

THE ROLE OF GENDER
IN VIDEO GAMES

by

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ABSTRACT

The research presented here examines gender roles associated with gaming, a multi-billion-dollar industry, in which there is a large gender gap in participation rates (Entertainment Software Association, 2016). Using social role theory (Eagly, 1987) and role congruity theory (Diekmann & Eagly, 2008) as theoretical frameworks, it is proposed that attitudes and beliefs related to traditional gender roles account for differences in the rates at which women play, as well as differences in the way that games are played and experienced by women compared to men. World of Warcraft (WoW), one of the most popular, best-selling computer games (Entertainment Software Association, 2016), was chosen to investigate gender roles in gaming. Two studies were conducted. Study 1 (N = 1,353, 54% female) examined gaming preferences of gamers and non-gamers in an online survey. Results indicated that female gamers hold less negative stereotypes about other female gamers compared to female non-gamers. Study 1 further found that both men and women enjoy and play more often in same-gender roles, although gender role attitudes did not explain these preferences. Using controlled observations of actual WoW gameplay, Study 2 (N = 269 observations) examined the amount of negative feedback player characters received from other online players based on the character's gender and role type. Findings indicated that female characters playing in masculine roles did not receive more negative feedback than comparable male characters, counter to role congruity theory. However, female characters in feminine roles received significantly less negative feedback than female characters in masculine roles. Together, these results suggest that stereotypical gender roles have an impact on gameplay and future research needs to examine the explanatory factors behind this.

LIST OF ABBREVIATIONS AND SYMBOLS

α	Cronbach's index of internal consistency
d	Cohen's d
df	Degrees of freedom: number of values free to vary after certain restrictions have been placed on the data
F	Fisher's F ratio: A ration of two variances
M	Mean: the sum of a set of measurements divided by the number of measurements in the set
N	Total sample size
η_p^2	Partial Eta-squared
p	Probability associated with the occurrence under the null hypothesis of a value as extreme as or more extreme than the observed value
r	Pearson product-moment correlation
t	Computed value of t test
χ^2	Pearson chi-square
$<$	Less than
$=$	Equal to

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CHAPTER 1

INTRODUCTION

Social roles related to gender are evident in nearly every segment of society, including the domains of work, education, and leisure activities. As new technologies develop that impact these domains there is evidence that gender-based divisions are recreated. The research presented here examines gender roles associated with gaming, a multi-billion-dollar industry, in which there is a large gender gap in participation rates (Entertainment Software Association, 2016). In the proposed research, two related theories, social role theory and role congruity theory, are applied to interpret these gender differences.

There are multiple reasons to examine gender differences in participation in video games. It would be financially beneficial for companies to better understand their potential female customers and why they do or do not like to play video games. Video games are not only reserved for having fun; they are often included as part of a virtual training environment for certain careers (such as pilots and astronauts). There are benefits afforded to women who play games. For example, certain games could increase their spatial attention and mental rotation ability. These skills could possibly help attract more women to STEM fields (Feng, Spence, & Pratt, 2007). Women also help to balance and create more cohesiveness in a team, which is important for everyone's gameplay satisfaction and winning the game (Martin & Good, 2015). Others have suggested that online avatars may not only impact gameplay, but also might impact the player's behaviors outside the game world (Ward & Sonneborn, 2011; Ward, 2015; Yee & Bailenson, 2007; Yee, Bailenson, & Ducheneaut, 2009). Over time women who use avatars that

have more assertive characteristics or take on leaderships roles (usually considered more masculine behaviors) might be more likely to behave in these ways in their offline interactions.

The demographic characteristics of who plays video games, explanations for why women play less than men, and the game preferences for women who do play are examined in the upcoming sections. This is followed by a brief review of social role theory and role congruity theory.

Literature Review

Who Plays Video Games?

According to the most recent statistics provided by the Entertainment Software Association (2016), the top device that the most frequent gamers use is a PC (56%), with consoles close behind (53%). Forty-one percent of all types of gamers are female, and the average female gamer is 44 years old, while the average male gamer is 35 years old. However, “41%” appears to be a flawed statistic and does not represent the actual amount of female gamers on PC or console as opposed to casual female gamers using cell phones. When looking more closely at gender differences among different game genres, a different picture of the gap appears. According to Quantic Foundry (2017), in Massively Multiplayer Online Role-Playing Games (MMORPG) 52% of players are women, compared to 7% in first-person shooters.

Why Don't Women Play More?

Women may not play some video games as often as men do for a number of reasons. These include factors related to how women generally spend their time, elements of sexism in the game, gender roles, and stereotypes of gamers. These factors are described in more detail below.

Women tend to report having less free time than men (Winn & Heeter, 2009) and are also more concerned than men with being productive when they do have free time. They prefer to multitask during their free time by being social or including “good for me” activities (Chess, 2011; Winn & Heeter, 2009). Nevertheless, women tend to spend the majority of their free time watching TV and/or movies (Phan, Jardina, Chaparro, & Hoyle, 2012), which, similar to video games, are generally not considered “productive” or necessarily “good for me.” However, women might prefer watching TV or movies over playing games because it requires less attention and no particular set of skills, making it is easier to multitask while watching compared to playing video games. Women’s free time tends to be in smaller amounts rather than hours at a time and, possibly for this reason, when women do play games, they tend to play for shorter amounts of time rather than one lengthy session. This may also be why some women do not play games that require more time or that are more difficult to learn (Winn & Heeter, 2009).

Women may be turned off by some video games because they anticipate being treated in sexist ways or feel that they need to conform to gender role expectations, even in virtual worlds. For example, seeing sexist content, such as over-sexualized female characters, may be off-putting to some women; whereas this kind of content is more appealing to men (Fox & Tang, 2014). Compared to male video game characters, female game characters are more likely to be portrayed as barely clothed, and not as strong or aggressive (Ogletree & Drake, 2007). This kind of female characterization has been found to have negative effects on women, such as, lowering their self-esteem and self-efficacy (Behm-Morawitz & Mastro, 2009). The expectation that female characters are portrayed as oversexualized is so prevalent that they are even held by non-gamers (Dill & Thill, 2007). Female non-gamers may not want to even try video games because of their knowledge of this kind of sexist content.

Similarly, sexist attitudes (sexism) is another major issue in online gameplay that may prevent or discourage women from playing games. Unfortunately, sexism is quite prevalent in many online games (Fox & Tang, 2014). For example, 64% of female World of Warcraft players reported having experienced sexism within the game (such as being excluded from playing with others based on their gender or receiving numerous inappropriate sexual comments; Brehm, 2013). Sexist attitudes toward women who play games have been shown to be related to certain personality traits, such as social dominance orientation, the desire for power over women and the need for heterosexual self-presentation (Fox & Tang, 2014), and playing with these kinds of players could be quite unpleasant. It may be the case that sexist content works together with sexist attitudes to exacerbate the issue by reinforcing sexist beliefs held by men and making women more likely to be the target of harassment. Women who experience sexual harassment while playing are forced to come up with a strategy to deal with the harassment or choose to quit the game entirely. Many women will choose to just stop playing the game altogether after an encounter with sexist attitudes or harassment; however, women who have been sexually harassed are less likely to withdraw from a game if the game company makes an effort to address the problem (Fox & Tang, 2014).

Aside from sexism, women are also treated differently in other ways. Stereotypical gender roles are prevalent in the online gaming world as much as they are in the real world (Guadagno, Muscanell, Okdie, Burk & Ward, 2011). For example, women are more likely to have their friend requests accepted than men, and this is even more likely if they remain silent or only verbalize positive statements while playing (Ivory, Fox, Waddell, & Ivory, 2014). Whereas, for men, the acceptance of friend requests is more likely if they expressed negative comments (Ivory et al., 2014). This is consistent with traditional gender roles because women are reinforced

for being more submissive and men for being more aggressive. However, on the positive side, female gamers who play as often as men are less likely to accept traditional gender stereotypes (Vermeulen & Van Looy, 2016). This may be because these female gamers are seriously invested in gaming as a hobby. On the other hand, women who play games less often may hold stereotypical beliefs about female gamers and want to distance themselves from the negative stereotypes (Vermeulen & Van Looy, 2016).

Some women may shy away from games because of the stereotypes surrounding gamers, such as, being more masculine, overweight, or socially awkward. Preliminary findings from focus groups conducted as background research for this study suggest that women may learn through socialization that video games are “only for boys” at a young age, especially if they have a brother growing up or if their parents presume that video games are for males (Chappetta, 2017). In addition, there is another set of stereotypes specifically targeting “girl gamers.” These include being an imposter, being less competent at gaming, and wanting attention from men (Beavis & Charles, 2007). One study found that, for women, video game use was linked to lower self-worth and lower perceived social acceptance (Padilla-Walker, Nelson, Carroll, & Jenson, 2010).

To summarize, there is a wide variety of reasons that women may not play video games as much as men do. For some women, it may just be a lack of interest and a lack of available free time to get into playing games. Others may choose not to play because of the games’ content, such as being too violent or having over-sexualized female characters. Still others may not play because of the other gamers in the gaming community, especially males, who choose to harass female players. Yet, although they are a minority, there is still a significant number of women

who play games. For these female gamers, it is possible that gender role stereotypes are so strong that they may still have an effect by altering their gaming preferences.

Women's Gaming Preferences

There are several factors that can help explain women's gaming preferences. First, because women prefer to be productive in their free time, women are more likely to play a game that simulates real-life productivity or helps to enhance their skills in real life (Chess, 2011). Some women might prefer games that fall in line with gender typical habits such as those related to fitness/physical appearance and family/relationships (Chess, 2011). Some previous research suggests that while men prefer shooting, action, and sports games, women tend to prefer simulation, adventure, puzzle, and role-playing games (Chess, 2011; Hartmann, Möller, & Krause 2015; Terlecki, Brown, Harner-Steciw, Irvin-Hannum, Marchetto-Ryan, Ruhl, & Wiggins, 2011). Women tend to dislike games that involve violence, sexual gender stereotypes, and more competitive games (Hartmann & Klimmt, 2006). This last factor has received more attention than other factors.

Many of the currently popular games involve a great deal of competition, especially shooting games. Highly competitive games generally rank players by skill level demonstrated by the player's performance in matches over time. For example, in first person shooters, skill level may be assessed by a kill/death ratio which measures how many times the player killed another player compared to how many times the player was killed by another player. Women have reported that the extreme competition of some games causes them more stress making them less enjoyable; whereas, men tend to find the competition more fun (Lucas & Sherry, 2004; Hartmann & Klimmt, 2006; Tafalla, 2007).

Women have also reported not liking violent video games as much as men, and one reason for this possible gender difference is that men feel less guilt and more enjoyment from violent video games than women do (Hartmann, Möller, & Krause 2015). Despite the gender difference in preference for violent games, in some studies women gamers have reported playing violent games as often as they play non-violent games (Phan et al., 2012).

The differences in women's gaming preferences compared to men could be due to a lack of previous experience from the time they were children in part because they do not have friends who play video games (Terlecki et al., 2011). Peer influence is a major factor when an individual is deciding if they want to play a particular game (Carr, 2005). Both men and women share the perception that men play video games more often than women (Cruea & Park, 2012). Because fewer women than men play video games, women as a group may experience less peer pressure to play any particular game. However, under certain conditions, such as being able to play in same-sex groups, women may be more likely to play and enjoy typically male-dominated violent games and be more competitive at those games (Carr, 2005; Jenson & de Castell, 2011). Playing with same-sex groups may be beneficial for women because it may help reduce game related stress and pressure to conform to gender stereotypes by changing the playing environment to one where they fit in and are accepted (Vermeulen, Castellar, & Van Looy, 2014).

