

Women's Experiences in eSports: Gendered Differences in Peer and Spectator Feedback During Competitive Video Game Play

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Abstract

Despite the growing popularity of eSports, the poor representation of women players points to a need to understand the experiences of female players during competitive gaming online. The present study focuses on female gamers' experiences with positive and negative feedback and sexual harassment in the male-dominated space of eSports. In Study 1, gender differences were analyzed in online gamers' experience with feedback from other players and spectators during online play. In Study 2, gender differences were analyzed in observations of real gameplay that focused on the types of comments spectators directed toward female and male gamers on Twitch (a popular video game streaming website). The findings suggest a mixed experience for women that includes more sexual harassment in online gaming compared with men.

Keywords

gender, gamer, eSports, discrimination, diversity, technology

Electronic Sports (eSports) reconceptualizes sports as a combination of competition, ability, and digital technology. Hemphill (1995) suggests, "Cyberspace holds out the possibility that new forms of sport participation and sociality can be created in terms of game-making, game-playing, and norm-making within game" (p. 58). Despite these

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new possibilities regarding sports participation, eSports are not exempt from existing societal gender issues related to sexism and exclusion. The present study focuses on examining differences in women's and men's experiences while playing competitive online video games.

The Growing Popularity of Playing and Watching eSports

eSports is defined as the competitive play of video games in public settings (e.g., in online settings or streaming gameplay for spectators). Forms of competitive video game play include, but are not limited to, playing against other players in person or online, playing for trophies or points, and playing for speed (i.e., competing for the fastest completion time in a game). Unlike traditional sports, which are positively distinguished for their ability to promote teamwork and build leadership qualities, video games have a negative reputation to overcome. Adults and the media often portray video games as a waste of time and a source of antisocial and violent behavior (Jonasson & Thiborg, 2010). Contrary to this view of gaming, evidence has linked playing video games to many benefits, such as providing opportunities for competitive play, problem solving, diversion, fantasy play, and social interactions (Przybylski, Rigby, & Ryan, 2010).

There is, indeed, a growing acceptance of eSports as a genuine form of sport and of eSports players as athletes in popular culture (Jenny, Manning, Keiper, & Olrich, 2016). eSports include several components of traditional professional sports, such as fans, play-offs, uniforms, training, comebacks, and upsets (Segal, as cited in Jenny et al., 2016). Also, like many traditional sports, eSports exist both at the amateur and professional level. Similar to playing a pickup basketball game at the local park, a player can join an online eSports match with friends or randomly picked players. Players can also participate in ranked matches with other players to improve their national ranking and win considerable financial prizes. Major networks, including The Entertainment and Sports Programming Network (ESPN) and Turner Broadcasting System (TBS), now broadcast eSports competitions and events. Like many other professional sports, commentators relay the gameplay during larger competitive events. In 2016, the viewership for eSports was estimated at 188 million, of which 75% had a favorite team and 69% had a favorite player. The worldwide market for eSports was estimated at US\$748 million, with 587 million coming from sponsorships and advertising (Superdata Research, 2016).

A key avenue for advertising eSports comes from streaming competitive video game feeds online. On websites like Twitch and YouTube, many competitive gamers stream gameplay, often with a video of themselves superimposed over video of their active gameplay. Twitch, the fourth busiest website on the Internet, accounts for 1.8% of all peak Internet traffic (only surpassed by Netflix, Google, and Apple; Mosley, 2014). Gamers spend 5.2 hr on average streaming their gameplay each session (Nascimento et al., 2014). Popular eSports games include fighting games (e.g., Street Fighter), first-person shooters (e.g., OverWatch and Counter Strike), real-time strategy games, and battle arena games (e.g., Defense of the Ancients 2 and League of Legends; "Most Watched Games on Twitch—Esports Content and Total," 2017). Most of the

eSports traffic to sites like Twitch comes from spectators of the gameplay. Twitch spectators can comment about the player and the gameplay in the chat window embedded next to player video streams. Players can partner with Twitch to garner a percentage of advertisement revenue that based on the total number of viewers. Some players choose to include rewards for those who donate, sponsor deals, and sell merchandise to increase their spectators and receive larger financial reimbursement.

