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Protecting a Positive View of the Self: Strategic Self-Attribution of Stereotypes Among Women Video Game Players

Shay Xuejing Yao
Georgia State University, shayyao@gsu.edu

Nancy Rhodes
Michigan State University, rhodesn3@msu.edu

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Shay Xuejing Yao & Nancy Rhodes

Author Note

Shay Xuejing Yao, Ph.D., Assistant Professor, Department of Communication, Georgia State University, Atlanta, GA, U.S., shayyao@gsu.edu

Nancy Rhodes, Associate Professor, Department of Advertising & Public Relations, Michigan State University, East Lansing, MI, U.S., rhodesn3@msu.edu

Abstract

In two survey studies, one with a college student sample ($n = 249$) and one with an adult sample ($n = 319$), we tested self-stereotyping strategies among women video game players to protect their self-image from prevalent negative stereotypes of women gamers. Our results revealed that one strategy is to weaken their commitment to the women gamer identity, and another is to strategically reject some aspects of the identity while continuing to endorse others. Specifically, we found that strongly committed women gamers believed that the stereotypes are as descriptive of the typical women players as of themselves, while weakly committed women gamers reported beliefs that the stereotypes are more descriptive of the typical women players than of themselves. We also found that, for stereotypes that directly target gaming competence, strongly committed women gamers chose to reject these stereotypes for both themselves and the group, but weakly committed women gamers only reject them for themselves. For stereotypes that do not directly target gaming competence, though, both strongly and weakly committed women gamers endorsed them similarly as these stereotypes do not harm their perception of their potential success in video gaming. Overall, our results indicated that women gamers have adopted creative strategies in the face of negative stereotypes of women gamers to protect their self-image as a woman who plays video games.

Keywords: gender, gaming, self-stereotyping, ingroup-stereotyping, ingroup commitment, stereotype relevance

Protecting a Positive View of the Self:

Strategic Self-Attribution of Stereotypes Among Women Video Game Players

Women's participation in the gaming world has been rising and is now nearly equal to that of men's participation (Entertainment Software Association, 2021), yet women gamers are marginalized and endure negative stereotypes (Paaßen et al., 2017), which are often accompanied by hostility and harassment (Tang & Fox, 2016; Tang et al., 2020) in the male-dominated gaming domain (Shaw, 2015; Steltenpohl et al., 2018). For example, during the GamerGate controversy several women in the video game industry experienced threats of extreme violence and public harassment (Chess & Shaw, 2015). Empirical research has also demonstrated women are more often the target of sexual harassment when playing video games than men (Assunção, 2016; Behm-Morawitz & Schipper, 2016; Tang & Fox, 2016; Tang et al., 2020). Women who play video games are frequently seen as not "true" gamers or as second-class video gamers who only play "inferior video games" (e.g., *The Sims*, *Candy Crash Saga*) on "inferior platforms" (e.g., smartphones; Shaw & Chess, 2016; Vanderhoef, 2003). For a woman gamer, either rejecting or accepting these stereotypes has implications for their connection to an important identity and self-evaluations (for a domain-general discussion, see Pronin et al., 2004; Sedikides & Strube, 1997). To maintain a positive self-evaluation without losing an important identity, women gamers may attribute stereotypes to themselves strategically. The present studies sought to identify key mechanisms in women gamers' self-stereotyping processes.

Women Gamer Stereotypes

Women gamer stereotypes serve as part of the sexist ideology in the gaming community. Performing well in video gaming typically requires competitiveness and skill which aligns more with traditional masculine-typed traits compared to feminine-typed traits (see Spence et al.,

1975), thus women are presumed to be less competent than men at playing video games (Choe et al., 2019; Paaßen et al., 2017). Women gamers are perceived as slower at learning to play video games than men gamers and they are criticized for advancing slowly within video game play (Yao et al., 2022a). Another salient stereotype lies in women's reliance on men when playing video games. Just as a stereotypical woman is perceived to be less competent than and dependent on men in everyday life (e.g., a stereotypical woman is not as smart as a man; a stereotypical woman prefers to have men's protection; Barreto & Ellemers, 2005; Henderson & Cunningham, 1993), a stereotypical woman gamer is perceived as using men gamers' help for in-game advancement rather than doing it herself (Yao et al., 2022a). These stereotypes targeting women's gaming competence have contributed to women being disadvantaged in the gaming domain.

There are other aspects of the woman gamer stereotype that do not directly address women gamers' competence at gaming but are still considered harmful to their positive self-view as a woman. For example, a typical woman gamer is believed to be socially incompetent (Yao et al., 2022a), which is inconsistent with the stereotyped notion that women are typically high in communal traits (e.g., women tend to pay attention to others and form social connections; Helgeson, 1994). A typical woman is viewed as feeling comfortable at social activities and is good at maintaining relationships (Bem, 1974), but the stereotypical traits of a woman gamer are that she prefers playing video games by herself over attending social events and is incompetent at managing a romantic relationship (Yao et al., 2022a). These stereotypes negatively impact women gamers' self-evaluation through targeting their general gender self-concept.