Alternatively, it has been proposed that women might be more motivated to play violent games if they feel that it may make them more attractive to men (Kasumovic, Blake, Dixson, & Denson, 2015). Related to this point, women are more likely to play a game with a romantic partner, rather than alone (Terlecki et al., 2011). Finally, some have suggested that women may be drawn to games that promote more social interaction, regardless of whether it is with same-sex peers or with their romantic partners (Vermeulen & Van Looy, 2016).

To summarize, women may prefer different kinds of video games than men, such as ones that involve less violence, less competition, and more cooperation. While men seem to enjoy competing with other players, women generally seem to find it more stressful. However, this gender difference may be due to other factors such as the context of the gaming situation or having other same-sex peers as play partners. These preferences can be better explained through social role theory (Eagly, 1987) and role congruity theory (Diekmann & Eagly, 2008).

Social Role Theory and Role Congruity Theory in Video Games

Social role theory was developed based on a desire to describe the differences in behaviors of men and women and how people generally think men and women should behave. Social role theory (Eagly, 1987) identifies different socially accepted roles (e.g., homemaker or provider) and attributes for women (e.g., caregiving, cooperative, submissive) and men (e.g., leader, aggressor, independent). For many social situations, there are normative standards related to gender that guide individuals' behaviors. These gender role expectancies span across time and generations and impact the social behavior of each gender (Eagly, 1987, 1997; Eagly, Wood, & Diekmann, 2000). Consequently, the behavior of men and women seems to be strongly influenced by stereotypical, traditional gender roles.

Adherence to these gendered roles appears to be learned and applied beginning at a very young age. These roles transcend generations by way of modeling; children see their parents behaving in certain ways, such as the father being the provider and the mother being the caregiver, and tend to behave in similar ways as they grow up. For example, elementary school-age children know the difference between activities for boys and activities for girls and tend to behave accordingly (Eagly et al. 2000). These gendered social roles are particularly powerful because they begin at such a young age, persist throughout the lifetime, and are tied into very

important aspects of life such as self-worth, goal-achievement, and being socially accepted or punished by others (Eagly et al., 2000).

Role congruity theory (Diekmann & Eagly, 2008) works in conjunction with social role theory by proposing that there are social sanctions and negative ramifications when an individual does not adhere to the prescribed stereotypical gender roles. For example, this theory helps explain why female leaders are not treated equally as their male counterparts (e.g., receiving lower pay for the same job). Eagly and Karau (2002) explain how female leaders experience prejudice in two distinct ways—they experience negative feedback for being a potential leader as well as their actual leadership being criticized because leadership is typically thought of as being within men's domain. This kind of negative feedback is exactly what would stop many women from pursuing certain career goals and may also be responsible for stopping women from participating in leadership roles in online games such as World of Warcraft.

Because video games are typically seen as being made for men and mostly contain characters that have masculine characteristics, this may explain why women may feel like they do not fit in. Additionally, gender differentiation that is found in the real world may be recreated in the online world (Guadagno et al., 2011). If women do play, they may be reinforced to play “feminine roles” in the games or to play the game in a more feminine way if specific roles do not exist. This is a double-edged sword—on one hand for a woman who desires more traditional roles, discovering that she can play a supportive feminine role may make the games more attractive. On the other hand, for some women, being relegated to feminine roles could be undesirable, because, just like in the real world, they are less likely to achieve high status in the game.

The Present Study

This study seeks to understand gender differences in online gaming. Using social role theory and role congruity theory as theoretical frameworks, it is proposed that attitudes and beliefs related to traditional gender roles explain differences in the rates at which men and women play video games, as well as differences in the way that games are played and experienced by women compared to men. While the main goal of this study is focused on women, data on men will also be collected and comparable supplemental hypotheses related to social role theory will be examined for them where applicable.

World of Warcraft (WoW), an online game that can be played on a PC, was chosen to investigate gender roles in gaming. WoW is one of the most popular, best-selling computer games (Entertainment Software Association, 2016; Martončík, & Lokša, 2016). WoW is a MMORPG with over 10 million active global subscribers at the end of 2014, and it is the number one subscription based MMORPG in the world (Activision Blizzard, 2016, 2014). One study has shown that WoW players feel less lonely and less social anxiety while playing because of the social and cooperative nature of the game (Martončík, & Lokša, 2016). As mentioned before, more women actually prefer to play MMORPGs (approximately 52% are women in this genre) and WoW is no exception with over 13.7 million female characters in the U.S., which is about 39% of all characters (according to realmpop.com). However, women have experienced harassment in this environment as well (Fox & Tang, 2014). Four research questions were examined through an online survey using Mechanical Turk and through participant observation of WoW:

Q1) *What is the relation between the rates that women play video games and the gender stereotypes associated with video games?*

Hypothesis 1: Compared to women who play frequently, women who indicate that they rarely or never play video games will have more negative beliefs about women who play games.

Q2) When women play video games, will they conform to gender role norms?

Hypothesis 2: Women will express (or expect) more enjoyment when they play feminine roles compared to masculine roles.

Supplemental Hypothesis 2: Men will express (or expect) more enjoyment when they play masculine roles compared to feminine roles.

Hypothesis 3: Women will indicate that they play more often in feminine roles than other roles and will create characters that are feminine role compatible more often than masculine roles.

Supplemental Hypothesis 3: Men will indicate that they play more often in masculine roles than other roles and will create characters that are masculine role compatible more often than feminine roles.

Q3) Is variation in women's preferences for characters that conform to feminine gender roles related to individual differences in gender role adherence outside of video games?

Hypothesis 4: Women who demonstrate greater gender role adherence will tend to create more feminine characters, as well as enjoy and play more often in feminine roles compared to masculine roles.

Supplemental Hypothesis 4: Men who demonstrate greater gender role adherence will tend to create more masculine characters, as well as enjoy and play more often in masculine roles compared to feminine roles.

Q4) In an online gaming situation, what is the relation between the characters' experiences, the characters' gender, and the gender typicality of the roles?

Hypothesis 5: Female characters in masculine (e.g., leadership, tanking) roles will receive more negative feedback than female characters in feminine roles (e.g., supportive, healing) and male characters in masculine roles. (A tank character is one who wears heavy armor and can take a lot of damage. Tanks are responsible for protecting and leading the group in dungeons.) This project will examine these research questions in two studies.

CHAPTER 2

STUDY 1 METHODOLOGY

Study 1 Overview and Design

The first study was a survey of gamers and non-gamers (male and female) conducted through Mechanical Turk and addressed the first three research questions: 1) *What is the relation between the rates that women play video games and the gender stereotypes associated with video games?*; 2) *When women play video games, will they conform to gender role norms?*; 3) *Is variation in women's preferences for characters that conform to feminine gender roles related to individual differences in gender role adherence outside of video games?*

Participants

Recruitment. Participants were 1,353 males (46%) and females recruited through Mechanical Turk and were paid \$0.50 for their participation. Participants' ages varied from 18 to 65 years old. (Participants had to be at least 18 years old to participate.) Thus, the sample represents a large age demographic group from young adulthood to senior citizens. Participants were asked to complete a survey related to social roles and video game attitudes, beliefs, and behaviors. At the beginning of the survey, participants responded to the questions "*In the last 12 months, how often (approximately) have you played video games?*" and "*In the last 12 months, how often have you played World of Warcraft?*" using a 7-point scale ranging from *never* (1) to *daily or most days of the week* (7). Based on responses to these questions, non-gamers were defined as people who replied that they played video games less than once a month and WoW gamers were defined as people who replied that they played World of Warcraft daily or 2-3 times

per week. Halfway through recruitment, restrictions were made with respect to gender and game experience to have roughly even amounts of participants who were male and female and who were WoW gamers and non-gamers. Although this study is mainly focused on women, men were included to address the supplemental hypotheses, which provide an additional test of social role theory and role congruity theory. In the final sample about 28% (378, 55% female) of the participants were active gamers who played World of Warcraft, 32% (433, 51% female) were individuals who rarely or never played any video games, and the remaining 40% (542, 57% female) were individuals who actively played video games, but not World of Warcraft. A preliminary power analysis, using the G*Power program (Faul, Erdfelder, Lang, & Buchner, 2007) with the alpha level set to .05 and power set to .80, indicated that a sample of 200 participants was needed to detect a medium effect size of .20 and the actual sample size exceeded this.

Demographic characteristics. Please refer to Table 1 below for demographic information. For age, income, and work hours, participants were asked to select from several categories that included a range of ages, incomes, and work hours. The majority of female WoW gamers were between ages 26-35 (56%), white (74%), had at least some college experience (88%), and in a relationship, engaged, or married (74%). About 50% had at least one child. Among these women, 50% reported working 20 to 40 hours per week with a median yearly income of \$20,000 to \$29,999. The modal age group of female non-gamers were between 46-65 years old (47%), and they were mostly white (73%). The majority of non-gamers had at least some college experience or more (85%), were in a relationship, engaged, or married (70%), and about 59% had at least one child. The median and modal work hours for these women was working 20 to 40 hours per week (43%) with a median yearly income of \$30,000 to \$39,999.

Chi-square comparisons showed significant differences between these female WoW gamers and non-gamers in the categories of age $\chi^2(5, N = 425) = 27.02, p < .001$, education $\chi^2(6, N = 424) = 25.66, p < .001$, and children $\chi^2(1, N = 422) = 4.00, p = .046$. Female WoW gamers were younger, more educated, and fewer of them had children in comparison to the non-gamers.

Half of male WoW gamers were between ages 23-30, mostly white (62%), and had at least some college experience or more (92%). The modal group reported being single (40%) and mostly childless (62%). Among these men, 43% reported working 20 to 40 hours per week and 41% reported working more than 40 hours per week with a median yearly income of \$30,000 to \$39,999. For male non-gamers, the modal age group was between 26-30 years (25%), and they were mostly white (65%), had at least some college experience (92%). The majority were in a relationship, engaged, or married (63%), and about 51% had at least one child. Forty-eight percent of these men reported working more than 40 hours per week and 35% reported working 20 to 40 hours per week with a median yearly income of \$40,000 to \$49,999. Chi-square comparisons show significant differences between these male WoW gamers and non-gamers in the categories of age $\chi^2(5, N = 385) = 32.08, p < .001$, relationship status $\chi^2(3, N = 377) = 13.09, p = .004$, and children $\chi^2(1, N = 377) = 6.34, p = .012$. Male WoW gamers were younger, more likely to be single, and less likely to have a child.

Table 1

Demographic Information

Measure	Response Categories	Women				Men			
		WoW Gamer		Non-gamer		WoW Gamer		Non-gamer	
		Freq. N=206	%	Freq. N=220	%	Freq. N=172	%	Freq. N=213	%
Age* ⁺	18-22	15 ¹	7.3	10	4.5	22	12.8	15	7.0
	23-25	22 ¹	10.7	22	10.0	39	22.7	24	11.3
	26-30	69 ¹	33.7	42	19.1	46	26.7	54	25.4
	31-35	45 ¹	22.0	41	18.6	29	16.9	41	19.2
	36-45	35 ¹	17.1	51	23.2	30	17.4	36	16.9
	46-65	19 ¹	9.3	54	24.5	6	3.5	43	20.2
Race	Black	11	5.3	18	8.2	6	3.5	7 ²	3.3
	Hispanic	12	5.8	8	3.6	7	4.1	17 ²	8.1
	White	152	73.8	161	73.2	106	61.6	137 ²	64.9
	Asian	22	10.7	26	11.8	42	24.4	39 ²	18.5
	Other	9	4.4	7	3.2	11	6.4	11 ²	5.2
Education*	< high school	0	0.0	1 ²	0.5	0 ¹	0.0	0 ⁷	0.0
	High school graduate	24	11.7	33 ²	15.1	13 ¹	7.6	17 ⁷	8.3
	Some college	71	34.5	35 ²	16.1	34 ¹	19.9	40 ⁷	19.5
	Associate degree	31	15.0	24 ²	11.0	13 ¹	7.6	18 ⁷	8.8
	Bachelor's degree	54	26.2	78 ²	35.8	74 ¹	43.3	83 ⁷	40.5
	Master's degree	21	10.2	37 ²	17.0	30 ¹	17.5	36 ⁷	17.6
	Doctoral / professional degree	5	2.4	10 ²	4.6	7 ¹	4.1	11 ⁷	5.4

¹ Missing 1 participant from sample.² Missing 2 participants from sample.³ Missing 3 participants from sample.⁴ Missing 4 participants from sample.⁵ Missing 6 participants from sample.⁶ Missing 7 participants from sample.⁷ Missing 8 participants from sample.

