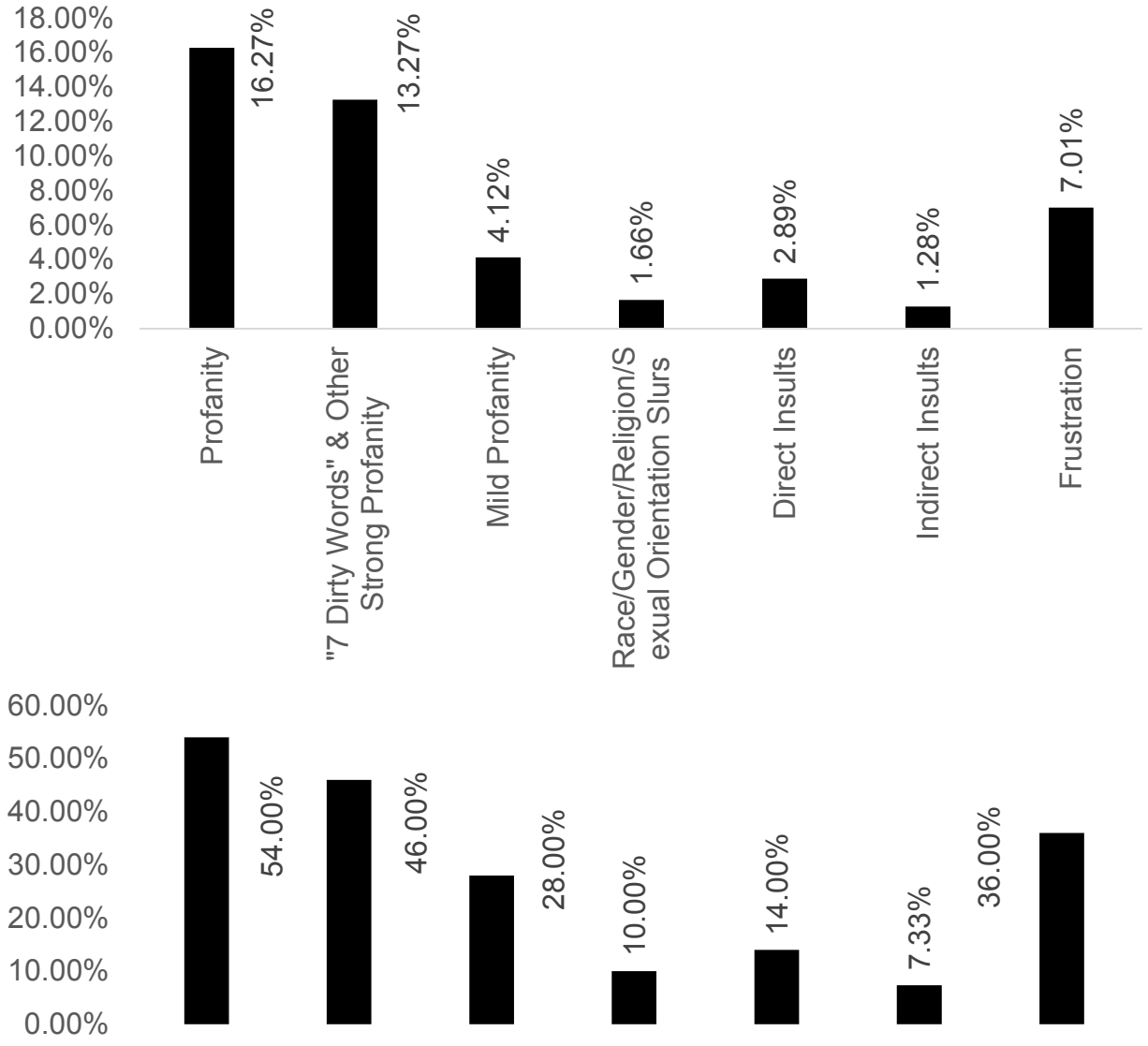

Figure 2: Proportion of total utterances (top; n = 1,869) and total players making utterances (bottom; n = 150) containing coded content.