In addition to being subjected to sexism among video game players, women gamers' views of themselves have also been negatively influenced by these stereotypes (Barlett & Harris,

2008; Behm-Morawitz & Mastro, 2009). When these stereotypes are made salient to women gamers, not only do they believe less in their gaming skills (Vermeulen et al., 2016), but they also perform more poorly in gameplay due to stereotype threat (Kaye & Pennington, 2016). These stereotypes are also reported to have a long-term influence on women gamers, leading these women to play anonymously, play alone, and change gaming groups frequently (McLean & Griffiths, 2018). Past research has demonstrated behavioral outcomes of the negative stereotypes on women gamers, but how women gamers may strategically respond to these stereotypes cognitively has rarely been studied. The present research examined the self-stereotyping strategies which women gamers, as members of a stereotyped identity, utilize to protect a positive view of themselves.

Individual Mobility

Drawing from social identity theory (SIT; Tajfel & Turner, 1986; for an overview, see Ellemers & Haslam, 2012), individual mobility addresses how people strategically protect their positive self-evaluation when they belong to a low-status social group (Tajfel & Turner, 1979). SIT maintains that individuals strive to use their group identity as a source of a positive view of the self (Tajfel & Turner, 1986). However, low-status social groups are typically affiliated with negative stereotypes, an acceptance of which would negatively influence group members' self-evaluation. To address this issue SIT identified several strategies (i.e., individual mobility, social creativity, social competition; Tajfel & Turner, 1979). Of these strategies, individual mobility is the only individual level approach that members of the low-status group can fully adopt by themselves. According to the individual mobility perspective, individuals are motivated to psychologically distance themselves from the low-status group to protect their positive self-evaluation (e.g., Ellemers et al., 1997). Additionally, because individual mobility assumes group

identity as an indivisible whole, individuals protect their self-evaluation by removing themselves from *all* stereotypic traits of the low-status group.

The original work on individual mobility proposed a complete dissociation with the low-status group (Tajfel & Turner, 1979). Later identity research produced a more nuanced understanding of *ingroup commitment* that individuals may still perceive themselves as part of the group, but they view themselves as a less typical member (Ellemers et al., 1999; Ellemers et al., 1997). Therefore, instead of a complete detachment, individual mobility can be manifested by a weaker commitment to the low-status ingroup. In this vein, weakly committed members are thought to have successfully engaged in individual mobility. These members are expected to stop viewing themselves as a typical group member and as a result reject the stereotypes for themselves. However, mobilizing oneself from the group identity does not affect group status and group-level stereotypes, thus the identity-based stereotyping process should remain intact. That is, these mobilized members are expected to continue viewing the typical group members as embodying the stereotypic traits associated with the group identity. On the other hand, strongly committed members are expected to have refused to engage in individual mobility as the group identity is too important for them. For strongly committed members, losing connection to the group identity may feel more distressing than accepting the stereotypes. Because these members have not engaged in individual mobility, they should continue to view themselves as a typical group member and the stereotypes as descriptive of other typical group members as well as themselves. In sum, the individual mobility perspective predicts ingroup commitment as group members' key strategy to protect their self-evaluation, such that weakly committed group members protect themselves by individually distancing themselves from the group identity as well as all its stereotypic traits.

In the present research, we define women gamers' stereotype-attribution to themselves as *self-stereotyping* and their stereotype-attribution to the typical women gamers as *ingroup-stereotyping*. Women gamers are assumed to have a lower social status compared to men gamers because the social category of men has higher social status compared to the social category of women (Swan & Wyer, 1997), and playing video games is typically perceived as a male dominant activity (Paaßen et al., 2017). In this low-status group, weakly committed women gamers are expected to have engaged in the individual mobility process. By lowering their commitment to the woman gamer group, they view themselves as less similar to the stereotypical woman gamer than they perceive the typical woman gamer to be. These weakly committed women gamers thus are expected to exhibit weaker self-stereotyping than ingroup-stereotyping. For strongly committed women gamers, because they view themselves as typical members of the group, they are expected to attribute woman gamer stereotypes similarly to the typical women gamers and to themselves. Thus, according to individual mobility, we hypothesize the following.

H1: Women gamers' ingroup commitment will moderate the association between ingroup-stereotyping and self-stereotyping, such that the association will be stronger among women gamers with a stronger (vs. weaker) ingroup commitment.