* Significant difference for female gamers versus non-gamers.

+ Significant difference for male gamers versus non-gamers.

Table 1 continued

		Women				Men			
		WoW Gamer		Non-gamer		WoW Gamer		Non-gamer	
Measure	Response Categories	Freq. N=206	%	Freq. N=220	%	Freq. N=172	%	Freq. N=213	%
Relationship Status ⁺	Single (never married)	40	19.4	43 ¹	19.6	68 ²	40.0	66 ⁵	31.9
	In a relationship / engaged	66	32.0	47 ¹	21.5	47 ²	27.6	39 ⁵	18.8
	Married	86	41.7	105 ¹	47.9	53 ²	31.2	92 ⁵	44.4
	Divorced / Widowed	14	6.8	24 ¹	11.0	2 ²	1.2	10 ⁵	4.8
Children* ⁺	No	103 ¹	50.2	88 ³	40.6	106 ¹	62.0	101 ⁶	49.0
	Yes	102 ¹	49.8	129 ³	59.4	65 ¹	38.0	105 ⁶	51.0
Work	Less than 20 hours per week	29 ⁴	14.4	31 ⁷	14.6	16 ¹	9.4	20 ⁶	9.7
	20-40 hours per week	101 ⁴	50.0	91 ⁷	42.9	74 ¹	43.3	73 ⁶	35.4
	More than 40 hours per week	46 ⁴	22.8	59 ⁷	27.8	70 ¹	40.9	98 ⁶	47.6
	Do not work	26 ⁴	12.9	31 ⁷	14.6	11 ¹	6.4	15 ⁶	7.3

¹ Missing 1 participant from sample.

² Missing 2 participants from sample.

³ Missing 3 participants from sample.

⁴ Missing 4 participants from sample.

⁵ Missing 6 participants from sample.

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* Significant difference for female gamers versus non-gamers.

+ Significant difference for male gamers versus non-gamers.

Procedure

This study was conducted entirely online. To begin, participants were asked to read and agree to the consent statement. They then completed multiple measures on their video game attitudes, usage, and experiences. Lastly, they filled out a demographic information page.

Measures

Appendix A includes each of the surveys listed below. Table 2 summarizes the instruments used in the survey. Descriptive statistics for each measure are presented in Table 3.

Table 2

Survey Measures

Demographics

Video Game Experience

- Survey of Spatial Representation and Activities (SSRA)

Gender Role Beliefs and Attitudes

- Video Game Sexism Scale (VGSS) - *Negative Stereotypes*
- Separate Spheres Ideology Scale (SSI) - *Gender Role Adherence*

Gender Stereotypical Preferences in Gaming - WoW Questionnaire

- Enjoyment playing feminine and masculine roles

Gamers Only:

- Time spent playing feminine and masculine roles
 - Character creation: feminine roles, female gender, preference for feminine characters
-

Demographics and gaming experience. The Survey of Spatial Representation and Activities (SSRA; Terlecki, 2005) was used to assess participants' demographic information, video game usage/experiences, and gaming preferences such as genre and platform choice. Demographic questions included gender, ethnicity, age, relationship status, employment, personal income, education, and whether they have children. Video game usage and experience questions included multiple choice questions and open-ended questions. Previous research has shown the SSRA to be an effective measure of video game activity (Terlecki & Newcombe,

2005; Terlecki et al., 2011). The SSRA was modified to fit the needs of this study by developing questions based on the same format of the existing questions in the measure, but asking them specifically about WoW.

Video Game Sexism Scale (VGSS). The VGSS (Fox & Tang, 2014) was used to assess *negative stereotypes* about women who play video games. The scale includes 16 statements and uses a 7-point scale ranging from *strongly disagree* (1) to *strongly agree* (7) with lower numbers indicating less negative stereotypes about women. These statements were developed based on actual sexist comments that were made towards women while in a video game environment. Some sample questions are: *Most women who play video games just do so with their boyfriends;* *Having a woman play brings down the quality of the game;* and *Women prefer spending time dressing up their character rather than playing.* Scores were calculated by averaging responses across all the items and scores could range between 1 and 7. The reliability score (coefficient alpha) reported in previous research for this scale was .92 (Fox & Tang, 2014). The coefficient alpha that was calculated for this study was .97.

Separate Spheres Ideology Scale (SSI). The SSI (Miller & Borgida, 2016) was used to measure participants' endorsement of traditional gender roles and stereotypes. This scale consists of 15 items and uses a 7-point scale ranging from *strongly disagree* (1) to *strongly agree* (7) with lower numbers indicating less traditional gendered attitudes towards women. Some sample questions are: *If one person in a heterosexual marriage needs to quit working, it usually makes more sense for the husband to keep his job;* *Women can learn how to be good leaders in the workplace, but it doesn't come as naturally as it does for most men;* and *It's natural for a woman to be fulfilled by taking care of her children, but most men feel better when they have a good career, too.* Scores were calculated by averaging responses across all the items and scores could

range between 1 and 7. The reliability score (coefficient alpha) reported in previous research for this scale was .88 (Miller & Borgida, 2016). The authors indicated that this measure was significantly correlated with other commonly used measures of sexism. The coefficient alpha that was calculated for this study was .90.

WoW Questionnaire. All participants received additional questions about their usage and experiences (or predicted experiences) in World of Warcraft. Participants read a brief description of 12 of the class roles. Both gamers and non-gamers were asked to rate *how much do you enjoy* [would you expect to enjoy- for non-gamers] *playing X role?* on a 7-point scale ranging from *do not enjoy at all* (1) to *enjoy very much* (7). In addition, gamers were asked to indicate *how often do you play X role?* on a 7-point scale ranging from *never* (1) to *always* (7). For these scales, participants' scores were calculated by averaging responses across all the items for masculine roles and feminine roles separately and scores could range between 1 and 7.

There are 48 possible roles in WoW, but only a subset of 12 roles was used, 6 tank roles and 6 healer roles, that are clearly gender stereotyped based on a pilot study. For the pilot study, sixty-three Mechanical Turk participants (76% male), read the same brief descriptions of each role and then rated each role on a 7-point scale ranging from *masculine* (1) to *feminine* (7). *T-tests* were conducted to determine which roles were considered feminine and masculine by comparing the mean rating to the gender-neutral point of 4. Based upon the gender role designation from these ratings, scale scores were developed for *time spent* playing masculine and feminine roles and for *enjoyment* in playing masculine and feminine roles.

Character creation. Women and men who currently play WoW were asked to indicate the main character they currently use in playing WoW and also to create three additional characters to play in the game. To create their characters, they selected the character's gender,

race, and one of the 48 possible class-specializations. Please see Appendix A for a list of all 48 WoW roles. These characters were coded on two dimensions: role type (masculine or feminine class-specialization based on pilot study described above) and gender (male or female). (Note that designating a race is a necessary aspect of creating a character, but it is not a gendered aspect of the character). For the four characters' descriptions, the percentage of female characters and the percentage of feminine roles was calculated. Additionally, to produce a total score for the *preference for feminine characters*, each character was given points based on their gender and role. Characters in a *feminine role* received 1 point and those in a *masculine role* received 0 points; *female gendered* characters received an additional 1 point and male characters received 0 points. Thus, each character could have a score ranging from 0 to 2 points. All four characters' scores were then added together to form a final *preference for feminine characters* score ranging from 0 to 8, with higher scores indicating preference for more feminine characters.

Table 3

Statistics for All Measures

Gender/ Gamer Status	Measure	N	Min.	Max.	Mean	SD	Skewness	SE	Kurtosis	SE
Female	VGSS	211	1.00	7.00	2.39	1.17	-.29	.16	-.85	.33
Non- Player*	SSI	214	1.00	6.07	3.02	1.15	.49	.16	-.34	.33
	Enjoy Tank	220	1.00	7.00	3.58	1.43	-.18	.16	-.47	.32
	Enjoy Healer	220	1.00	7.00	4.01	1.68	-.38	.16	-.74	.32
Female	VGSS	202	1.00	6.63	2.16	1.32	-.05	.17	-.98	.33
WoW	SSI	204	1.00	5.07	2.77	1.10	1.12	.17	.55	.34
Player	Enjoy Tank	206	1.00	7.00	4.28	1.33	-.23	.16	-.46	.33
	Enjoy Healer	206	1.00	7.00	4.57	1.34	-.59	.16	-.10	.33
	Often Tank	206	1.00	7.00	3.22	1.46	.42	.16	-.55	.33
	Often Healer	206	1.00	7.00	3.45	1.43	.15	.16	-.69	.33
	<u>Character Creation:</u>									
	Female Count	206	0.00	4.00	3.21	1.15	-1.25	.17	.43	.34
	Fem. Role Count	206	0.00	4.00	2.28	1.16	-.35	.17	-.64	.34
	Male Count	206	0.00	4.00	0.75	1.13	1.31	.17	.59	.34
	Masc. Role Count	206	0.00	4.00	1.68	1.16	.40	.17	-.59	.34
Male	VGSS	203	1.00	6.50	2.98	1.33	-.85	.16	.39	.33
Non- Player*	SSI	209	1.00	6.60	3.51	1.04	-.05	.17	-.89	.34
	Enjoy Tank	213	1.00	7.00	3.90	1.37	-.61	.16	-.16	.33
	Enjoy Healer	213	1.00	7.00	3.73	1.49	-.26	.16	-.60	.33
Male	VGSS	163	1.00	6.75	3.21	1.62	-.83	.19	.11	.37
WoW	SSI	164	1.07	6.13	3.54	1.03	.03	.19	-1.29	.37
Player	Enjoy Tank	172	1.00	7.00	4.58	1.29	-.60	.18	.48	.36
	Enjoy Healer	172	1.00	7.00	4.36	1.39	-.52	.18	-.13	.36
	Often Tank	172	1.00	7.00	3.87	1.51	-.27	.18	-.65	.36
	Often Healer	172	1.00	6.67	3.67	1.56	.06	.18	-1.09	.36
	<u>Character Creation:</u>									
	Female Count	172	0.00	4.00	1.09	1.14	1.05	.18	.45	.37
	Fem. Role Count	172	0.00	4.00	1.53	1.06	.26	.18	-.79	.37
	Male Count	172	0.00	4.00	2.78	1.15	-.89	.18	.11	.37
	Masc. Role Count	172	0.00	4.00	2.35	1.05	-.11	.18	-.86	.37

*Non-Players did not answer the “how often” or “character creation” questions.