User emblems. Of the 1,866 players, 57 (3.05%) displayed an emblem that contained sexual references, 57 (3.05%) displayed an emblem that contained mild sexual references, 37 (1.98%) displayed an emblem that contained explicit sexual references, 29 (1.55%) displayed and emblem that contained references to drugs or alcohol, 29 (1.55%) displayed an emblem that contained profanity, 27 (1.45%) displayed an emblem that contained seven dirty words or other strong profanity, 4 (0.21%) displayed an emblem that contained mild profanity, 17 (0.91%) displayed an emblem that contained slurs related to race, gender, religion, or sexual orientation, and 14 (0.75%) displayed an emblem displayed that contained insults.

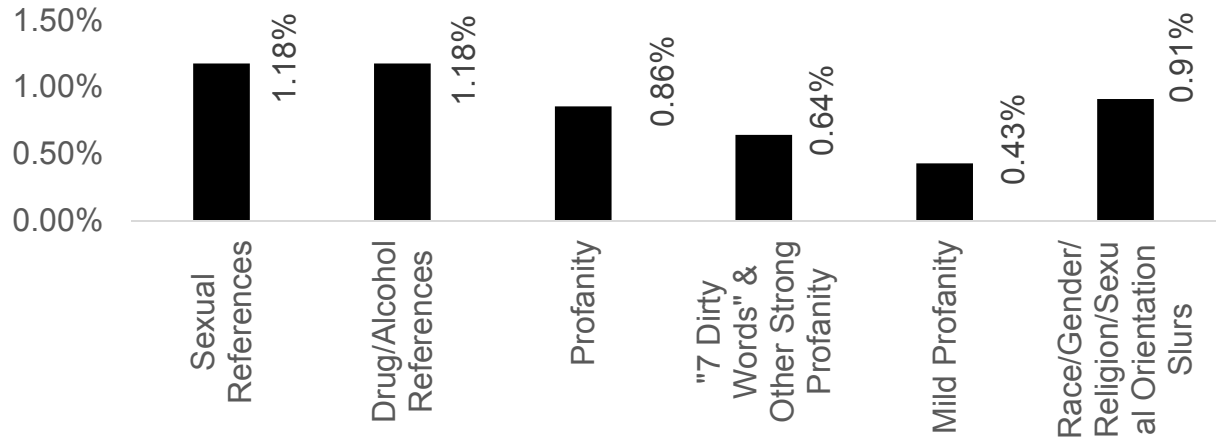

Figure 3: Proportion of user names (n = 1,866) containing coded content.

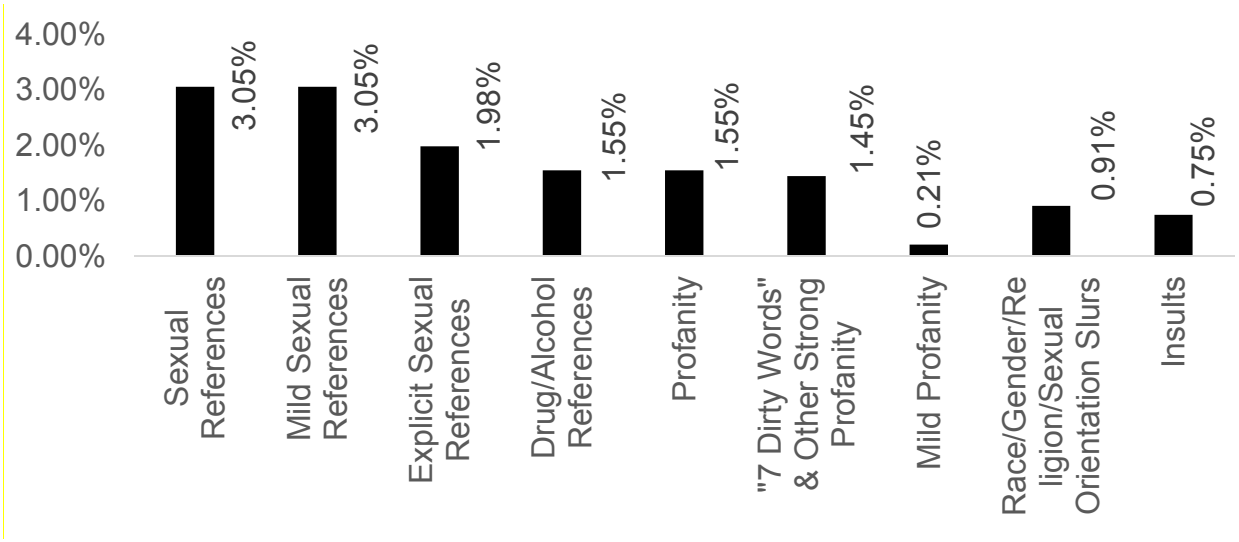

Figure 4: Proportion of user emblems (n = 1,866) containing coded content.