Identity Bifurcation

As with individual mobility, identity bifurcation is also derived from SIT (Tajfel & Turner, 1986) and is another strategy to cope with a stereotyped identity. Identity bifurcation and individual mobility share the principle that individuals tend to use group identity to maintain their positive self-evaluation. Additionally, both perspectives predict that individuals are motivated to distance themselves from an identity when the stereotypic traits affiliated with the identity harm their positive view of the self. However, while the mobility perspective views

group identity as an indivisible whole, the bifurcation perspective views group identity as a set of separable traits (Pronin et al., 2004). That is, group members are at liberty to dissociate themselves from some stereotypic traits but continue to endorse the rest. Through this process identity bifurcation protects individuals' domain-specific self-evaluation (i.e., positive evaluation about oneself in the desired domain).

Specifically, stereotypic traits that directly target individuals' expected performance competence in a domain, in this case, game play, are categorized as *game-relevant stereotypes* (e.g., "Female gamers are slow learners at playing video games"). These stereotypes exhibit strong relevance to gameplay and are harmful to individuals' self-evaluation of their gameplay-related competence. On the other hand, stereotypes that do not include negative implications about individuals' gameplay performance are categorized as *game-irrelevant stereotypes* (e.g., "Female gamers are socially awkward."). Because these stereotypes do not directly target individuals' gameplay-related competence, they are less harmful to their self-evaluation as video game players. Overall, the identity bifurcation perspective recognizes the role of *stereotype relevance* (e.g., game-relevant vs. game-irrelevant stereotypes) in individuals' self-stereotyping process, predicting that individuals protect their domain-specific (gameplay) self-evaluation by strategically varying their endorsement of the game-relevant and game-irrelevant stereotypes.

Applying Identity Bifurcation to Individual Mobility

The individual mobility perspective assumes that identity is indivisible, and individuals need to dissociate from all parts of the identity when engaging in the mobility process. This approach can be costly for group members. That is, group members need to decide to either completely accept all stereotypes and put their positive self-evaluation at risk or completely reject all stereotypes and potentially lose connection to their group identity. To address this issue,

later research on identity bifurcation proposed a less costly strategy where individuals are at liberty to dissociate only part of the identity. Indeed, through bifurcating the stereotypic traits affiliated with the identity, individuals can protect their positive self-evaluation while still feeling connected to their group identity. To extend prior research, in the present studies we examined the role of identity bifurcation in the individual mobility process.

Individual mobility predicts that the association between women gamers' ingroup-stereotyping and self-stereotyping would vary based on their ingroup commitment (H1). Applying the bifurcation perspective to the individual mobility process, women gamers' mobility patterns may be different based on whether the stereotypes are game-relevant or game-irrelevant. For game-relevant stereotypes, weakly committed women gamers are expected to engage in individual mobility. Game-relevant stereotypes directly target women gamers as incompetent video game players and therefore are considered harmful to their domain-specific self-evaluation. As such, to protect their positive self-evaluation, weakly committed women gamers should reject the stereotypes as descriptive of themselves. However, as mentioned earlier, individual mobilization does not change group-level stereotypes, thus weakly committed women gamers may still recognize these stereotypes and attribute them to the women gamer group. Strongly committed women gamers, on the other hand, view themselves as a typical group member, and as a result should attribute stereotypes to themselves and other groups members similarly. But because the game-relevant stereotypes of women gamers attack their competence in game play, strongly committed women gamers are expected to reject the game-relevant stereotypes for themselves and the women gamer group. In contrast, weakly committed women gamers are expected to only reject the stereotypes for themselves but *not* for the women gamer group. Therefore, we hypothesize a stronger association between ingroup-stereotyping and self-

stereotyping for strongly committed women gamers compared to weakly committed women gamers.

H2: For game-relevant stereotypes, women gamers' ingroup commitment will moderate the association between ingroup-stereotyping and self-stereotyping, such that the association will be stronger among women gamers with a stronger (vs. weaker) ingroup commitment.

We expect a different pattern for game-irrelevant stereotypes. In this case women gamers' self-stereotyping is hypothesized to exhibit different patterns based on whether they bifurcate the identity or not. If women gamers do not bifurcate their identity, they would view their identity as one indivisible entity and treat all stereotypic traits associated with the identity similarly. As a result, the same individual mobility pattern with game-relevant stereotypes is expected to exhibit with game-irrelevant stereotypes as they are all stereotypic traits associated with the woman gamer identity. Thus, if women gamers do not bifurcate the identity, we would expect the same pattern with game-irrelevant stereotypes as for H2 with game-relevant stereotypes. Thus, if women gamers do not bifurcate the identity, the hypothesis would be:

H3a: For game-irrelevant stereotypes, women gamers' ingroup commitment will moderate the association between ingroup-stereotyping and self-stereotyping, such that the association will be stronger among women gamers with a stronger (vs. weaker) ingroup commitment.

However, if women gamers do bifurcate their identity, they are at liberty to treat the game-irrelevant stereotypes differently than the game-relevant ones. Therefore, we would expect a different pattern than in H3a. Game-irrelevant stereotypes do not directly target women gamers' competence at playing video games and are therefore less likely to harm women gamers' self-evaluation in the gaming domain. Consequently, neither weakly nor strongly committed women gamers should feel motivated to distance themselves from these stereotypes.