Note. For each scale the possible range of scores is 1 – 7. VGSS = Video Game Sexism Scale; SSI = Separate Spheres Ideology Scale

CHAPTER 3

STUDY 1 RESULTS

Q1) *What is the relation between the rates that women play video games and the gender stereotypes associated with video games?*

H1: *Compared to women who play frequently, women who indicate that they rarely or never play video games will have more negative beliefs about women who play games.*

A regression analysis was conducted with all the women who responded to the survey, which included WoW gamers, gamers that do not play WoW, and non-gamers. Rate of use (as a continuous variable) was predicted by *negative stereotypes* (on VGSS). Results were significant, $\beta(\text{VGSS}) = -.334$, $t(710) = -4.14$, $R^2 = .024$, $F(1, 710) = 17.10$, $p < .001$. The negative Beta for VGSS indicates that the less frequently women played video games, the more likely they were to have negative stereotypes about other women who do play video games. Because the gamer group was significantly younger, more educated and fewer had children than the non-gamer group, an additional regression was run controlling for these factors and the result did not change $\beta(\text{VGSS}) = -1.00$, $t(699) = -4.50$, $R^2 = .085$, $F(1, 699) = 16.22$, $p < .001$. Thus, Hypothesis 1 was supported.

Q2) *When women play video games, will they conform to gender role norms?*

H2: *Women will express (or expect) more enjoyment when they play feminine roles compared to masculine roles.*

This hypothesis was addressed by the question assessing women's enjoyment (or expected enjoyment) playing specific roles in WoW. Both female WoW gamers and non-gamers

were included in the analysis. A 2 (gamers/non-gamers) x 2 (masculine/feminine roles) ANOVA with repeated measures on the masculine and feminine roles was conducted. There was a main effect for role, $F(1, 424) = 35.84, p < .001, \eta_p^2 = .078$ and also for gamer status, $F(1, 424) = 24.33, p < .001, \eta_p^2 = .054$. These main effects indicated that women reported enjoying or expecting to enjoy feminine roles more than masculine roles and WoW gamers showed more enjoyment in both roles than non-gamers. The interaction was not significant, and thus, there was no difference in role enjoyment for feminine roles based upon gamer status. Refer to Table 3 for means. Regardless of the lack of interaction with gamer status, Hypothesis 2 was supported in that all women indicated higher enjoyment for feminine characters.

Supplemental Hypothesis 2 examined the comparable hypothesis for men and included WoW gamers and non-gamers. There was a significant main effect of role for men, $F(1, 383) = 13.81, p < .001, \eta_p^2 = .035$ and also for gamer status $F(1, 383) = 24.52, p < .001, \eta_p^2 = .060$. These main effects indicate that male WoW gamers and non-gamers reported enjoying or expecting to enjoy masculine roles more than feminine roles and WoW gamers showed more enjoyment in both roles than non-gamers. Means are presented in Table 3. Again, there was no significant interaction between role and gamer status. Supplemental Hypothesis 2 was also supported in that men indicated more enjoyment for masculine characters.

H3: *Women will indicate that they play more often in feminine roles than other roles and will create characters that are feminine role compatible more often than masculine roles.*

This hypothesis was assessed by measures of time spent playing feminine and masculine roles in WoW and the character creation part of the survey. Analyses include only female gamers.

First, for time spent playing WoW characters, a within subjects *t-test* was conducted comparing the masculine and feminine time scores. Women spent significantly more time in feminine roles than masculine roles, $t(205) = 2.47, p = .014, d = .15$.

With respect to character creation, the character gender and roles scores (percentage that are female or feminine, respectively) were analyzed. If gender roles did not impact character creation, then it would be expected that female characters would be selected 50% of the time and feminine roles would be selected 50% of the time. A *t-test* was used to compare the mean percentage of characters that hold feminine roles to the expected value of 2 (50%) and a comparable *t-test* for character gender was conducted with 2 (50%) also being the comparison score. Women created feminine role characters more than half of the time, $t(205) = 3.42, p = .001, d = .34$ and female characters more than half of the time, $t(205) = 15.06, p < .001, d = 1.49$. Actual frequency values are presented in Table 3.

In addition, a similar analysis was conducted for men who currently play WoW to address Supplemental Hypothesis 3. Men spent significantly more time in masculine roles than feminine roles, $t(171) = 2.50, p = .014, d = .13$. Men created masculine role characters more than half of the time, $t(171) = 4.42, p < .001, d = .47$ and male characters more than half of the time, $t(171) = 8.93, p < .001, d = .96$. Actual frequency values are presented in Table 3. Thus, both Hypothesis 3 and Supplemental Hypothesis 3 were supported, meaning that women preferred to play and create characters in feminine roles more often than masculine roles and men preferred to play and create characters in masculine roles more often than feminine roles.

Q3) Is variation in women's preferences for characters that conform to feminine gender roles related to individual differences in gender role adherence outside of video games?

H4: *Women who demonstrate greater gender role adherence will tend to create more feminine*

characters, as well as enjoy and play more often in feminine roles compared to masculine roles.

Correlations between SSI *gender role adherence* score and *preference for feminine characters* (from the character creation task; scores range from 0 to 8), enjoyment in feminine roles, enjoyment in masculine roles, time spent in feminine roles, and time spent in masculine roles were conducted for WoW gamers only. Results consistent with the hypothesis should indicate that preference for feminine characters, enjoyment, and time spent in feminine roles should be positively related to the SSI scores; whereas enjoyment and time spent in masculine roles should be negatively related to SSI scores.

Preference for feminine characters was negatively correlated with SSI scores, $r(198) = -.255, p < .001$. Enjoyment in feminine roles, $r(204) = .203, p = .004$, and masculine roles, $r(204) = .256, p < .001$, were both positively correlated with SSI scores. Time spent in feminine roles, $r(204) = .385, p < .001$, and masculine roles, $r(204) = .385, p < .001$, were also both positively correlated with SSI scores.

To summarize, preference for feminine characters in the character creation task increased as traditional gender beliefs decreased, inconsistent with the hypothesis. However, for enjoyment and time spent in feminine roles, the opposite relation was found. At first glance, the latter two results may seem to support the hypothesis that gender role adherence is associated with feminine character choices, but this conclusion is not warranted because enjoyment and time in masculine roles were also correlated with holding more traditional gender role beliefs.

Because most respondents indicated playing WoW using a number of characters, with the modal group of participants reporting that they play with more than 12 characters concurrently, the *time spent* and *enjoyment* measures may not have been sensitive to player preferences. The large number of characters means that participants are likely playing both masculine and

feminine roles across their characters and that they are spending a lot of time playing both roles. The scales used might not have captured actual preferences for one character over another. Two additional analyses were conducted to account for this issue. First, main character preference was examined to see if SSI scores differed based on the selection of a masculine or feminine role for the main character. However, there was no significant difference in SSI scores based on the main role played (masculine role: $M = 2.90$, $N = 83$, $SD = 1.14$; feminine role: $M = 2.70$, $N = 121$, $SD = 1.08$). Second, ratio variables were created to compare time spent and enjoyment in the feminine roles to the masculine roles (i.e., enjoyment in feminine roles/enjoyment in masculine roles and time spent in feminine roles/time spent in masculine roles). These ratio variables were also not significantly correlated with the SSI for women (time: $r(204) = -.10$, $p = .17$; enjoyment: $r(204) = -.10$, $p = .15$). Thus, gender role beliefs were not related to gendered character preferences in ways consistent with social role theory.

A supplemental analysis was conducted to determine if results were comparable for men. Men's preference for feminine characters, enjoyment in feminine roles, and time spent in feminine roles should be predicted by lower scores on the SSI gender role adherence measure (negative correlation), which indicates less gender role adherence. However, enjoyment and time spent in masculine roles should be positively related to men's SSI scores.

Preference for feminine characters was negatively correlated with SSI scores, $r(151) = -.335$, $p < .001$, as predicted. Enjoyment in feminine roles, $r(164) = .181$, $p = .020$, and masculine roles, $r(164) = .278$, $p < .001$, were both positively correlated with SSI scores, similar to female gamers. Time spent in feminine roles, $r(164) = .365$, $p < .001$, and masculine roles, $r(164) = .370$, $p < .001$, were also both positively correlated with SSI scores. Main character preference was again used to replace the original time spent question and a *t-test* was used to

determine if SSI scores differed based on the selection of a masculine or feminine role for the main character. Men who play a masculine role with their main character ($M = 3.74$, $N = 100$, $SD = 0.92$) had significantly higher scores on the SSI than men who play a feminine role with their main character ($M = 3.23$, $N = 64$, $SD = 1.12$), $t(162) = 3.21$, $p = .029$, $d = .50$. Finally, ratio scores for enjoyment and time spent in feminine roles were calculated as described above. These scores were also not significantly correlated with SSI scores, (time: $r(164) = -.09$, $p = .26$; enjoyment: $r(164) = -.14$, $p = .08$) So, it appears that men who mainly play in masculine roles, tend to hold more traditional gender beliefs than those who mainly play in feminine roles, supporting Supplement Hypothesis 4. However, the pattern of correlations across the other measures do not present a consistent pattern with respect to the hypothesis.

CHAPTER 4

STUDY 1 SUMMARY

Table 4 summarizes whether the results supported each of the hypotheses for Study 1.

Table 4

Summary of Hypotheses and Conclusions for Study 1

H1	✓	<i>Compared to women who play frequently, women who indicate that they rarely or never play video games will have more negative beliefs about women who play games.</i>
H2	✓	<i>Women will express (or expect) more enjoyment when they play feminine roles compared to masculine roles.</i>
SH2	✓	<i>Men will express (or expect) more enjoyment when they play masculine roles compared to feminine roles.</i>
H3	✓	<i>Women will indicate that they play more often in feminine roles than other roles and will create characters that are feminine role compatible more often than masculine roles.</i>
SH3	✓	<i>Men will indicate that they play more often in masculine roles than other roles and will create characters that are masculine role compatible more often than feminine roles.</i>
H4	X	<i>Women who demonstrate greater gender role adherence will tend to create more feminine characters, as well as enjoy and play more often in feminine roles compared to masculine roles.</i>
SH4	?	<i>Men who demonstrate greater gender role adherence will tend to create more masculine characters, as well as enjoy and play more often in masculine roles compared to feminine roles.</i>

Note. ✓ = hypothesis was supported; X = hypothesis not supports; ? = results are not conclusive

Q1) *What is the relation between the rates that women play video games and the gender stereotypes associated with video games?*

The less frequently women played video games, the more likely they were to have negative stereotypes about other female gamers. Some of the most highly endorsed stereotypes about female gamers by men and women, gamers and non-gamers, included: Most women only play games with their boyfriends; Most women are too sensitive or get too easily offended by sexual comments; Most women who play video games are not very good at them; and Women who call themselves gamer girls think they deserve special treatment. So, this means that people who highly agree with these statements generally assume that when women do play video games they are only playing because their boyfriends want them to, that they are too whiny, or that they are not competent. Together, they suggest a belief that gaming is not normative for women and that women who choose to cross over into the “masculine gaming world” are only motivated by normative gendered behaviors, such as finding a boyfriend.

Q2) When women play video games, will they conform to gender role norms?

Female WoW gamers and non-gamers both indicated that they enjoy or would enjoy playing feminine roles more than masculine roles. Although, female WoW gamers reported more enjoyment in both role types than non-gamers. Women spent significantly more time in feminine roles than masculine roles and created female/feminine role characters more than half of the time. Parallel findings were evident for male participants. Male WoW gamers and non-gamers indicated that they enjoy or would enjoy playing masculine roles more than feminine roles. Again, the male WoW gamers reported more enjoyment in both role types than non-gamers. Men spent significantly more time in masculine roles than feminine roles and created male/masculine role characters more than half of the time. Thus, these results suggest that both female and male gamers have role preferences that conform to gender role expectations.