Women's Experiences Across Gaming Contexts

Gaming Among Women and Men

A survey of adolescents in the United States indicates that video games are popular across all adolescent demographic groups. The Pew Research Center found that 97% of adolescents, aged 12 to 17, played some form of a digital game (Lenhart et al., 2008). Video game popularity drops with age somewhat, but it is still quite strong into adulthood. According to a recent study (Duggan, 2015), 50% of adult males and 48% of adult females play video games across consoles, tablets, and smartphones; twice as many men compared with women, however, identified themselves as gamers (15% of adult males and 6% of adult females). Although men and women appear to play video games in equivalently high rates, there are gender differences in the types of video games played. Studies that categorized games into hard-core (i.e., traditional video games like fighting games and shooters) and casual games (e.g., mobile games like candy crush, Pokemon Go) found that 85.9% of male gamers reported playing hard-core video games in contrast to 42.7% female gamers (Vermeulen, Van Looy, De Grove, & Courtois, 2011). In more recent research done by Burch and Wiseman (2015), only 16% to 26% of female adolescents reported playing hard-core games. Perhaps it is no surprise then, that many adults who play video games believe that most video game players are men (57% of women and 63% of men; Duggan, 2015).

Despite the low number of female eSport pro players and the perception that women are not hard-core gamers, evidence suggests that female gamers perform equally well in online games when equal time is spent practicing (Paaßen, Morgenroth, & Stratemeyer, 2017; Shen, Ratan, Cai, & Leavitt, 2016). Existing female pro gamers are paid less than male pro gamers. In fact, there are no women among the top 300 prize-earning players ("Highest Overall Earnings," 2017). Views of hard-core gaming as a male activity may explain the lower number of women who engage in mainstream competitive games despite playing video games in general at near equal rates to men (Gray, 2012). Another possible explanation is the presence of increased sexual harassment in online gaming contexts for female players.

Gaming Contexts May Promote Sexism and Harassment

Female gamers might avoid competitive gaming in part because of the sexist and sexualized portrayal of women in video games that promote the objectification of female gamers and unwelcomed attention from male gamers. Some video games that are

played competitively have been noted for these sexualized portrayals of women, such games include *Dead or Alive*, a game that includes lingerie and bikinis as costumes for the female fighters. Several studies have found consistent associations between playing video games that sexualized women and conveyed sexist attitudes (see review, Paaßen et al., 2017; for a counter example, see Breuer, Kowert, Festl, & Quandt, 2015). In general, video game and television exposure has been correlated with higher rates of sexism among male adolescents (Bègue, Sarda, Gentile, Bry, & Roché, 2017). In particular, men who played video games with gender-stereotyped video game characters have been found to show a higher acceptance of real-life examples of sexual harassment (Dill, Brown, & Collins, 2008). Furthermore, women who played as sexualized avatars (digital in-game representations of themselves) were more likely to focus on their body and accept statements in support of the rape myth (i.e., the misconception that women are responsible for rape or sexual harassment; Fox & Tang, 2014).

Due to anonymity, online spaces can facilitate discrimination and hostility toward women and other underrepresented groups. Anonymous public participation may lead to a disinhibition effect that allows an online user to disassociate themselves from their anonymous online actions (Suler, 2004). Almost half (49%) of adolescents who play video games reported experiences with hateful, racist, or sexist behavior, with male gamers reporting witnessing this behavior more than females (Lenhart et al., 2008). In Gamergate, which drew popular notoriety, women in the video game industry who spoke up about the need for gender equity in video games and video games industry were sexually harassed online and received real-life threats of rape and violence (Wingfield, 2014). Although this is an extreme example carried out by a few individuals, these widely publicized events serve to create a hostile environment that may push female gamers out of competitive gaming.