That is, commitment to the gaming identity should have no relationship to endorsement of these traits for self or other. Thus, ingroup commitment is expected to *not* moderate the association between ingroup- and self-stereotyping. We offer the following competing hypothesis for the possibility where women gamers do bifurcate their identity:

H3b: For game-irrelevant stereotypes, women gamers' ingroup commitment will *not* moderate the association between ingroup-stereotyping and self-stereotyping, such that there will be no association between ingroup- and self-stereotyping as a function of ingroup commitment .

Overview

The hypotheses were tested through two studies. In Study 1, women gamer participants from a student sample responded to game-relevant and game-irrelevant women gamer stereotypes. For each group of stereotypes, participants reported the extent to which they felt the stereotypes were descriptive of themselves and of the typical women gamers. Participants also responded to the ingroup commitment measure, demographic measures, and other measures that were not used in the present research. In Study 2, we replicated Study 1 while addressing some limitations with an adult woman gamer sample.

Study 1

Study 1 Method

Participants and Procedure

An online survey was posted to the subject pool of the communication college at a large Midwestern university. Undergraduate students earned course credit for their participation. The 15-minute online survey began with informed consent, then participants responded to questions regarding their stereotype attribution to the woman gamer groups, the extent to which they think that they are a stereotypical woman who play video games, the extent of their commitment to the

woman gamer group, video gaming frequency, demographic information, and questions that are not directly related to the present study. Many of the questions were designed for women video game players, thus male participants and women non-gamers were filtered out from data analysis.

Among the 497 participants who took the survey, 108 were removed from data analysis due to their identification as a man, and 34 were removed because they did not complete the survey. Duplicate IP addresses were not an issue because each participant had a unique user ID within the subject pool system which only allows them to take a survey once. Of the remaining women participants ($n = 355$), gaming frequency was used to determine woman gamer status. Participants who reported a gaming activity (i.e., did not choose "almost never" but one of the following options: "every other month", "about once a month", "every other week", "a few times per week", or "daily") during the past six months (i.e., "how often did you play video games during the past six months?") were selected for data analysis ($n = 250$). One participant was removed due to a self-reported age larger than 120. Participants in the final sample ($n = 249$; $M_{age} = 19.96$; $SD_{age} = 1.57$) identified as White ($n = 170$, 68.3%), Asian ($n = 43$, 17.3%), Black ($n = 21$, 8.4%); and other ($n = 15$, 6.0%). Standard IRB procedures were followed in both studies. Data from both studies are available on Open Science Framework (Yao & Rhodes, 2022).

Measures

The order of items was randomized for each measure. All items were measured on a 11-point Likert scale (0 = *strongly disagree*; 10 = *strongly agree*).

Ingroup Commitment

The extent to which women gamers feel committed to their group was measured with four items (Spears et al., 1997). These items include "I identify with all other female gamers", "I see myself as a female gamer", "I am pleased to be a female gamer", and "I feel strong ties with other female gamers" (Cronbach α = .92).

Stereotyping of Typical Women Gamers and Self

Stereotyping of women gamers was measured with the Female Gamer Stereotype Scale (FGSS; Yao et al., 2022a). The five FGSS factors include lack of femininity (e.g., "female gamers lack the skill of maintaining a tidy household"), lack of sociability (e.g., "female gamers are socially awkward"), lack of competence in gaming (e.g., "female gamers learn how to play a video game slower than male gamers"), reliance on men in gaming (e.g., "female gamers need help from male gamers when playing video games"), and preference of casual games (e.g., "female gamers like casual games"). Participants were asked to rate separately the extent to which the FGSS items described typical women gamers and the self. The same items used to assess stereotyping of the typical woman gamer were used with the pronouns changed from "female gamers" to "I" (e.g., "I am socially awkward."). The 20 FGSS items were averaged to form a woman gamer ingroup-stereotyping score (Cronbach α = .95) and a woman gamer self-stereotyping score (Cronbach α = .79).

Stereotyping with Game-Relevant Stereotypes

A separate index was formed for the game-relevant stereotype dimensions of the FGSS that directly target women gamers' performance and competence in the video gaming domain and thus are categorized as game-relevant stereotypes: women gamers' lack of competence and reliance on men in gaming (lack of competence items: "female gamers learn how to play a video game slower than male gamers", "female gamers get to be good at gaming slower than male

gamers", "female gamers perform substantially worse at competitive video games than male gamers", "most women who play video games are not very good at them"; reliance on men items: "female gamers play video games to impress men", "female gamers play video games for men's attention", "most women who play video games just do so with their boyfriends", "women who call themselves gamer girls think they deserve special treatment", "female gamers need help from male gamers when they play video games"; Yao et al., 2022a). Participants' responses to the nine items pertaining to the game-relevant stereotypes were averaged for ratings of the typical woman gamer (Cronbach α = .95) and self (Cronbach α = .78).