Q3) Is variation in women's preferences for characters that conform to feminine gender roles related to individual differences in gender role adherence outside of video games?

The hypothesis associated with question 3 was not consistently supported. As gender role adherence on the SSI decreased, preference for feminine characters in the character creation task increased for women, opposite of what was predicted. However, for men, as gender role adherence decreased, preference for feminine characters in the character creation task increased, as predicted. For both men and women, the results for measures of enjoyment and time spent did not provide a coherent pattern that could be used to address this research question, showing similar patterns of correlations for masculine and feminine characters with the SSI. One explanation is that the measures of enjoyment and time spent in the roles did not take into account that WoW gamers typically play a large number of characters, and are consequently likely playing both masculine and feminine roles. For this reason, main character preference was investigated. For women, there was no significant difference in SSI scores based on their main role played. On the other hand, for men, SSI scores were significantly higher (more stereotypical) for men who mainly played in masculine roles, as predicted. Overall, the hypothesis was clearly not supported for women, and the results for men are inconclusive.

In conclusion, the first three sets of hypotheses concerning negative stereotypes about other female gamers and gender role conformity were supported. The final set of hypotheses regarding gender role adherence outside of gameplay received mixed support. However, there is another important factor to examine that impacts women's choice in playing games – how they are treated by other players when playing games online. Study 2 examines how female characters are treated by other online players while playing in a masculine or feminine role in World of Warcraft.

CHAPTER 5

STUDY 2 METHODOLOGY

Study 2 Overview and Design

This study uses participant observation and a field experiment methodology to examine actual game interactions. It addresses the fourth research question: *In an online gaming situation, what is the relation between the characters' experiences, the characters' gender, and the gender typicality of the roles?*

Participants and Procedure

Two trained research assistants (one male and one female), who had 5 to 12 years of experience with World of Warcraft, acted as confederates while they played as male and female characters in World of Warcraft following a prescribed script. Confederate characters were manipulated in gender and in role type. For example, confederates were either a female tank character or a male tank character. The male and female characters engaged in parallel scripted behaviors in multiple online game sessions, and these sessions were recorded and coded. To test the hypothesis, the field experiment included female characters playing a feminine role (female-gender role congruent), female characters playing a masculine role (female-gender role incongruent), and male characters playing a masculine role (male-gender role congruent). A preliminary power analysis, using the G*Power program (Faul, Erdfelder, Lang, & Buchner, 2007) with the alpha level set to .05 and power set to .80, indicated that a sample of 240 sessions was needed to detect an effect size of .20 and the actual sample size was 269.

Online gameplay and script. A total of 12 characters were created and leveled up to the same level at the start of the study. Characters were balanced in role (masculine or feminine), gender, and faction. In WoW, there are two factions that divide players: the Alliance and the Horde. Thus, there were six unique combinations of gender, role and faction and two characters in each of these unique combinations, resulting in a total of 12 characters.

Each observation focused on the confederate's experience during one aspect of WoW, a dungeon. Players generally would choose to complete dungeons because of the opportunity to gain better armor and weapons that drop from the elite enemies within the dungeons. Additionally, completing dungeons grants a fair amount of experience, which increases the player's level. The goal of a dungeon instance (one copy of the dungeon among many simultaneous copies generated for a specific group of players) is to complete a number of objectives that are related to the background story for a particular dungeon. Within dungeons, there are more difficult enemies to fight than are in the open world of WoW, and these enemies will randomly drop different rewards, from money to gear, for the group of players after being defeated. Each dungeon instance requires five players: one tank, one healer, and three damage players (typically called DPS which stands for damage per second). Importantly, players are randomly assigned to a group through the "dungeon finder" in the game and every dungeon group has unique players, aside from the confederate player. After a group is formed, they enter the dungeon instance, receive the objectives for the particular dungeon, and then begin making their way through the dungeon instance together. The tank's job is to make all the enemies focus on him or her while the DPS characters deal damage to the enemies that are attacking the tank. The healer is responsible for keeping everyone alive. The dungeon enemies get more difficult the further the group progresses. There will be a certain number of "boss" enemies throughout the

dungeon as well. Boss enemies are different from regular enemies because the group must work together to defeat them. After the final boss enemy is defeated and all objectives are complete, the dungeon instance is over.

Confederates played in a dungeon instance as a female character in a tank (gender role incongruent) or healing role (gender role congruent) or as a male character in a tank role (gender role congruent) to determine if the characters were treated differently based on gender and/or role. Based on game piloting, it was determined that a greater number of verbal interactions would occur if the script included behaviors by the confederate that were likely to elicit commentary from other players in the dungeon. As a result, confederates purposely committed errors in the dungeon (specifically, let themselves die) to elicit feedback from the other players around the middle point of the dungeon instance. When a player dies in the dungeon, he or she is put back to the beginning of the dungeon and has to run back to the point where the rest of the group is waiting and then continue on as normal. Each confederate character died twice during a dungeon instance. A script was provided for each gender and character type that indicated what errors to commit and where they should be committed for each particular dungeon. There are multiple dungeons in WoW, and although differences in dungeons were not expected to affect the behaviors of interest in this study, each character type played through the same list of dungeons. Additionally, as the study proceeded each character “leveled up.” The level of characters across the three types was controlled, so that would not bias the findings. The first ten trials of each dungeon were used as training trials where feedback was provided to the confederate players to be sure that they were playing the game similarly. This resulted in a total of 229 sessions; 76 male tank, 78 female tank, and 75 female healer sessions. A power analysis, using the G*Power program (Faul, Erdfelder, Lang, & Buchner, 2007) with the alpha level set to

.05 and power set to .80, indicated that this sample size would allow us to detect an effect size of .21, which is only slightly larger than the effect size (.20) for the originally proposed sample size of 240.

Coding. All in-game time was recorded and coded at a later time by a research assistant who was not playing the game and the author. In addition, for each session, coding included the confederate characters' levels at the time of each observation to ensure that a character's level did not have an effect on the amount of feedback they received. The gender of all characters interacted with in the dungeons was recorded along with their associated role (tank, healer, DPS). Event sampling was used to code all feedback (via chat) received from the point the character committed the first error to the end of the dungeon instance. Only feedback directed to the confederate character was coded. The chat dialogue was coded as negative ("Are you mental?"), positive ("Sorry about this"), or neutral ("Quit moving into mobs please").

Coding also included who (gender and role) was the author of the comment. Games in which there were any anomalies in the dungeon instances were thrown out (e.g., another character committed an error). Coders also attended to whether the confederate character followed the script (e.g., committed the error at the right point in the dungeon).

A coding manual and recording form were developed to collect data relevant to the research questions. The coding manual defined and provided examples of positive, negative, and neutral statements. It also included a detailed description of variables that were coded about each episode. This included: confederate character level, role, and gender, name of dungeon, gender and role of other characters in the dungeon, and total time in the dungeon. Please refer to Appendix C for more details. To establish interrater reliability, sessions were coded together until the rate of agreement was 100% (achieved after 44 sessions). Reliability was checked on

about 24% of the remaining 225 sessions throughout coding and there was only one disagreement out of 55 reliability checks (98% rate of agreement).

CHAPTER 6

STUDY 2 RESULTS

For the majority of dungeon instances (72.1%), no comments of any kind were made regardless of character gender or role. Of the sessions in which comments ($n = 64$) were made, negative comments were seen most often (79.7%). There were hardly any neutral (3.5%) or positive (0.9%) comments made. Because the neutral and positive comments were so low-occurring, the analyses only focused on the negative comments. Furthermore, in sessions where there were negative comments ($n = 54$), there was typically only one negative comment ($n = 37$, which was 69% of the negative comment sessions) and when there were multiple comments ($n = 17$), it was typically from the same character (59% of the multiple comment sessions). As a result, it was decided to identify each session as having a negative comment or not (coded as 1, 0) and this was used as the dependent variable in the analyses that follow.

Table 5

<i>Frequency of Comments</i>	Dungeon Instances (N = 229)	Percentage
None	165	72.1
Negative	51	22.3
Neutral	8	3.5
Positive	2	0.9
Negative & Neutral*	3	1.3

Note. *occurred in the same dungeon instance

Q4) *In an online gaming situation, what is the relation between the characters' experiences, the characters' gender, and the gender typicality of the roles?*

H5: *Female characters in masculine (e.g., leadership, tanking) roles will receive more negative feedback than female characters in feminine roles (e.g., supportive, healing) and male characters in masculine roles.*

This hypothesis was assessed by participant observation of other players' feedback to certain characters in WoW. It was expected that female characters in masculine roles would receive the most negative feedback. A one-way ANOVA with three levels (character type) was used to analyze negative feedback. Descriptive statistics are presented in Table 6. Results were significant $F(2, 226) = 4.85, p = .009$; however, Levene's Test of Equality of Error Variances was also significant $F(2, 226) = 24.17, p < .001$. The pattern of means indicated that the male and female tanks did not differ significantly from each other, but the female healer received significantly fewer negative comments than the tanks $t(227) = 2.92, p < .001$ which was not in line with the hypothesis. Because the variances across groups were not equal, data were analyzed with a Pearson chi-square. The Pearson chi-square was also significant $\chi^2(2, N = 229) = 9.42, p = .009$, but these results also did not line up with the previous prediction. Additional chi-square analyses were conducted to compare the three different characters. There was no significant difference between male and female tank characters $\chi^2(1, N = 154) = 0.98, p = .322$, but there was a significant difference between the roles (tanks vs. healer) $\chi^2(1, N = 229) = 8.30, p = .004$.

Factors that were not possible to counter balance across the three conditions, such as the gender of the other characters and time spent in the dungeon instance, were examined to determine if they affected the frequency of negative comments across the different character types and no significant differences were found for these variables across the different character types. Additionally, factors that were counter balanced across conditions, such as the confederate player, dungeon, and faction, were examined to ensure they were varying equally

across groups. There was no significant difference between the confederate players; however, there was a significant difference was found for dungeon $\chi^2(1, N = 229) = 12.28, p < .001$ and a marginally significant effect was found for faction $\chi^2(1, N = 229) = 3.63, p = .06$. However, when the analyses presented in the previous paragraph were repeated separately for each dungeon and each faction, the pattern of negative comments was exactly the same as the original analysis.

Table 6

Negative Comments

	<i>M</i>	<i>SD</i>	Dungeon Instances with Negative Comments	Total # of Negative Comments Received
Male Tank (<i>n</i> = 76)	.33	.47	25	35
Female Tank (<i>n</i> = 78)	.26	.44	20	35
Female Healer (<i>n</i> = 75)	.12	.33	9	17

CHAPTER 7

STUDY 2 SUMMARY

Q4) *In an online gaming situation, what is the relation between the characters' experiences, the characters' gender, and the gender typicality of the roles?*

H5: *Female characters in masculine (e.g., leadership, tanking) roles will receive more negative feedback than female characters in feminine roles (e.g., supportive, healing) and male characters in masculine roles.*

This hypothesis was not supported and the results demonstrated that the significant effect was the opposite of this hypothesis: Female characters received less negative feedback than male characters in WoW. It should be noted that the difference between the way the two female character types were treated is consistent with social role and role congruity theories, with harsher treatment of tanks compared to healers. However, these theories would also predict that female tanks should be treated more harshly than male tanks, and this was not supported. A chi-square comparing the male and female tanks indicated that there was not a significant difference between them in the negative comments received. It is important to note that for the majority of dungeon instances, there were no comments at all, regardless of character gender and role. On one hand this suggests that the normative experience of players, regardless of role, is to have no feedback at all. However, this may make negative comments all the more salient to players.