Women and Video Game Streaming and Competitions

Although there is limited research on gendered aspects of eSports and competitive game streaming, a handful of studies have broken ground in this area. Previous research by Nakandala, Ciampaglia, Su, and Ahn (2017) found that a Twitch streamers' gender is significantly tied to the frequency of spectators' objectification messages directed at the streamer. Notably, female players received more body-focused messages (i.e., their appearance), whereas male players received more gameplay-focused comments (e.g., their strategy or a particular move). Witkowski (2014), based on her ethnographic work in eSport communities, describes the dualistic experience for women gamers who gain an online persona. It is common for women to avoid the identity of "girl gamer" in online and streaming contexts due to attached stereotypes regarding lower skill level and not wanting to be seen as a token. When sexism is encountered, women may claim this identity as a form of resistance (Witkowski, 2014). Due to lack of attention by mainstream eSport channels, women have had to take alternative approaches to gain visibility as competitive gamers via YouTube and Twitch. Despite these efforts, they tend to face accusations by other players that their fan base only exists because they are a woman (Witkowski, 2011).

Women are often excluded from eSports and struggle to prove their skill level (Jenson & De Castell, 2010; Zolides, 2015). Streamed eSport matches include gendered expectations that influence how others participate in competitive competitions. Often, interactions relate to an underlying stereotype that women are not as skilled in eSports as men. Gender expectations become clear in situations such as a League of Legends match between a high profile all-female and all-male eSports team. In this match, the all-male team initially underplayed because they did not take the all-female team as a serious challenge. When the male team realized they were going to lose the match, their discussion focused on embarrassment and negative impact to their reputation. For example, the teammates from the male team commented, “This is bad for our image dude” and “I just like embarrassed myself in front of like, how many people” (Canossa, Witkowski, & Ozkaynak, 2018, p. 4).

The Impact of Discriminatory Sports Contexts on Women’s Performance

Sexual harassment has a strong negative impact on female athletes in traditional sports, including emotional distress (Koss, 1991), physical impairment (e.g., headaches, weight change, overall health decline; Marks, Mountjoy, & Marcus, 2011), and mental health impairment (e.g., low self-esteem, anger, anxiety, depression; Fasting, Brackenridge, & Walseth, 2002). As in traditional sports, stereotype threat research shows that women’s performance in video games is affected by cueing negative stereotypes regarding women and gaming. When female online gamers were exposed to information indicating that men tend to perform better than women in video games, they performed worse than male participants and other female online gamers who were not exposed to this information (Kaye & Pennington, 2016). This may be especially troublesome during streaming on Twitch considering that spectators on Twitch and YouTube openly question women’s expertise. Some even speculate whether female gamers are playing or if an off-screen accomplice is playing the game for them (B. Solares, personal communication, February 14, 2017).

Sexual harassment might negatively affect support and heighten unhealthy competition among female players. Derks, Van Laar, Ellemers, and de Groot (2011) coined the Queen Bee effect as a situation where women show increased competitiveness toward other women in settings with low numbers of women and high rates of sexual discrimination. Women in contexts of high levels of sexual discrimination tend to identify strongly with male stereotyped qualities, distance themselves from a feminine identity, and compete more aggressively with other females for limited resources (Derks et al., 2011). Although we expect for players to show same-gender support, the present study explores whether the Queen Bee effect may manifest in competitive gaming as lower levels of support from women who compete at a higher rank in online games.

Discrimination in competitive gameplay contexts has led some female players to create supportive spaces away from public gaming venues. Women of color, for example, have developed exclusive groups for online matches to avoid harassment based on perceived sexual identity and race. In these spaces, women provide support to each

other and create gaming spaces that help them compete without constant distractions. Gray (2012) found that these women expressed feeling conflicted. Although they believed they should not have to create a separate space to game, they often felt drained from having to constantly defend their abilities and identities from aggressive online players in conventional gaming contexts. In summary, sexual harassment might impede female players gaming performance and reduce the number of women who choose to play eSports.