3.3. Discussion

Generally, results from Study 2 replicate the pattern of results from Study 1. While most players do not speak during matches, the majority of those who do speak use at least some profanity. Most utterances, though, do not contain profanity. Insults and frustration are used by a minority of players who speak during matches, but neither type of utterance is uncommon. Use of slurs is proportionally rare, but frequent enough as to be used by a non-trivial minority of players and appearing in enough utterances to be likely to be encountered by a regular player. Further, while the vast majority of user names and player-created user emblems do not contain objectionable content, problematic content including slurs occurs often enough that encountering player names including this content would not be uncommon for a regular player.

4. General Discussion

The virtual environments of online games can foster meaningful social relationships and healthy communities, but can also be home to some offensive behavior that can affect and disrupt those relationships and communities. Positive relationships are often a characteristic of virtual communities, but less pleasant interactions can also be a part of the relationships formed in virtual environments. As one step toward understanding the prevalence and nature of offensive content in

online game environments, large-scale systematic content analysis is a useful empirical tool for examining the social dimensions of video games and virtual worlds. A number of content analyses have examined "built-in" content of social interest such as violence and profanity, but large-scale systematic content analyses have, for the most part, neglected the content online game users generate through their behavior and interactions in the game. This lack of focus on online user behavior is a regrettable oversight, as many of the healthiest and most problematic elements of social relationships in online game communities may likely be introduced by users in their online behaviors rather than in the content produced by games' designers. To supplement emerging evidence from recent surveys and case studies suggesting that anti-social behavior such as sexual harassment and racism are a problem for some online game users, this pair of systematic content analyses was an attempt to provide some benchmark data hinting at the prevalence of a range of potentially objectionable content in online first-person shooter games.

This pair of studies observed some consistent patterns. First, most users in our sample did not make utterances at all. This prevalence may be explained by the fact that some users did not connect headsets while playing the game, or only interacted with teammates not captured in our recordings depending on our recruited players' team affiliation at the time, but in any case many users do not seem to interact with each other at all via voice chat during a typical match. Among those users who did speak while playing, there were generally consistent patterns: in both studies, the majority used some profanity, though most individual utterances did not contain any profanity. More objectionable content, such as aggression, insults, threats, and slurs were used only by a small minority of those players who did speak, and very few individual utterances contained such content. Similar patterns were observed for user names and player-created user emblems, though with generally lower prevalence than utterances. It should be noted, however, that content such as player emblems can contain more vivid messages compared to in-game speech. For example, emblems in our sample included depictions of the September 11, 2001 attack on the World Trade Center, an anthropomorphic penis and testicles smoking a cigarette while brandishing a revolver, and a male stick figure impaling the head of a female stick figure with his ejaculating penis.

That said, the low prevalence of particularly offensive content in user speech and other user-generated content is a relative matter: Even if only one in ten or twenty online first-person shooter players uses a type of offensive slur, or if only one in about a hundred given utterances contains such a slur, a regular player who plays several matches per day with dozens of players is likely to encounter not only profanity and other coarse language and imagery, but also slurs that in some cases constitute hate speech. Thus, even a low relative prevalence of some content is problematic when extrapolated to a typical player experience of dozens of game matches per day or week.