Stereotyping with Game-Irrelevant Stereotypes

A separate index was formed for the game-irrelevant stereotype dimensions of the FGSS that do not directly target women gamers' performance and competence in the gaming domain, and thus are categorized as game-irrelevant stereotypes[1]: women gamers' lack of femininity and lack of sociability (lack of femininity items: "female gamers lack the skills for maintaining a romantic relationship", "female gamers are not in serious romantic relationships or married", "female gamers' appearance is untidy", "female gamers lack the skills for maintaining a tidy household"; lack of sociability items: "female gamers do *not* party a lot", "female gamers are socially awkward", "female gamers have difficulties fitting into normal social circles"; Yao et al., 2022a). Participants' responses to the seven items pertaining to the game-irrelevant stereotypes were averaged for ratings of the typical woman gamer (Cronbach α = .92) and the self (Cronbach α = .70).

The stereotype dimension on women gamers' preference on casual video games was not included in the analyses as game-relevant or game-irrelevant stereotypes. This is due to concerns

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[1]

of subgroups among women gamers regarding types of video games they play. Women gamers who tend to play competitive video games may perceive these stereotypes as threatening their gaming competence, and consequently reject these stereotypes. However, women gamers who tend to play casual video games may find these stereotypes non-threatening and descriptive of their gaming behavior, and as a result accept these stereotypes. Therefore, self-identified women gamers may choose to reject or accept these stereotypes, not based on how threatening they are to their woman gamer identity, but based on which gaming subgroup they belong to. To avoid this possible confound, gaming preference items were removed from analyses related to game-relevant or game-irrelevant stereotypes. We also discussed the potential influence of types of video games on women gamers' self-stereotyping process in the general discussion.

Study 1 Results

Ordinary least squares (OLS) regression was used to test the hypotheses. Three regression models were tested for H1-3. The regression model for H1 utilized participants' responses to all woman gamer stereotypes. The regression model for H2 focused on participants' responses to game-relevant stereotypes only, and the regression model for H3 focused on participants' responses to game-irrelevant stereotypes. Participants' age was added as a covariate in all analyses and we found no significant effects of age. See Table 1 for descriptive statistics and zero-order correlations. See Table 2 for a summary of the regression results.

Total Woman Gamer Stereotypes (H1)

As seen in Table 2, the main effect of total ingroup-stereotyping on total self-stereotyping was significant. An increase in women gamers' ingroup-stereotyping is associated with an increase in their self-stereotyping, without consideration of ingroup commitment. The main effect of ingroup commitment on total self-stereotyping was nonsignificant. A significant

interaction was observed such that the association between a woman gamer's ingroup-stereotyping and self-stereotyping was dependent on their commitment to the woman gamer ingroup. As seen in Figure 1, the stronger a woman gamer's commitment to their ingroup, the stronger the association between ingroup-stereotyping and self-stereotyping. H1 was fully supported.

Game-Relevant Woman Gamer Stereotypes (H2)

With game-relevant stereotypes the main effect of ingroup-stereotyping on self-stereotyping was positive and statistically significant. An increase in women gamers' ingroup-stereotyping of game-relevant stereotypes is associated with their self-stereotyping of these stereotypes, without consideration of intergroup commitment. The main effect of ingroup commitment on self-stereotyping was negative and statistically significant. Without consideration of ingroup-stereotyping, a participant's commitment to the woman gamer group is negatively associated with how much she attributes game-relevant stereotypes to herself. In addition, there was a significant interaction between ingroup-stereotyping and ingroup commitment on self-stereotyping for game-relevant stereotypes, whereby the association between ingroup-stereotyping and self-stereotyping was stronger at higher levels of ingroup commitment. H2 was supported.

Game-Irrelevant Woman Gamer Stereotypes (H3a and H3b)

With game-irrelevant stereotypes both ingroup-stereotyping and ingroup commitment had nonsignificant main effects on self-stereotyping. However, there was a significant interaction between ingroup-stereotyping and ingroup commitment on self-stereotyping. For the game-irrelevant stereotypes, the association between ingroup-stereotyping and self-stereotyping was stronger at higher levels of ingroup commitment, supporting H3a and rejecting H3b.

Overall, the results of H2 and H3a/H3b supported individual mobility but not identity bifurcation.

Study 1 Discussion

In the present research individual mobility is demonstrated through the strengthened relationship between ingroup-stereotyping and self-stereotyping with an increased ingroup commitment (H1). If this pattern were only exhibited through game-relevant stereotypes (H2) but not game-irrelevant stereotypes (H3b), then it would mean that the women gamers utilized the strategy of identity bifurcation. However, results from this study supported H2 and H3a, showing that women gamers distanced themselves from both game-relevant and game-irrelevant stereotypes. This finding can be interpreted in a few ways. First, this could mean that, as predicted in the original notion of individual mobility, participants in this study treated the woman gamer identity as an indivisible entity and distanced themselves from all stereotypes (game-relevant and game-irrelevant) as their ingroup commitment weakened. The current results also showed lack of support for identity bifurcation, such that the participants did not bifurcate the stereotypic traits to protect their woman gamer identity.