The Present Studies

To better understand how gender shapes the experience of gaming in eSports, we conducted two studies. In Study 1, we surveyed male and female participants' experiences of supportive and critical feedback from other players during online play. This provides an overview of female and male gamers' experience of the competitive social environment during online gaming. Specifically, we aimed to identify the relationship among feedback, gender, and player ranking. No existing studies to our knowledge have analyzed gender differences in online gamers' experiences with positive and critical feedback from peers during online gameplay and game ranking.

In Study 2, Twitch streams were observed for gender differences in sexual harassment statements and evaluative feedback from spectators. The method of analysis in this second study is particularly unique in that it provides a window into the real-life experience of gamers in public online spaces. Using observations of actual gaming sessions outside of the lab setting extends the generalizability of this study's findings to interactions that male and female streamers have while gaming. Study 2 builds on previous research that found spectators direct more statements that focused on appearance toward women streaming on Twitch compared with men (Nakandala et al., 2017). Specifically, Study 2 extends on this work by focusing on specific instances of sexual harassment and including gender differences in positive and negative comments.

In sum, this multimethod interdisciplinary approach is used to triangulate our findings regarding women's experiences with other players during competitive interactions during eSports. In addition, the present study expands on previous work by providing a large sample to strengthen external validity. Given the larger sample, it can be argued that findings of this study can be more reliably generalized to a broader population than previous research. To our knowledge, there are no other research studies that specifically look at comparative studies regarding gender and women's experiences with positive, negative, and sexual harassment feedback from competitors and spectators. In the following sections, Studies 1 and 2 are presented separately before a discussion of the overall implications of this work.

Study 1 Hypotheses

The first study analyzed participants' reports of competitor players' feedback during gameplay. These analyses were guided by the following three hypotheses:

Hypothesis 1: Female participants are expected to report receiving criticism from male competitor players (compared with female players) more often than male participants.

Hypothesis 2: Participants are expected to receive praise from same-gender players more than from other-gender players. Specifically, male participants are expected to report receiving praise from other male players more often than female players, and female participants are expected to report receiving praise from other female players more often than male players.

Hypothesis 3: Based on literature suggesting high competition among successful women in male-dominated workplaces with sexist stereotyping of women, male participants are expected to be more likely than female participants to report receiving praise from high-ranking women.

Study 1 Method

Participants

Ninety-two gamers (female = 61, male = 31) were recruited through the psychology department subject pool from a public university in southern California. Participants were screened for experience with eSports games (online competitive games). All participants self-identified as gamers and reported playing competitive video games online. Participants were enrolled in an introductory psychology course and received course credit for their participation.

Design and Procedure

Students for Study 1 were recruited through a psychology university department pool, where students take classes that require participation in the research pool. After participants signed-up for the study, they were contacted with a link to the survey. Participants completed a 13-question survey on experiences with positive and negative feedback received during eSports gaming sessions. The survey included questions to determine time spent playing video games online, frequency of interaction with other players (on a scale of 1-10), four questions where male and female participants chose whether they received praise and criticism more from other female and male players, and four questions on gender of online gamers they criticized and praised.

The themes addressed in this survey were informed by the literature indicating sexist attitudes among male gamers (e.g., Bègue et al., 2017) and women's feelings of harassments during online play (e.g., Gray, 2012). Although no specific previous studies or surveys focus on negative and positive comments based on gender in this specific context, the researchers developed these questions after observing several negative interactions during online matches. Questions were chosen to understand whether the women and men reported different proportions of negative interactions and positive interactions. Questions were presented as categorical choices regarding whether they received criticism or praise from men or women (e.g., When playing the video game you

Table 1. Frequencies of Self-Reported Praise and Criticism Received.

	Participants	
	Men	Women
When playing the game, are you more likely to receive criticism from a		
Male player	28	53
Female player	3	8
When playing the game, are you more likely to receive praise from a		
Male player	28	43
Female player	3	18
When playing the game, are you more likely to receive praise from a		
Lower ranking male player	18	32
Higher ranking male player	13	29
When playing the game, are you more likely to receive praise from a		
Lower ranking female player	21	26
Higher ranking female player	10	35

specified above, are you more likely to receive criticism from a male or a female player?). Similar choices were presented regarding criticism from male and female players who are high ranking and low ranking in the games they play online.