CHAPTER 8

GENERAL DISCUSSION

The main objective of this study was to understand gender differences in online gaming and to demonstrate how social role theory and its companion theory, role congruity theory, might explain women's rate of play and experiences while playing video games. Using these theories as theoretical frameworks, it was proposed that endorsement of traditional gender roles would be an explanatory factor for the differences in the rates at which men and women play video games, as well as differences in the way that games are played and experienced by women compared to men. However, results from this study only partially support these theories.

Results from Study 1 indicated that female gamers hold less negative stereotypes about other female gamers and prefer to play as a female character rather than a male character and in a feminine, supportive role rather than a masculine, leadership role when playing video games like WoW. Additionally, men indicated that they prefer to play a male character in a masculine role rather than a feminine role. This evidence suggests that gender role expectations in the real-world may also influence the online gaming world in that there are strong preferences for same-gender characters and game roles. On the surface, this difference is consistent with social role theory, but personal gender role beliefs did not predict these choices. However, it is interesting to note that in comparison to non-gamers, WoW gamers' enjoyment was higher for all roles, including cross-gender roles. Additionally, Study 2 also did not fully support the predictions based on role congruity theory in that male and female tanks did not differ in the number of negative comments they received. Each study will be discussed in detail below.

Study 1

Findings suggest that social role theory is applicable to understanding the gender gap in the rates of video game playing because stereotypical gender expectations predicted women's willingness to try a game. In generalizing this finding, it is important to note that the female gamer participants were significantly younger, more educated, and fewer of them had children than their non-gamer counterparts (refer to Table 1 on p. 16). However, these differences did not impact the results. Future research studies should aim for a more equal distribution in these demographic categories across groups of participants.

Based on social role theory, it is unclear as to why women in Study 1 hold female character and feminine role preferences. There was relatively more support for the hypothesis that men's preferences for masculine characters and roles are related to gender role beliefs, based on the analyses for their main character. But, collectively, the pattern of results is not strongly supportive of the idea that traditional gender role beliefs are associated with character preferences. This contrasts with previous research which has shown that women prefer to follow gendered roles in other virtual environments that fall in line with what social role theory would predict (Guadagno et al., 2011).

An issue in concluding that gender role beliefs are not associated with gaming preferences in this study is that the measure of gender role traditionalism (Separate Spheres Ideology) may not have captured gender stereotypical beliefs that are relevant for WoW. Scores for all respondents were generally low (below a 4 on the 7-point scale), suggesting a generally low endorsement of traditional gender roles. Gender roles are complex, multifaceted, and constantly changing across generations. Perhaps more theoretically consistent results would have been found if the questions in this measure were better adapted for the game. An example item

could be, “*Generally, playing a tank is more natural for men because they are better at leading a group.*” Alternatively, gender roles might affect players’ choice of role in the game, but it may be at an implicit level rather than explicit.

Another factor that might explain the lack of relation between gender role beliefs and gameplay is that Study 1 only examined gender role adherence with respect to character preferences. In WoW, there are many different ways to play the game and this is one reason that this game appeals to so many people. Some aspects of the game are more casual and can be done at whatever pace the player feels comfortable. Other aspects of the game can require serious focus, dedication, quick reactions, and strong communication with a group. How the players engage in the game could potentially be another measurable gendered aspect of the game. Some examples of variables that could be measured are item level of the character’s gear, how many raids the character has completed, and even a score of how well the player has performed in very difficult mythic plus dungeons, which are a part of end-game content for more serious players. These variables relate to social role theory because they are associated with stereotypically masculine behaviors. For example, men are thought to be more aggressive, competitive, and interested in high status compared to women. Perhaps men are more agentic in their gameplay (e.g., competitive, achievement-oriented) and women’s gameplay might be considered more communal (e.g., helping others, more cooperative) (Diekmann, Brown, Johnston, & Clark, 2010). Measures such as these might better represent how much players adhere to gender roles in online games.

Study 2

The results of Study 2 contradict the assertions made by many gamers that women are treated more negatively than men (Fox & Tang, 2014). However, because of the tightly

controlled research design, the conclusions of this field experiment are not subject to the criticisms and weaknesses of previous studies that have relied on self-reports and have not been systematic in their observations. Without a systematic observation protocol, the differential treatment of female characters in online games can be attributed to other factors, such as game experience, playing style (e.g., not being aggressive), and skill level. This study has ruled out many of these alternative explanations. This is not to say that women or female characters do not often get treated badly in online games. The claims of differential treatment of women are widespread and are leveled at broad sectors of the gaming community and cannot be easily dismissed. Despite negative comments not occurring frequently in WoW, the instances where negative comments are made may be more salient to female players, which might be more consistent with the experiences reported in other studies. Additionally, characteristics of WoW as well as the research design may be responsible for differences in findings between this study and others.

One possible explanation for this study's contradictory findings may be that WoW is a game where women are more represented in to begin with (Quantic Foundry, 2017) and because of this, female players may be more accepted and less likely to receive criticism based on their gender. Alternatively, women may be treated more poorly when their true gender is known (as opposed to only the character's gender). For example, when a woman talks to other players in voice chat (revealing her true gender), she may then be excluded from gameplay with the other players or receive inappropriate sexual comments (Brehm, 2013). In this study the true gender of the confederate player was unknown to the other players. Although, the results of Study 1 suggest that many female WoW gamers are likely to play female characters, other players could not know for certain if the confederate player was really female or not.

If this study's methodology were applied to a different game genre, such as a shooter game, that included voice chat, the results would most likely look quite different. Perhaps the majority of those matches with female characters would be filled with negative comments because shooter games are more stereotypically masculine, there are no feminine roles, and women are less represented and accepted in that game genre.

Related to this point, this study only examined one aspect of WoW gameplay (dungeons), but there are other aspects of the game, as mentioned above where gender roles might be more closely adhered to. Attaining high item level gear and completing all current raids on mythic difficulty are a couple examples of activities that are more difficult to complete and require more skill. These aspects of the game might map onto gender roles based on competitiveness, aggression, and cooperation. A study that combines these other aspects of the game and the characters created for Study 2 may help to create a clearer picture of how gender roles may influence gameplay.

Three issues related to the research design that might have affected the findings were the number of dungeons used, factions, and the exclusion of the male healer role. First, only two dungeons were used and one dungeon received significantly less negative feedback than the other. A possible explanation for this may be that one dungeon was perceived as being more difficult than the other, therefore players may have been more understanding of other players making mistakes in the more difficult dungeon. Future research should try to examine as many dungeons as possible to determine where differences may occur. Despite the difference between dungeons, both showed the exact same pattern of results, with tanks receiving more negative comments than healers.

Second, in addition to using more dungeons, it is important to note that character faction is also a variable to assess as well. There are only two factions in WoW, but the difference between the two groups approached significance and should be examined further. It is not clear why this difference exists because the factions do not affect the aspects of gameplay that were studied.

Third, the male healer role was excluded from this study because the main focus was on women and also because it would have required significantly more time to complete around 75 more dungeon instances. However, if male healers had been included and they received more negative feedback than male tanks, this would support role congruity theory and demonstrate that when male characters choose a feminine role, they are more likely to suffer negative consequences. On the other hand, if male healers received an equivalent amount of negative feedback to female healers then this would go against role congruity theory and demonstrate that the character's role is the most important predictor of negative treatment by other players. Based on the results for tanks in this study, it seems more likely that male healers would receive an equivalent amount of negative feedback as the female healers, but this role would need to be included in future research to confirm this hypothesis.

Future Directions

A significant contribution of Study 2 is that it used a field experiment methodology to study online gameplay. This methodology could easily be applied to any other MMORPG games and could also be adapted for use with many other types of online multiplayer games, such as open-world games and team-based shooters. This methodology could also be tweaked to examine similar interesting variables, such as how negative feedback received might vary based on the content that the group of players is trying to complete.

Although women have a preference for feminine roles, this preference may not be motivated by a desire to conform to gender role stereotypes. One explanation is that these female WoW gamers who scored low on the SSI do not see any disadvantages to playing feminine roles in the game. They might not see the masculine roles as more powerful than feminine roles, but instead as their equals because healers are also essential to achieving many of the objectives in the game. Future research should focus on discovering why women gamers prefer to play in feminine roles, considering reasons that are not readily apparent based on social role and role congruity theories. One way to achieve this would be to conduct focus groups of women who indicate a preference for playing feminine roles to determine why they enjoy these roles and what other factors might influence their preference for these roles. For example, a player might have chosen to play a healer because that was the role that needed to be filled in the group of people she regularly plays with or, alternatively, a player may have tried playing all the available roles and came to the conclusion that she just enjoys healing the most.

Implications for Game Developers

Social role theory is applicable to understanding the gender gap in the rates of video game playing because stereotypical gender expectations may predict women's willingness to try a game. Women's gender stereotypes of other female gamers are related to the amount of time spent playing games and this evidence could have a large impact on the game industry. Game development companies need to address these negative perceptions if they want to possibly increase the number of female gamers who may be interested in the game and also to make a better environment for their current female gamers.

With the knowledge that female gamers prefer to play in feminine roles, the game industry could design games in a way in which women would be interested in them. More

importantly, to get more female non-gamers interested in playing games, game development companies will need to present their games in a way that demonstrates the game is not only created for men, but that it also has many aspects that are feminine role compatible.

Conclusion

When women play a video game like WoW, they prefer to play as a female character in a feminine role rather than a male character in a masculine role. While this preference is clear, the reasoning behind this choice is not. This role choice would seem to line up with what social role theory would predict, but personal stereotypical gender role beliefs did not account for these choices. In addition, male and female tanks did not differ in the number of negative comments they received which goes against predictions based on role congruity theory.

In conclusion, it is important to continue to understand gender differences in online game interactions because gaming is a multi-billion-dollar industry and the number of gamers is continuously growing. Currently, about 41% of these gamers are women and is important to understand women's gaming preferences to be able to design or modify games to attract more women to gaming. It is also extremely important that these women gamers are treated fairly in-game and not being criticized or harassed by other online players for their gender alone. Just as some have hypothesized that gameplay might affect creativity (Ward & Sonneborn, 2011; Ward, 2015), women's gameplay could foster social skills related to in-person interactions. Thus, negative treatment online may not only influence women to avoid leadership positions in-game, but the effects may spill into their real life and possibly cause them to be more fearful of being assertive or attaining a leadership position in their career. This dissertation suggests that research on gaming can produce findings that are important both theoretically and practically and lead to additional ideas for future investigations.

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APPENDICES

Appendix A

Measures

Demographics and Video Game Usage (SSRA)

Directions: Please select the best answer for each of the following questions, or type your answer in the space provided. For the purposes of this survey, the term “video games” is referring to any type of game that can be played on computers or consoles (Xbox, PlayStation, Nintendo Switch, etc.) only.

In the last 12 months, how often (approximately) have you played video games?

- Never
- Less than once per month
- Once per month
- A few times per month
- Once per week
- 2 or 3 days per week
- Daily or most days of the week

If you play video games weekly or more often, how many hours per week do you play?

- Less than 1 hour per week
- 1-3 hours per week
- 4-7 hours per week
- 8-14 hours per week
- 15-21 hours per week
- More than 22 hours per week

In the last 12 months, how often (approximately) have you played video games online?

- Never
- Less than once per month
- Once per month
- A few times per month
- Once per week
- 2 or 3 days per week
- Daily or most days of the week

If you play video games online weekly or more often, how many hours per week do you play?

- Less than 1 hour per week

- 1-3 hours per week
- 4-7 hours per week
- 8-14 hours per week
- 15-21 hours per week
- More than 22 hours per week

Do you play World of Warcraft?