Alternatively, our findings that participants distanced themselves from all game-relevant and game-irrelevant stereotypes (supporting H2 and H3a) could be attributed to our operationalization of the woman gamer identity. In this study, we used gaming behavior as a proxy for the woman gamer status (e.g., Vermeulen et al., 2017), which is conceptually distinct from the woman gamer identity. Indeed, previous research has found behavioral differences between people who self-identify as a gamer and those who play video games without endorsement of the gamer identity (Kort-Butler, 2021). Thus, compared to self-identified women gamers who have a salient identity, some participants may not view themselves as belonging to

the woman gamer group even when they exhibit the behavior of playing video games. Without a

salient woman gamer identity, these participants may be sensitive to all stereotypes including

game-irrelevant ones, and as a result reject all these stereotypes as descriptive of themselves. To

address the potential methodological issue of using behavior (i.e., gaming frequency) to

represent identity (i.e., self-identification as a woman gamer), in Study 2 we used a non-student

sample of adults in which participants subjectively identified themselves as women gamers.

Additionally, women gamers' individual mobilization from game-irrelevant stereotypes

could be interpreted as due to their self-perception as a typical woman. In the present research,

game-irrelevant stereotypes do not intend to reflect on women gamers' gaming competence but

capture their incompetence in social contexts, which targets stereotypical traits associated with

women. Indeed, though these game-irrelevant stereotypes do not threaten women gamers' self-

perception as a gamer, these stereotypes may be offensive to their feelings of themselves as a

woman. Consequently, some participants may have chosen to distance themselves from the

game-irrelevant stereotypes to protect their social category as a woman. To ensure that the

present research captures women gamers' self-stereotyping process in the gaming domain, it is

important to parse out the potential influence of participants' self-perception as a typical woman.

Thus, participants' self-perception as a typical woman was controlled in the analyses in Study 2.

Study 2

In Study 1 we found a stronger relationship between women gamers' ingroup-

stereotyping and self-stereotyping as their ingroup commitment increases. And this pattern is

shown through all game-relevant and game-irrelevant stereotypes, conflicting with the notion of

identity bifurcation. However, the lack of support of identity bifurcation from Study 1 could be

due to the measures used (i.e., gaming frequency instead of self-identification). Thus, in this study we tested the hypotheses with a sample of self-identified women gamers.

Study 2 Method

Participants and Procedure

Participants were women survey-takers on Amazon Mechanical Turk who currently reside in the United States (MTurk; Buhrmester et al., 2011). The true purpose of the study was masked in the MTurk survey. Participants ($n = 446$) who took the 15-minute survey were compensated $2.50 USD. Data were excluded from data analysis if participants identified as a "female non-gamer" ($n = 107$) instead of a "female gamer" ($n = 339$) in the question of "which of the following categories would you identify yourself with?" Additionally, participants who did not complete all survey questions were removed from data analysis ($n = 16$). Two pairs of duplicate IP addresses were found, and the data from all four of these surveys were removed from analysis. Of the remaining 319 women gamers who completed the survey, the mean age was 38.13 ($SD = 11.74$). Participants in the final sample identified as White ($n = 259$, 81.9%), Black ($n = 32$, 10.0%), Asian or Pacific Islander ($n = 10$, 3.1%), Native American or Alaskan Native ($n = 14$, 4.4%), and other ($n = 5$, 1.6%).

Measures

All measures of ingroup-stereotyping and self-stereotyping were identical to Study 1, which include stereotyping of the typical woman gamer (20 items; Cronbach $\alpha = .92$), stereotyping of the typical woman gamer with game-relevant stereotypes (9 items; Cronbach $\alpha = .95$), stereotyping of the typical woman gamer with game-irrelevant stereotypes (7 items; Cronbach $\alpha = .86$), self-stereotyping (20 items; Cronbach $\alpha = .72$), self-stereotyping with game-

relevant stereotypes (9 items; Cronbach α = .82), and self-stereotyping with game-irrelevant

stereotypes (7 items; Cronbach α = .66).

Ingroup commitment was measured by a single item which is a modified version of the

Inclusion of Ingroup in the Self scale (IIS; Gómez et al., 2011; Tropp & Wright, 2001). The scale

was originally developed to measure interpersonal closeness (Aron et al., 1992) but was adapted

to measure the closeness one feels toward the group identity (Ellithorpe et al., 2018; Tropp &

Wright, 2001). In the current study, IIS was used to capture how committed women gamers feel

toward the woman gamer identity. The IIS consisted of seven pairs of circles, one labeled "self"

and the other labeled "female gamer," that begin far apart and gradually come closer until they

overlap completely. The participant selected the pair of circles that most precisely represented

how close or distant they felt to the woman gamer group. The pairs of circles were assigned the

numbers from (1) where the circles were completely apart to (7) where the circles completely

overlapped. Participants' selection of a pair of circles that are more overlapped represent more

closeness between the "self" and "female gamer" identities, and a higher score on this measure.