Study I Results

Participants reported playing an average of 4.9 hr online per week ($SD = 5.66$). The participant breakdown for most played online game was 12.9% StarCraft, 15.1% Counter Strike, 47.3% League of Legends, 5.4% Hearthstone, 9.7% Call of Duty, and 9.6% other games.

The frequencies of reported criticism and praise from men and women are displayed in Table 1. Gender differences in these frequencies were examined using chi-square tests. With respect to Hypothesis 1, there were no significant differences between men and women in their likelihood of reporting receiving criticism from men compared with women, $\chi^2(1, N = 92) = 0.23, p = .745$. Therefore, Hypothesis 1, that women would be more likely to report receiving criticism from men, was not supported.

With respect to Hypothesis 2, there was a significant difference between men and women in their likelihood of reporting receiving praise from men versus praise from women, $\chi^2(1, N = 92) = 4.59, p = .037$. Specifically, men were proportionally more likely than women to report receiving praise from men more (90.32% of men vs. 70.49% of women), whereas women were proportionally more likely than men to report receiving praise from women more (29.51% of women vs. 9.68% of men). Therefore, Hypothesis 2 was supported.

With respect to Hypothesis 3, there was a significant difference between men and women in their likelihood of reporting receiving praise from low-ranking versus

high-ranking women, $\chi^2(1, N = 92) = 5.19, p = .028$. Specifically, men were proportionally more likely than women to report receiving praise from low-ranking women (67.74% of men vs. 42.62% of women), whereas women were proportionally more likely than men to report receiving praise from high-ranking women (32.26% of men vs. 57.38% of women). Therefore, Hypothesis 3, that men would be more likely than women to report receiving praise from high-ranking women, was not supported. Of note, there was no significant difference between men and women in their likelihood of reporting receiving praise from low-ranking versus high-ranking men, $\chi^2(1, N = 92) = 0.26, p = .662$.

Study 1 Discussion

The results present mixed evidence regarding women's experiences playing eSports video games with other players. In Study 1, there were no differences found regarding reports of criticism from men or women. This is noteworthy considering the literature demonstrates that women often have to seek refuge from online harassment (Gray, 2012), but does not address the source of that criticism with regard to gender. Regarding praise, both male and female participants were more likely to report praise from other players of their same gender than from other-gender participants.

Surprisingly, feedback from high- and low-ranking female players was not in the predicted direction. Men were more likely than women to report receiving praise from low-ranked female players. Women were more likely than men to receive praise from high-ranking women. There were no gender differences in reported praise from low- or high-ranking men. That women reported more support from high-ranking female gamers falls in line with research noting patterns of support among female gamers (Gray, 2012). The lower amount of positive comments from low-ranked females toward women compared with men may relate to limited opportunities for women to succeed in gaming. Patterns of sexual stereotyping in the workplace, as observed in highly male careers such as gaming, are associated with intensified competition among women (Derks et al., 2011). These findings fall along gender lines, but provide mixed findings when considering power status demonstrate female gamers' context-specific experience with online peers.

Study 2 Hypotheses

The second study analyzed a large set of observations of spectator feedback during gameplay. These analyses were guided by the following three hypotheses:

Hypothesis 1: Female streaming players will receive more sexual comments from spectators than male players.

Hypothesis 2: Female streaming players will receive more negative comments from spectators than male streamers.

Hypothesis 3: Male streaming players will receive more positive comments from spectators than female streamers.

Study 2 Method

Participants

Study 2 consisted of observations of 87 Twitch streaming players (39 female and 48 males) and their spectators. A random number generator was used to select streamers from Twitch's ranking of popular streams for each chosen game. Gender was determined through user profile information. It was outside of the scope of this study to determine demographic information of the spectators who participated in the chat room (all commentators are anonymous and usually spectators choose a nonidentifying username). No identification information was available or collected from Twitch streamers.