As a first step toward some baseline data about the prevalence of objectionable content in online first-person shooter play, these studies have many limitations. Their samples, though not small, are based on sporadic observations from individual recorded play sessions. Thus, the extent to which they are representative of the player communities for the games sampled is difficult to determine. Cooperation with online game developers and hosts, and even their communities, to ensure more representative data based on play logs or other more universal sampling procedures would validate the observational sampling method used here. Further, this pair of studies focused on online first-person shooter games, which are a popular online game genre and which contain the sort of brief and antagonistic encounters that may be particularly conducive to anti-social behavior (Rheingold, 1993). These results should not be generalized to other game genres and other online communities, particularly given that other online game genres such as massively multiplayer online role-playing games and social virtual worlds may be structured to encourage more positive social interaction and community-building between players (Steinkuehler & Williams, 2006; Williams et al., 2006). Given that different online game formats and genres feature not only different structures, but communities with different demographic makeup and motivations, studies such as this one

should be repeated across a range of online game communities to determine the prevalence of content such as that examined here across different types of online game communities. Finally, only some potentially objectionable content was analyzed here, and the variables differed across the two studies. Further research can validate the measures used here and explore other potentially problematic online behavior as well.

It is also important to note that the analyses will not provide evidence as to the social effects of these behaviors on the social relationships and communities in online games, only how often they occur in our sample. Further research, including interpretive investigations, should further explore how this content may influence players' relationships and behavior. It may be that the prevalence of some of the content observed here tends to normalize it for some players, while other players are marginalized and disenfranchised and still others are largely unaffected relative to other social influences. It may be that antisocial and offensive behavior disrupts relationships in online games and makes online game environments less conducive to relationship formation; at the same time, perhaps some online relationships and communities are galvanized in resistance to such negative behavior. The existence, magnitude, and boundaries of these and other possible effects should be investigated to aid an understanding of how online game players are influenced by their interactions with other players online. The results here provide little information about such possible effects on relationships and communities in online games, but our findings do suggest which behaviors might merit further attention in terms of possible social effects.

While only a first step toward a comprehensive account of the prevalence of objectionable user behavior in online games, these studies provide a useful baseline regarding the prevalence of some potentially problematic behavior in online first-person shooter games. In the absence of game ratings that take online user interaction into account, these data provide some useful guidance to players and parents considering the appropriateness of online play. While it may be a decision for individuals and families what content they or their children should be exposed to online when playing games, these data provide some indication of what content a player will encounter playing first-person short games online, and how often. These data do not, however, define what game content is safe or appropriate for audiences.

Online games are more than media products; they are communities and social spaces. In many cases, these communities offer healthy interactions and supportive environments, but anti-social and offensive interactions remain a danger in some online game environments as well. Much attention has been given to potentially problematic content that comes pre-loaded in video games, but often the most objectionable material an online first-person shooter player will encounter appears more likely to come from the players themselves. How much that is the case in other online game communities, and what that means for online social relationships, industry policy, parental recommendations, and effects research, are the next questions we must answer.

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References

Anderson, C. A., Shibuya, A., Ihori, N., Bushman, B. J., Sakamoto, A., Rothstein, H. R., & Saleem, M. (2010). Violent video game effects on aggression, empathy, and prosocial behavior in Eastern and Western countries: A meta-analytic review. *Psychological Bulletin, 136,* 151-173. doi:10.1037/a0018251

Bakioglu, B. (2008). Spectacular interventions of *Second Life*: Goon culture, griefing, and disruption in virtual spaces. *Journal of Virtual Worlds Research*, *1*(3). doi:10.4101/jvwr.v1i3.348

Barlett, C. P., & Harris, R. J. (2008). The impact of body emphasizing video games on body image concerns in men and women. *Sex Roles, 59,* 586-601. doi:10.1007/s11199-008-9457-8

Beasley, B. & Standley, T. C. (2002). Shirts vs. skins: Clothing as an indicator of gender role stereotyping in video games. *Mass Communication & Society, 5*(3), 279-293. doi:10.1207/S15327825MCS0503_3

Behm-Morawitz, E., & Mastro, D. (2009). The effects of the sexualization of female video game characters on gender stereotyping and female self-concept. *Sex Roles, 61,* 808-823. doi:10.1007/s11199-009-9683-8

Bushman, B. J., Gollwitzer, M., & Cruz, C. (2015). There is broad consensus: Media researchers agree that violent media increase aggression in children, and pediatricians and parents concur. *Psychology of Popular Media Culture, 4,* 200-214. doi:10.1037/ppm0000046

Cole, H., & Griffiths, M. D. (2007). Social interactions in massively multiplayer online role-playing gamers. *Cyberpsychology and Behavior, 10,* 575-583. doi:10.1089/cpb.2007.9988

Dehue, F., Bolman, C., & Völlink, T. (2008). Cyberbullying: Youngsters' experiences and parental perception. *CyberPsychology and Behavior, 11,* 217-223. doi:10.1089/cpb.2007.0008

Dibbell, J. (1993, December 21). A rape in cyberspace or how an evil clown, a Hatian trickster spirit, two wizards, and a cast of dozens turned a database into a society. *Village Voice,* 36-42.