Participants' self-perception as a typical woman was also measured with IIS. The labels

"self" and "a typical woman" were on each of the seven pairs of circles. The first of the seven

pairs of circles are completely apart, the second pair shows a small overlap between the circles.

Each subsequent pair of circles shows more overlap, until the last pair of the circles are

completely overlap. The seven pairs of circles are coded with seven consecutive numbers: The

responses are coded as zero when the pair of circles are completely apart and seven when the

pair of circles completely overlaps. The more strongly a participant identifies as a typical

woman, the more overlap area she would have selected between "self" and "a typical woman"

circles ($M = 3.51$, $SD = 1.68$). Participants' self-reported age was again added as a covariate in the analysis ($M = 38.13$, $SD = 11.74$).

Study 2 Results

OLS regression was again used to estimate the model coefficients. A regression model using participants' responses on all stereotypes, game-relevant stereotypes, or game-irrelevant stereotypes was estimated for each hypothesis, which is the same approach as in Study 1. Participants' self-perception as a typical woman and participants' self-reported age were included as covariates in all tested models. See Table 3 for descriptive statistics and zero-order correlations and Table 4 for a summary of regression results.

Total Woman Gamer Stereotypes (H1)

As seen in Table 4, the main effect of ingroup-stereotyping on self-stereotyping was statistically significant. An increase in women gamers' ingroup-stereotyping is associated with an increase in their self-stereotyping, regardless of their commitment to the woman gamer group. The main effect of ingroup commitment on self-stereotyping was not statistically significant. There was a significant interaction effect between ingroup-stereotyping and ingroup commitment on self-stereotyping, indicating that the association between ingroup-stereotyping and self-stereotyping was stronger at higher levels of ingroup commitment (see Figure 2). These results fully supported H1 and replicated the findings in Study 1.

Game-Relevant Woman Gamer Stereotypes (H2)

With game-relevant stereotypes the main effect of ingroup-stereotyping on self-stereotyping was positive and statistically significant. An increase in women gamers' ingroup-stereotyping is associated with an increase in their self-stereotyping, without consideration of ingroup commitment. The main effect of ingroup commitment on self-stereotyping with game-

relevant stereotypes was negative and statistically significant. This means that, as women gamers' ingroup commitment increases, their self-stereotyping decreases. A significant interaction was also observed between ingroup-stereotyping and ingroup commitment whereby the association between ingroup-stereotyping and self-stereotyping was stronger at higher levels of ingroup commitment. This set of results supported H2 and replicated findings in Study 1.

Game-Irrelevant Woman Gamer Stereotypes (H3a and H3b)

With game-irrelevant stereotypes both ingroup-stereotyping and ingroup commitment had a nonsignificant main effect on self-stereotyping. This finding is consistent with Study 1. However, different from the results in Study 1, a nonsignificant interaction was found between ingroup-stereotyping and ingroup commitment on self-stereotyping. This means that the association between ingroup-stereotyping and self-stereotyping with game-irrelevant stereotypes did not significantly vary as ingroup commitment changes. Inconsistent with findings from Study 1, this result supported H3b and rejected H3a.

Effects of Covariates

In the game-irrelevant stereotypes model, but not the game-relevant stereotypes model, age significantly predicted participants' self-stereotyping, with an increase in age associated with a decrease in self-attribution of game-irrelevant stereotypes. This finding is different from Study 1, where participants' age was not a significant predictor in either model. Additionally, participants' self-perception as a typical woman significantly and positively predicted their self-attribution of game-irrelevant stereotypes, without consideration of their ingroup-stereotyping, ingroup commitment, and age. These results were not found in the model with game-relevant stereotypes.

Study 2 Discussion

Study 1 used a student sample with gaming behavior as a proxy for women gamer identity. In Study 2, we improved upon the previous study by using an adult sample with self-identified women gamers. In the present study, we again found the relationship between women gamers' ingroup-stereotyping and self-stereotyping is stronger as their ingroup commitment increases (H1). This finding is consistent with the notion of individual mobility, where women gamers feel the stereotypes not as descriptive of themselves as they feel less committed to the group. Different from findings in Study 1, in the present study we also find support for identity bifurcation. Only with game-relevant stereotypes but *not* game-irrelevant stereotypes, the relationship between women gamers' ingroup-stereotyping and self-stereotyping are strengthened with a stronger commitment to the ingroup (H2 & 3b). This means that the women gamers bifurcated their identity where they treated game-relevant and game-irrelevant stereotypes differently. For stereotypes that do not directly threaten their domain success (i.e., game-irrelevant stereotypes), how much women gamers attribute the stereotypes to themselves, and the group was not impacted by their level of commitment to the group.