Design and Procedure

Streamers were chosen based on data that indicated the most watched competitive games on Twitch in 2014-2015 were League of Legends, Defense of the Ancients 2, Hearthstone, and Counter Strike Go (Deng, Cuadrado, Tyson, & Uhlig, 2015). Overwatch was included due to its emerging popularity on Twitch during the time of data collection in 2015. Permission was obtained from Twitch to conduct this study.

After choosing a streamer, the researchers observed a video stream session for that user and copied text from the conversations in the chat box. The researcher collected 170 lines of text per streamer followed by a screen shot of the streamer and their profile information to record gender. Data collection occurred in 87 chat rooms (39 female and 48 male streamers 14,284 chat messages) from July 7, 2016, to August 12, 2016.

Coding. Coding dimensions were developed using a deductive and iterative process where the research team reviewed the chat room scripts for overarching patterns regarding feedback to players (Braun & Clarke, 2006). As outlined by Braun and Clarke, this process was theory driven rather than open-ended. Our approach focused on gender differences regarding spectator feedback and was guided based on research indicating gender targeting during online play (e.g., Gray, 2012). This process was applied to the chat transcripts which resulted in seven thematic codes to categorize comments made by spectators: *positive toward streamer*, *positive toward play*, *negative toward streamer*, *negative toward play*, *sexual toward streamer*, *general sexual content*, and *neutral*. The coding was carried out by four trained psychology graduate and undergraduate students (two females and two males). Also, language written by spectators varied considerably depending on the game and streamer's nationality. The researchers translated any non-English text into English before coding.

Lines of text could meet criteria for more than one domain; however, no line was coded for negative, positive, and/or neutral content simultaneously. To ensure agreement, coders were trained extensively and checked in with each other throughout coding to prevent coder drift. After the coders coded independently, a Cohen's Kappa analysis revealed that interrater reliability for all seven coding categories ranged between .79 and .90. When disagreement occurred, the lead coder was given priority for analyses. The coding categories follow:

Positive toward streamer were phrases that encouraged, complimented, or invoked a sense of positive regard while not being open to the interpretation of sarcasm. These comments were directed toward the streamer and not the chat room.

Positive toward play comments were any phrases that were encouraging and/or complimentary toward the game that was occurring during the stream or the streamer. These comments could not include evidence of sarcasm.

Negative toward streamer included phrases that were found to discourage, insult, or contain any amount of vitriol toward the streamer. These comments had to not be addressed to the chat room generally or to other stream viewers.

Negative toward play included phrases that were found to be discouraging, insulting, or contained an amount of vitriol and were directed toward the game that was occurring during the stream, such as a chastising a strategic error made by a character in-game. A comment could be negative toward both the streamer and play simultaneously.

Sexual comments toward streamer consisted of comments with language that involved sexualization of body parts, sexual acts, or sensual or sexual desires directed toward the streamer. These comments were not coded as positive comments toward the streamer. However, several comments met criteria for negative comments toward streamer and sexual content toward streamer based on the content of phrases akin to sexual harassment.

General sexual content comments consisted of sexualized discussion of body parts, sexual acts, or sexual desires not directed toward streamer. In one example, two spectators discussed dating and their experiences in relationships in a stream's chat room but their conversation did not pertain to the streamer or play.

Neutral content was coded for random, miscellaneous phrases or side-conversations between viewers occurring within the chat stream. Specifically, comments that did not pertain to streamer or play and did not include any general sexual content, regardless of positive or negative connotations, were coded as neutral.

Study 2 Results

The frequencies of observed positive, negative, neutral, and sexual comments (overall and directed toward streamers vs. toward play) are reported in Table 2. Overall, the vast majority of comments (94.39%) were neutral. However, among both neutral and nonneutral comments, significant gender discrepancies were observed, and were examined using chi-square tests.