- Yes
- No

How often do you play World of Warcraft?

- Never
- Less than once per month
- Once per month
- A few times per month
- Once per week
- 2 or 3 days per week
- Daily or most days of the week

When was the last time you played WoW?

- Never
- Over a year ago
- A few months ago
- A month ago
- A week ago
- A few days ago
- Yesterday or today

How often have you played WoW in the last 30 days?

- 0 hrs-Hardly ever
- 1-3 hours per week
- 4-7 hours per week
- 8-14 hours per week
- 15-21 hours per week
- More than 22 hours per week

Age:

- 18-22
- 23-25
- 26-30
- 31-35
- 36-45
- 46-55
- 56-65

Gender

- Male
- Female
- Other - Specify: _____

Race:

Fill in all that apply.

- White or Caucasian
- Black or African American
- Hispanic or Latino/a
- Asian
- Native American
- American Indian or Alaska Native
- Native Hawaiian or Pacific Islander
- Other - Specify: _____

State of residence (current): (dropdown menu)

Zipcode: _____

If you do not reside in the United States, where do you reside? _____

What is your current relationship status?

- Single (never married)
- In a relationship
- Engaged
- Married
- Divorced
- Widowed

Do you have children?

- Yes
- No

If yes, how many?

- 1
- 2
- 3
- 4
- 5 or more

What is the highest level of school you have completed or the highest degree you have received?

- Less than high school degree
- High school graduate (high school diploma or GED)

- Some college but no degree
- Associate degree in college (2-year)
- Bachelor's degree in college (4-year)
- Master's degree
- Doctoral degree
- Professional degree (MD, JD)

Which statement best describes your current employment status?

- Working (paid employee)
- Working (self-employed)
- Not working (temporary layoff from a job)
- Not working (looking for work)
- Not working (retired)
- Not working (disabled)
- Not working (other) _____

If yes, what is your occupation:

How many hours do you typically work per week?

- Less than 20 hours
- 20 to 40 hours
- More than 40 hours

Personal income (per year):

- Less than \$10,000
- \$10,000 – 19,999
- \$20,000 – 29,999
- \$30,000 – 39,999
- \$40,000 – 49,999
- \$50,000 – 59,999
- \$60,000 – 69,999
- \$70,000 – 79,999
- \$80,000 – 89,999
- \$90,000 – 99,999
- 100,000 – 149,999
- More than \$150,000

How many hours per week do you watch television (Netflix, Hulu, movies, etc.)?

- Less than 1 hour per week
- 1-3 hours per week
- 4-7 hours per week
- 8-14 hours per week
- 15-21 hours per week

- More than 22 hours per week

For gamers only:

How did you get started playing video games?; who or what motivated you to play?

- Family
- Friends
- Boyfriend/girlfriend
- Interesting story or look of a particular game
- Advertisements (magazines, TV, online)
- Gift
- Other_____

How long have you been playing video games?

- 6 months
- 1 year
- 2-5 years
- 5-10 years
- 10 or more years

How good do you feel you are at playing video games?

- No skill
- Not very skilled
- Moderately good
- Very good

What of the following gaming platforms do you use most often?

- Gaming PC
- Console (Xbox One, Xbox 360, PlayStation 4, PlayStation 3, Nintendo Wii, etc.)
- Handheld device (phone, tablet, Nintendo DS, etc.)

What are your Top 3 (in order) genres, or video game categories, that you enjoy playing?

#1. _____

#2. _____

#3. _____

What are your Top 5 (in order) video games that you like to play?

#1. _____

#2. _____

#3. _____

#4. _____

#5. _____

Do you play MMORPGs other than World of Warcraft?

- Yes
- No

If yes, please list the titles of the MMOs other than World of Warcraft that you currently play.

Video Game Sexism Scale

Directions: Please select the degree to which you agree or disagree with the following items.

<i>Strongly disagree</i>		<i>Neither agree nor disagree</i>			<i>Strongly agree</i>	
1	2	3	4	5	6	7

1. Most women who play video games just do so with their boyfriends.
2. Most women who play video games are not very good at them.
3. Women who play video games are actually seeking special favors from men.
4. Women who play video games just do it to get attention from men.
5. Women are too easily offended by what goes on in video games.
6. Women get too offended by sexual comments in games.
7. Women are too sensitive about sex jokes and nude pictures of women that circulate in games.
8. Women who call themselves gamer girls think they deserve special treatment.
9. Having a woman play brings down the quality of the game.
10. If a woman plays with a team or guild, she is almost always the weakest link.
11. Women can't handle trash talking in games like men can.
12. Having women around makes the game less fun.
13. Video games are a man's world, and women don't belong.
14. Women are more worried about socializing than anything else in a game.
15. Women prefer spending time dressing up their character rather than playing.
16. Women don't play games to kill or achieve.

Separate Spheres Ideology Scale

Directions: Please select the degree to which you agree or disagree with the following items.

<i>Strongly disagree</i>			<i>Neither agree nor disagree</i>				<i>Strongly agree</i>
1	2	3	4	5	6	7	

1. Women can learn technical skills, but it doesn't come as naturally as it does for most men.
2. If one person in a heterosexual marriage needs to quit working, it usually makes more sense for the husband to keep his job.
3. Children with single parents can be just as well off as children with both a mom and a dad.
4. When it comes to voting for president, I'm more comfortable trusting a man to make tough political decisions than a woman.
5. When a married couple divorces, judges shouldn't assume that the mother is the more "natural" parent.
6. Most men naturally enjoy a tough and competitive career more than women do.
7. I would feel more comfortable if my auto mechanic was a man, rather than a woman.
8. If we got rid of stereotyping and discrimination, differences between men and women would mostly disappear.
9. Women can learn how to be good leaders in the workplace, but it doesn't come as naturally as it does for most men.
10. It's natural for a woman to be fulfilled by taking care of her children, but most men feel better when they have a good career, too.
11. There are certain caregiving jobs, like nursing, that just naturally fit with women's skills better than men's skills.
12. Most kids are better off if their dad is the primary provider for the whole family.
13. I would feel equally comfortable with a repair-man or a repair-woman to fix something in my house.
14. It's just as important to most women as it is to men to have a successful career.
15. When it comes to making tough business decisions, men tend to have special abilities that most women don't have.

World of Warcraft Questionnaire

Directions (for gamers): For each of the roles listed below, indicate how much you enjoy playing that role and how often you play that role when playing WoW using the provided scales.

Directions (for non-gamers): For each of the roles listed below, indicate how much you would expect to enjoy playing that role in World of Warcraft using the provided scale.

How much do you enjoy or think you would enjoy playing each of these roles?

<i>Do not enjoy at all</i>			<i>Neutral</i>			<i>Enjoy very much</i>
1	2	3	4	5	6	7

How often do play each of these roles?

<i>Never</i>			<i>Sometimes</i>			<i>Always</i>
1	2	3	4	5	6	7

(Note that the pilot study will determine the exact roles that participants will rate, approximately half will be feminine and half will be masculine.)

1. Warrior

- Role: Tank or Melee Damage
- Defend yourself and others with heavy armor and shields
- Charge quickly around the battlefield
- Unleash your rage to deliver devastating attacks

Warriors are plate-wearing fighters who strive for perfection in armed combat. As warriors fight they generate rage, which is used to power special attacks.

1a. Arms Warrior (m)

A battle-hardened master of two-handed weapons, using mobility and overpowering attacks to strike his or her opponents down.

1b. Fury Warrior (m)

A furious berserker wielding a weapon in each hand, unleashing a flurry of attacks to carve his or her opponents to pieces.

1c. Protection Warrior (m)

A stalwart protector who uses a shield to safeguard him or herself and his or her allies.

2. Paladin

- Role: Tank, Healer, or Melee Damage
- Protect the weak with heavy armor, shields, and holy powers
- Wield melee weapons infused with holy magic
- Improve your group with powerful blessings

Paladins are heavily-armored fighters and defenders who use Holy magic to heal wounds and combat evil. They can focus on two-handed weapons, shields or healing.

2a. Holy Paladin (f)
Invokes the power of the Light to protect and heal.

2b. Protection Paladin (m)
Uses Holy magic to shield him or herself and defend allies from attackers.

2c. Retribution Paladin (n)
A righteous crusader who judges and punishes opponents with weapons and Holy magic.

3. Hunter

- Role: Ranged or Melee Damage
- Harness the power of the wilds to destroy foes
- Gain beasts of your choice as lifelong companions
- Track, disable, and kill your prey

Hunters are at home in the wilderness and have a special affinity for beasts. They rely on their weaponry and their pet to deal damage.

3a. Beast Mastery Hunter (n)
A master of the wild who can tame a wide variety of beasts to assist him or her in combat.

3b. Marksmanship Hunter (n)
A master archer or sharpshooter who excels in bringing down enemies from afar.

3c. Survival Hunter (n)
A rugged tracker who favors using animal venom, explosives and traps as deadly weapons.

4. Rogue

- Role: Melee Damage
- Hide in plain sight with the stealth ability
- Control your enemies with underhanded attacks
- Combo melee abilities to deliver deadly finishing blows

Rogues often serve as assassins or scouts, though many are lone wolves as well. Rogues can often sneak around enemies or attack an opponent from behind to try and finish them off quickly.

4a. Assassination Rogue (n)
A deadly master of poisons who dispatches victims with vicious dagger strikes.

4b. Outlaw Rogue (n)
A ruthless fugitive who uses agility and guile to stand toe-to-toe with enemies.

4c. Subtlety Rogue (n)
A dark stalker who leaps from the shadows to ambush his or her unsuspecting prey.

5. Priest

- Role: Healer or Ranged Damage
- Protect others with powerful shield and healing abilities
- Wield deadly shadow magic to destroy enemies
- Instill fear and control the minds of others

Priests are well-rounded healers with a variety of tools. However, they can also sacrifice their healing to deal damage with Shadow magic.

5a. Discipline Priest (f)

Uses magic to shield allies from taking damage as well as heal their wounds.

5b. Holy Priest (f)

A versatile healer who can reverse damage on individuals or groups and even heal from beyond the grave.

5c. Shadow Priest (n)

Uses sinister Shadow magic, especially damage-over-time spells, to eradicate enemies.

6. Shaman

- Role: Healer, Ranged Damage, or Melee Damage
- Enchant your melee weapons with spells
- Call on spiritual power to restore injured allies
- Use totems to disable enemies, heal, or deal damage

Shaman use the power of elements to enhance their weapon damage or spells. Shaman summon totems in combat, small objects that disable enemies, heal, or cause damage to enemies.

6a. Elemental Shaman (n)

A spellcaster who harnesses the destructive forces of nature and the elements.

6b. Enhancement Shaman (n)

A totemic warrior who strikes foes with weapons imbued with elemental power.

6c. Restoration Shaman (f)

A healer who calls upon ancestral spirits and the cleansing power of water to mend allies' wounds.

7. Mage

- Role: Ranged Damage
- Blast your enemies with powerful ranged attacks
- Wield powerful spells that can affect multiple targets
- Control the battlefield by freezing or polymorphing enemies

Mages are the iconic magic-users or Azeroth who learn their craft through intense research and study. They make up for their light armor with a potent array of offensive and defensive spells.

7a. Arcane Mage (n)

Manipulate the arcane, destroying enemies with overwhelming power.

7b. Fire Mage (n)

Ignite enemies with balls of fire and combustive flames.

7c. Frost Mage (n)

Freezes enemies in their tracks and shatters them with Frost magic.

8. Warlock

- Role: Ranged Damage
- Summon powerful demon servants to do your bidding
- Curse, drain, and afflict your targets with corruption
- Burn your enemies with fire and shadow ranged magic

Warlocks cast Fire or Shadow magic to damage, drain, or curse their enemy. They summon demons as servants.