Dietz, T. L. (1998). An examination of violence and gender role portrayals in video games: Implications for gender socialization and aggressive behavior. *Sex Roles, 38,* 425-442. doi:10.1023/A:1018709905920

Dill, K. E., & Thill, K. P. (2007). Video game characters and the socialization of gender roles: Young people's perceptions mirror sexist media depictions. *Sex Roles, 57,* 851-864. doi:10.1007/s11199-007-9278-1

Downs, E., & Smith, S. (2010). Keeping abreast of hypersexuality: A video game character content analysis. *Sex Roles, 62,* 721-733. doi:10.1007/s11199-009-9637-1

Ducheneaut, N., Yee, N., Nickell, E., & Moore, R. J. (2006). "Alone together?" Exploring the social dynamics of massively multiplayer online games. In *Proceedings of the 24th annual International Conference on Human Factors in Computing Systems,* Montreal, Canada. doi:10.1145/1124772.1124834

Eastin, M. S. (2007). The influence of competitive and cooperative group game play on state hostility. *Human Communication Research, 33,* 450-466.

Elson, M., & Ferguson, C. J. (2015). Twenty-five years of research on violence in digital games and aggression: Empirical evidence, perspectives, and a debate gone astray. *European Psychologist, 19,* 33-46. doi:10.1027/1016-9040/a000147

Elson, M., Mohseni, M. R., Breuer, J., Scharkow, M., & Quandt, T., (2014). Press CRTT to measure aggressive behavior: The unstandardized use of the competitive reaction time task in aggression research. *Psychological Assessment, 26,* 419-432. doi:10.1037/a0035569

Ferguson, C. J. (2007). The good, the bad, and ugly? A meta-analytic review of positive and negative effects of violent video games. *Psychiatric Quarterly, 78*, 309-316. doi:10.1007/s11126-007-9056-9

Ferguson, C. J. (2013). Violent video games and the Supreme Court: Lessons for the scientific community in the wake of *Brown v. Entertainment Merchants Association. American Psychologist, 68,* 57-74. doi:10.1037/a0030597

Fox, J., & Tang, W. Y. (2014). Sexism in online video games: The role of conformity to masculine norms and social dominance orientation. *Computers in Human Behavior, 33,* 314-320. doi:10.1016/j.chb.2013.07.014

Fox, J., & Tang, W. Y. (2016). Women's experiences with general and sexual harassment in online video games: Rumination, organizational responsiveness, withdrawal, and coping strategies. *New Media and Society.* (Online First Publication) doi:10.1177/1461444816635778

Gibbs, M., Mori, J., Arnold, M., & Kohn, T. (2012). Tombstones, uncanny monuments, and epic quests: Memorials in World of Warcraft. *Game Studies, 12*(1). Available: http://gamestudies.org/1201/articles/gibbs_martin

Hall, R., Day, T., & Hall, R. C. W. (2011). A plea for caution: violent video games, the Supreme Court, and the role of science. *Mayo Clinic Proceedings, 86,* 315-321. doi:10.4065/mcp.2010.0762

Holsti, O. R. (1969). *Content analysis for the social sciences and humanities*. Reading, MA: Addison-Wesley.