There was a significant difference in sexual comments directed toward male versus female streamers, $\chi^2(1, N = 14,284) = 31.37, p < .001$. Specifically, females were 1.82 times more likely to receive sexual comments ($n = 213, 3.36\%$ of comments) than males ($n = 149, 1.88\%$ of comments). Therefore, Hypothesis 1 was supported. In exploring sexual comments directed at streamers versus general sexual comments, there was a significant difference in sexual comments directed at male versus female streamers, $\chi^2(1, N = 14,284) = 106.81, p < .001$. Specifically, female streamers were 10.55 times more likely to receive sexual comments directed at them ($n = 116, 1.83\%$ of comments) than males ($n = 14, 0.18\%$ of comments). There was no significant gender difference in general sexual comments, $\chi^2(1, N = 14,284) = 0.64, p = .424$.

Table 2. Frequencies of Comments Observed.

	Streamers	
	Men	Women
Sexual	149 (1.88%)	213 (3.36%)
Sexual toward streamer	14 (0.18%)	116 (1.83%)
General sexual comments	135 (1.70%)	97 (1.53%)
Negative	213 (2.68%)	152 (2.40%)
Negative toward streamer	139 (1.75%)	99 (1.56%)
Negative toward gameplay	82 (1.03%)	57 (0.90%)
Positive	83 (1.05%)	213 (3.36%)
Positive toward streamer	43 (0.54%)	153 (2.41%)
Positive toward gameplay	42 (0.53%)	62 (0.98%)
Neutral	7,599 (95.68%)	5,884 (92.78%)
Total	7,942	6,342

There was no significant difference in negative comments directed toward male versus female streamers, $\chi^2(1, N = 14,284) = 1.15, p = .283$. Therefore, Hypothesis 2, that female streamers would receive more negative comments than male streamers, was not supported. There were also no significant gender differences when exploring negative comments directed at streamers, $\chi^2(1, N = 14,284) = 0.77, p = .380$ or directed at gameplay, $\chi^2(1, N = 14,284) = 0.65, p = .419$.

There was a significant difference in positive comments directed toward male versus female streamers, $\chi^2(1, N = 14,284) = 93.00, p < .001$. Specifically, females were 3.29 times more likely to receive positive comments ($n = 213, 3.36\%$ of comments) than males ($n = 83, 1.05\%$ of comments). Therefore, Hypothesis 3, that men would receive more positive comments than women, was not supported. In exploring positive comments directed at streamers versus comments directed at gameplay, there was a significant gender difference in positive comments made toward streamers, $\chi^2(1, N = 14,284) = 91.22, p < .001$, such that women were 4.54 times more likely to have positive comments directed at them ($n = 153, 2.41\%$ of comments) than men ($n = 43, 0.54\%$ of comments). Furthermore, there was also a significant gender difference in positive comments made toward gameplay, $\chi^2(1, N = 14,284) = 9.83, p = .002$, such that women were 1.86 times more likely to receive positive comments directed at their gameplay ($n = 62, 0.98\%$ of comments) than men ($n = 42, 0.53\%$ of comments).

Finally, there was a significant difference in neutral comments directed toward male versus female streamers, $\chi^2(1, N = 14,284) = 56.14, p < .001$. Specifically, men were 1.72 times more likely to receive neutral comments ($n = 7,599, 95.68\%$ of comments) than women ($n = 5,884, 92.78\%$ of comments).

Study 2 Discussion

The results from Study 2 illustrated women's experiences with eSport spectators. Contrary to our hypothesis, female streamers were more likely to receive positive

comments (directed toward them and their gameplay) than male streamers while streaming competitive games on Twitch. In addition, there were no observed differences regarding negative comments directed toward female or male streamers.