8a. Affliction Warlock (n)

A master of shadow magic who specializes in drains and damage-over-time spells.

8b. Demonology Warlock (n)

A master of demons who compels demonic powers to aid him or her.

8c. Destruction Warlock (n)

A master of chaos who calls down fire to burn and demolish enemies.

9. Monk

- Role: Tank, Healer, or Melee Damage
- Master the martial arts
- Shrug off damage as you move quickly around the battlefield
- Use your mystical powers to heal your allies

Monks are known for their skill in hand to hand fighting, relying on their fists and feet as much as their weapons. Monks can also specialize in calling upon the restorative power of the mists to heal allies.

9a. Brewmaster Monk (m)

A sturdy brawler who uses liquid fortification and unpredictable movement to avoid damage and protect allies.

9b. Windwalker Monk (n)

A martial artist without peer who pummels foes with hands and fists.

9c. Mistweaver Monk (f)

A healer who masters the mysterious art of manipulating life energies, aided by the wisdom of the Jade Serpent and Pandaren medicinal techniques.

10. Druid

- Role: Tank, Healer, Ranged Damage, or Melee Damage

- Shape-shift into the ferocious cat, ranged owlkin, or resilient bear
- Call upon the powers of nature to heal yourself and others
- Be a true hybrid, able to assume any role

Druids are shape-shifters with an affinity for the plant and animal kingdoms. Druids can specialize in healing, casting spells at a range, or taking on the form of a cat or bear to fight in melee.

10a. Balance Druid (n)

Can take on the form of a powerful Moonkin, balancing the power of Arcane and Nature magic to destroy enemies at a distance.

10b. Feral Druid (n)

Takes on the form of a great cat to deal damage with bleeds and bites.

10c. Guardian Druid (m)

Takes on the form of a mighty bear to absorb damage and protect allies.

10d. Restoration Druid (f)

Uses heal-over-time Nature spells to keep allies alive.

11. Demon Hunter

- Role: Tank or Melee Damage
- Embrace chaotic powers and turn them against your foes
- Vault, glide, or double jump in and out of combat
- Start at level 98

Demon Hunters are a hero class, which means they start at a high level. Demon Hunters are dark outcasts that use forbidden demonic magic to hunt and kill their enemies.

11a. Havoc Demon Hunter (n)

A brooding master of warglaives and the destructive power of Fel magic.

11b. Vengeance Demon Hunter (m)

Embraces the demon within to incinerate enemies and protect their allies.

12. Death Knight

- Role: Tank or Melee Damage
- Raise the dead to serve you
- Attack with melee weapons, spells, and disease
- Start at level 55

Death knights are a hero class, which means they start at a high level. Death knights are a melee class with an emphasis on causing diseases and using dark magic.

12a. Blood Death Knight (m)

A dark guardian who manipulates and corrupts life energy to sustain himself in the face of enemy onslaught.

12b. Frost Death Knight (n)

An icy harbinger of doom, channeling runic power and delivering vicious weapon strikes.

12c. Unholy Death Knight (n)

A master of death and decay, spreading infection and controlling undead minions to do his or her bidding.

Character Creation

1. Please indicate your *main* character or the character you play as the most often: (gender, race, all classes and specializations)
2. Please create 3 alternative characters that you would like to play or also currently play:
3. [Participants will choose a gender, race, character-specialization from the options listed]

Character gender:

- Male
- Female

Character race:

- Human
- Dwarf
- Night Elf
- Gnome
- Draenei
- Worgen
- Pandaren (Alliance)
- Orc
- Undead
- Tauren
- Troll
- Blood Elf
- Goblin
- Pandaren (Horde)

Character class & specialization: (same as the options 1-12 above)

Appendix B

Masculine and Feminine Roles in WoW*

Masculine Roles		Feminine Roles	
Melee DPS	Tank	Ranged DPS	Healer
Arms Warrior	Protection Warrior	Beast Mastery Hunter	Holy Paladin
Fury Warrior	Protection Paladin	Marksmanship Hunter	Discipline Priest
Retribution Paladin	Brewmaster Monk	Shadow Priest	Holy Priest
Survival Hunter	Guardian Druid	Elemental Shaman	Restoration Shaman
Assassination Rogue	Blood Death Knight	Arcane Mage	Mistweaver Monk
Outlaw Rogue	Vengeance Demon Hunter	Fire Mage	Restoration Druid
Subtlety Rogue		Frost Mage	
Enhancement Shaman		Affliction Warlock	
Windwalker Monk		Demonology Warlock	
Feral Druid		Destruction Warlock	
Frost Death Knight		Balance Druid	
Unholy Death Knight			
Havoc Demon Hunter			

Note. * These masculine and feminine roles were derived from the pilot study.

Appendix C

Coding Manual

- Observation number
- Date of observation
- Confederate player name
- Character and role played
- Current level of character played
- Dungeon played
- List of other players encountered in the dungeon
- Gender of each of the other players encountered in the dungeon
- Role of each of the other players encountered in the dungeon
- Timestamps of deaths
- Timestamps of comments made to the player
- Comments made to the player
- Classification of comments (negative, neutral, or positive)
 - Negative – a rude, sarcastic, or mean comment. Example: *You're really horrible at tanking.*
 - Neutral – a comment with no negative or positive tones; simply just stating facts or more instructional in nature. Example: *I lost line of sight on you.*
 - Positive – a comment giving praise. Example: *Great job!*
- Was the player kicked out of the dungeon instance?
- Total time spent in the dungeon instance

Appendix D

All Comments Received in Dungeons

?

???

???? I was healing u the entire time but u werent in my sight tank
rofl tank U HADTO LIVE 1 MORE SEC AND YOU HAD 1200 MORE HP. Rofl

...

... u losed me

are tank really retard?

brilliant

Bro, kill out wit hthe LoSing and pulling so big. Obviously it didn't work the first time.

Can you not run away from me when I'm trying to heal you?

.-

If you're going to pull shit, tank of all of it. Not just one thing.

can you stop

cant heal you if you run out of sight

do you know how aggro works?

Don't pull unless everyone is ready pls

dude stop running into mobs

you're gonna die again priest

I watched you pull those into this room like really come on now stop that

dude

idk what the fuck you were thinking dude

im not jesus

THE FUCK

how about you stick with your fuckin group

Dude, sorry about that

dude. rlly.

either dont pull as much or waiter for the healer. i dont
know what the issue is.

fck heler. stop pulelr

heal ?

kick the heal

nice healer

heal pls dont pull

heal urself. Enrd. Nerd*****

healer what is going on
youve pulled like 3 extra groups
and barely heal

healer. are you lost

HEALER???????

U afk??

I can't heal you like that dude
what the fuck

i dont know why. is this new type of tanking?

I go change to healer

I got no mana

So you pull more? Copy

I would have rezzed you

jeeeeeses

jesus

Kick Heal

priest. could you like. heal?

let the tank pull :p

lmao to mcuh

lmfao

im kinda over this now.. Lol

lmfao. what a dope

lol

lol what u doing

are u drunk

look at it this way... the tanks can only get better from here eh?

Man you gotta stick with the group lol

may I get healing

maybe tank should play smart

maybe wait

fuck you're an idiot

might have been a tad big of a pull lol

my bad it wouldnt let me heal. srty....

Don't run to far. Stop going behind here. That's why u died last time. I cant heal through the wall.

STOP RUNNING FORWARD. AND KILL THEM.

This tank. Omfg. If your gonna run forward your gonna die becausae I cant keep up. idk why you dont listen.

this tank. omfg.

btw lathiaa. you suck ass at tanking

next time don't LoS me

are u just trying to kill urself.

next time stay in my sight

YOUR HIGH. IM NOT A GOD

not that the priest is any better...

as razz was basically useless

or. Better idea. Don't run outta my range lol

pally if u need to u can heal urself

xD im a main healer and that is literally my biggest pet peeve

please slow down and don't overpull

please stop. line of sighting
pulling too many
quit moving into mobs please
pay attention to your health
STOP PULLING. FFS
Retard
REALLY. CAN YOU AGGRO
rofl
Seriously healer?
Someone vote to kick this healer
shield guys
sick pull
so we're trying to tank scarlet monestary, not azeroth okay XD
sorry about this
sorry heals
sorry lost los on you
stop pulling everything and wait for me
stop taunt shamm
tank I can rez
tank what are you doing
tank you have issues
tank. come on
TANK...
tanking noob
this tanking is harsh
u cant heal worth a shit kid
Ur pulling unnecessary stuff lol
wait. geez
please wait and pull at a time
Wd with the overpull. Solid 5/7
well that was stupid.
Literally spamming flash heal on you and youre almost dead. and you go and pull more.
wake up.
ARE Y OU MENTAL
think cuz oyu hav heirlooms youre fucking god
are you done being garbage?
welp. Gl
the pulls werent even the issue, I just need him to not LOS me
what are you doing?!
what happen
wheres the tank?
are fuckin kidding me
why

why dont you heal yourself?

why pull all those?

why would you use fear in here? It aggroed all those mobs

why?

wow you guys suck

wtf

yo I wasn't there

you are welcomed to go as crazy as long as you keep line of sight to your
heals

you know I could have rezzed you lol

You ran too far ahead and then stood behind a pillar.

your pullign way to many mobs at once

you're not as tanky as you think you are

GRAB AGGRO

Appendix E

Institutional Review Board Certification – Study 1



May 11, 2017

Kelsey Chappetta
ISSR/Psychology
College of Arts and Sciences
Box 870216

Re: IRB # 17-OR-174-ME, "Social Roles in Video Games - Survey"

Dear Ms. Chappetta:

The University of Alabama Institutional Review Board has granted approval for your proposed research.

Your application has been given expedited approval according to 45 CFR part 46. You have also been granted the requested waiver of written documentation of informed consent. Approval has been given under expedited review category 7 as outlined below:

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Your application will expire on May 10, 2018. If your research will continue beyond this date, please complete the relevant portions of the IRB Renewal Application. If you wish to modify the application, please complete the Modification of an Approved Protocol form. Changes in this study cannot be initiated without IRB approval, except when necessary to eliminate apparent immediate hazards to participants. When the study closes, please complete the Request for Study Closure form.

Should you need to submit any further correspondence regarding this proposal, please include the above application number.

Good luck with your research.

Sincerely,


Carpantato T. Myles, MSM, CIM, CIP
Director & Research Compliance Officer
Office for Research Compliance

Institutional Review Board Certification – Study 2



Office of the Vice President for
Research & Economic Development
Office for Research Compliance

May 15, 2017

Kelsey Chappetta
ISSR/Psychology
College of Arts and Sciences
Box 870216

Re: IRB # 17-OR-175, "Social Roles in Video Games – In Game Observations"

Dear Ms. Chappetta:

The University of Alabama Institutional Review Board has granted approval for your proposed research.

Your application has been given expedited approval according to 45 CFR part 46. You have also been granted the requested waiver of informed consent. Approval has been given under expedited review category 7 as outlined below:

(7) Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Your application will expire on May 10, 2018. If your research will continue beyond this date, please complete the relevant portions of the IRB Renewal Application. If you wish to modify the application, please complete the Modification of an Approved Protocol form. Changes in this study cannot be initiated without IRB approval, except when necessary to eliminate apparent immediate hazards to participants. When the study closes, please complete the Request for Study Closure form.

Should you need to submit any further correspondence regarding this proposal, please include the above application number.

Good luck with your research.

Sincerely,

Carpanato T. Myles, MSM, CJM, CIP
Director & Research Compliance Officer
Office for Research Compliance