Holz Ivory, A, & Kaestle, C. E. (2013). The effects of profanity in violent video games on players' hostile expectations, aggressive thoughts and feelings, and other responses. *Journal of Broadcasting and Electronic Media, 57,* 224-241. doi:10.1080/08838151.2013.787078

Ivory, J. D. (2006). Still a man's game: Gender representation in online reviews of video games. *Mass Communication and Society, 9,* 103-114. doi:10.1207/s15327825mcs0901_6

Ivory, J. D., Markey, P. M., Elson, M., Colwell, J., Ferguson, C. J., Griffiths, M. D., Savage, J., & Williams, K. D. (2015). Manufacturing consensus in a diverse field of scholarly opinions: A comment on Bushman, Gollwitzer, and Cruz (2015). P*sychology of Popular Media Culture, 4,* 222-229. doi:10.1037/ppm0000056

Ivory, J. D., Williams, D., Martins, N., & Consalvo, M. (2009). Good clean fun? A content analysis of profanity in video games and its prevalence across game systems and ratings. *CyberPsychology and Behavior, 12,* 457-460. doi:10.1089/cpb.2008.0337

Kolko, B., Nakamura, L., & Rodman, G. (eds.) (2012). *Race in cyberspace.* New York: Routledge.

Lee, J.-E. R., & Park, S. G. (2011). "Whose Second Life is this?" How avatar-based racial cues shape ethno-racial minorities' perception of virtual worlds. *Cyberpsychology, behavior, and social networking, 14,* 637-642. doi:10.1089/cyber.2010.0501

Limperos, A. M., Downs, E., Ivory, J. D., & Bowman, N. D. (2013). Leveling up: A review of emerging trends and suggestions for the next generation of communication research investigating video games' effects. *Communication Yearbook, 37,* 348-377

Luck, M. (2009). Crashing a virtual funeral: morality in MMORPGs. *Journal of Information, Communication and Ethics in Society, 7,* 280-285. doi:10.1108/14779960911004516

Rheingold, H. (1993). *The virtual community: Homesteading on the electronic frontier*. Reading, MA: Addison-Wesley.

Salter, A., & Blodgett, B. (2012). Hypermasculinity and dickwolves: The contentious role of women in the new gaming public. *Journal of Broadcasting and Electronic Media, 56,* 401-416. doi:10.1080/08838151.2012.705199

Sherry, J. L. (2001). The effects of violent video games on aggression: A meta-analysis. *Human Communication Research, 27*, 409-431. doi:10.1111/j.1468-2958.2001.tb00787.x

Smith, S. L., Lachlan, K., & Tamborini, R., (2003). Popular video games: Quantifying the presentation of violence and its context. *Journal of Broadcasting and Electronic Media, 47,* 58-76. doi:10.1207/s15506878jobem4701_4

Steinkuehler, C. A., & Williams, D. (2006). Where everybody knows your (screen) name: Online games as "third places." *Journal of Broadcasting and Electronic Media, 11,* 885-909. doi:10.1111/j.1083-6101.2006.00300.x

Tang, W. Y., & Fox, J. (2016). Men's harassment behavior in online video games: Personality traits and game factors. *Aggressive Behavior, 42,* 513-521. doi:10.1002/ab.21646

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

Waddell, T. F., Ivory, J. D., Conde, R., Long, C., & McDonnell, R. (2014). White man's virtual world: A systematic content analysis of gender and race in massively multiplayer online games. *Journal of Virtual Worlds Research, 7*(2). doi:10.4101/jvwr.v7i2.7096.

Williams, D., Ducheneaut, N., Xiong, L., Zhang, Y., Yee, N., & Nickell, E. (2006). From tree house to barracks: The social life of guilds in World of Warcraft. *Games and Culture, 1,* 338-361. doi:10.1177/1555412006292616

Williams, D., Martins, N., Consalvo, M., & Ivory, J. D. (2009). The virtual census: Representations of gender, race, and age in video games. *New Media and Society, 11,* 815-834. doi:10.1177/1461444809105354

Yee, N. (2006). The demographics, motivations, and derived experiences of users of massively multiplayer multi-user online graphical environments. *Presence, 15,* 309-329. doi:10.1162/pres.15.3.309.

Xu, Y., Cao, X., Sellen, A., Herbrich, R., & Graepel, T. (2011). Sociable killers: Understanding social relationships in an online first-person shooter game. *CSCW '11: Proceedings of the ACM 2011 Conference on Computer Supported Cooperative Work.* Hangzhou, China. doi:10.1145/1958824.1958854

Yee, N. (2007). Motivations for play in online games. *Cyberpsychology and Behavior, 9,* 772-775. doi:10.1089/cpb.2006.9.772