Because the findings that women received more positive comments than men seemed to contradict the existing literature, the data were revisited to review the quality of the positive comments. When the positive comments were further categorized into positive comments that focused on appearance in ways that objectified women (as in Nakandala et al., 2017), it was found that 37% of the positive comments toward women focused on appearance compared with 7.5% for men. Although male efforts to help women in online games may be well intentioned, many may ultimately perpetuate gender norms that position women as in need of men. A view of women as needing protection, or benevolent sexism, may seem positive, but these attitudes are related to lower agency among women and may impact women's experiences in general (Glick & Fiske, 1996). Men who play video games that portray women in stereotypical and sexualized roles were more likely to support benevolent sexism than those that did not report playing such games (Stermer & Burkley, 2015). In one example, benevolent sexism attitudes were shown to predict traditional marriage expectations among women who attended a liberal university (Robnett & Leaper, 2013). A similar concept in the gaming literature, known as white knighting, has been noted in online gaming sessions. Women report being followed by male online gamers, receiving unmerited compliments and in-game gifts, and accusations from other players of encouraging this behavior in men (Brehm, 2013). Although white knighting may seem like a positive view of women, the examples of women's experiences with white knighting illustrate how it interferes with the female gamers' experience and this viewpoint positions women as less capable.

As hypothesized, there were more sexual harassment comments received by female streamers than by male streamers. Sexual harassment comments directed toward female streamers were observed at 11 times the percentage of those directed toward male streamers (1.66% vs. 0.15%). Assuming a player receives 60 comments in 2 min (this is a low number for popular streamers on Twitch), this would work out to approximately 1 comment every 2 min. Despite the higher number of positive comments in female streamers' rooms, the disparity in sexual harassment comments could have negative implications for self-image and contribute to a generally hostile gaming environment for women.

Discussion

Our findings illustrate a mixed experience for women in online competitive gaming. Study 1 showed no gender differences regarding reports of criticism and that, as hypothesized, praise regarding gameplay occurred at a higher rate from other players of the same gender. In addition, men were more likely to report supportive comments from low-ranking female players whereas women were more likely to report supportive comments from high-ranking female players. Study 2 found more sexual harassment directed toward female gamers streaming on Twitch. Although there were also more positive comments toward female gamers, a review of the comments suggests

many had to do with appearance. It remains unclear what drives acts of sexual harassment in gaming contexts; however, Maass, Cadinu, Guarnieri, and Grasselli (2003) found that male gamers were more likely to sexually harass women (virtual female interaction partners) when they felt their gender identity was threatened. This suggests that male gamers may engage in sexual harassment to bolster their own masculinity.

Limitations of the self-report approaches of this study and anonymous observations suggest recommendations for future studies. The self-report approach provides some initial answers, but was limited in its scope in the present study due to the categorical nature of the data. Future studies may improve on this by providing continuous data through the use of scales. Another alternative may be providing open-ended questions regarding players' online experiences and coding for gendered patterns. Given the nature of anonymity on Twitch, it was not possible to consider spectators' gender in analyzing our analysis in Study 2. In addition, there was no access to streamers' direct messages, which may hold particularly important information regarding praise, criticism, and sexual harassment. This information would help highlight gender differences in sexual harassment that happen at a public level.

Future studies of participation in eSports should consider a nuanced approach to analyzing praise and criticism directed at Twitch gamers. Some fruitful next steps would be to study how sexual harassment comments (or any objectification of women) affect women's video game performance and commitment to pursuing eSports careers. Future research is also needed to understand the pipeline that leads women to eSports. Creating an equitable playing field includes understanding where differences in interest in eSports begin to emerge.

Conclusion

Although no research has looked at consequences of sexist feedback toward eSports players, research of the gaming community has shown a higher rate of sexism and stereotyping among those who play sexualized games (Bègue et al., 2017; Breuer et al., 2015; Dill et al., 2008) and misogynist and violent behavior toward women in online forums (Wingfield, 2014). In traditional sports, there exists a similarly hyper-masculine culture that includes objectification and exclusion of women. Interactions that emphasize hostility may discourage women from pursuing eSports and affect their views of their own abilities and their actual performance (Kaye & Pennington, 2016). Our findings regarding experiences with sexual harassment are alarming considering the impact of stereotype threat on video game performance. As Rai and Yan (2009) have suggested, there is a need for the eSports community (players and sponsors alike) to work toward creating a safe and healthy environment for all players.

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