General Discussion

Sexism is a salient issue in the gamer community (Fox & Tang, 2014). In the present research, we sought to understand some of the underlying consequences of that sexism by investigating how women gamers protect their self-concept in this context. Consistent with our expectations and with hypotheses derived from SIT (Tajfel & Turner, 1986), our findings demonstrated individual mobility in both studies. Women gamer participants who are thought to have successfully engaged in individual mobility exhibited weak commitment to the identity. They viewed the stereotypes as less descriptive of themselves than of the typical women gamers. As such, they maintained their positive self-evaluation at the expense of their closeness to the

group identity. On the other hand, strongly committed women gamers appeared to have refused

to engage in individual mobility. For these women, dissociating with their identity or remaining

with their group both come with great cost. For them, dissociating with the identity means they

would lose an important aspect of the self, even though remaining with the group could be

detrimental to their positive self-evaluation. In our findings, these strongly committed women

choose to maintain their closeness to the woman gamer identity, even when rejecting that

identity may help them feel better personally.

       To examine the identity bifurcation prediction, we tested whether women gamers'

engagement with individual mobility works differently with game-relevant and game-irrelevant

stereotypes. In Study 1 we found that participants did not bifurcate their identity: ingroup-

stereotyping and ingroup commitment significantly and interactively influenced women gamers'

self-stereotyping for all stereotypes, regardless of the relevance of the stereotypes. However, in

Study 2, using a more direct measure of perceived women gamer typicality, we found support for

identity bifurcation. That is, for game-irrelevant stereotypes, strongly and weakly committed

women gamers did not show significantly different patterns on how they attribute stereotypes to

their group and themselves. But for game-relevant stereotypes, strongly and weakly committed

women gamers did show significantly different patterns on how they attribute stereotypes to their

group and themselves: the stronger the woman gamer's ingroup commitment, the more likely she

attributes woman gamer stereotypes to herself. This is consistent with our prediction that women

gamers would bifurcate their gaming identity (i.e., treat the stereotypic traits associated with the

identity differently) so that they would not completely lose connection to the identity. That is,

they might be fine with the idea that they are not socially skilled (part of the women gamer

game-irrelevant stereotype), but reject for themselves and other women gamers that they are

incompetent player. Overall, the results in Study 2 confirmed that women gamers use both individual mobility and identity bifurcation when attributing stereotypes to themselves (for an example in the racial context, see Jean et al., 2022). Women gamers do distance themselves from the identity when engaging in individual mobility, but they only do so with game-relevant stereotypes.

The present results suggest a more complex process of women gamers' self-stereotyping behavior than proposed by prior models. Across both studies, we found robust support for individual mobility, but in Study 2 we also found that women gamers' mobility process diverges by the relevance of the stereotypical traits. In our research, self-identified women gamers (Study 2) bifurcated the stereotypes during their engagement in individual mobility, that they showed different self-stereotyping patterns with game-relevant and game-irrelevant stereotypes. This finding extends our understanding of the individual mobility perspective by adding nuance to our understanding of self-stereotyping processes. Additionally, validation of identity bifurcation indicates that the woman gamer identity is indeed important to the women gamers. By endorsing the stereotypes that are not harmful to their potential domain success but may still be perceived as harmful to their general self-concept (i.e., game-irrelevant stereotypes such as "Female gamers lack the skills for maintaining a tidy household."), our participants chose to prioritize their positive self-evaluation as a video game player.

The present research extends theory by incorporating the bifurcation perspective into the individual mobility process. Social identity research has well documented the importance of people's ingroup commitment on their stereotype endorsement for the group and themselves (e.g., Spears et al., 1997). However, this line of research has rarely considered the role of stereotype relevance. The present research is among the first to empirically test individual

mobility with the more parsimonious perspective of stereotype bifurcation. Overall, our results

supported the role of identity bifurcation in individuals' decision making on whether to mobilize

from their low-status social group. Thus, our findings provide useful information for future

research to study social identity with consideration of the relevance of stereotypes to group

members' domain success, instead of merely treating identity as an indivisible whole.

Limitations and Future Research Directions

Study 1 used gaming behavior as a threshold to determine the status of woman gamer

identity (i.e., women participants were counted as a woman gamer if they reported a gaming

history) and we did not find support for identity bifurcation. Study 2 used an adult sample of

self-identified women gamers (i.e., participants who identified as a woman gamer) and identity

bifurcation was fully supported. This key difference in findings highlights the importance of

using samples with self-identified gamers when studying identity related outcomes in the focal

context. Indeed, group dynamics may not be properly captured when using behavior (e.g.,

gaming frequency) to represent self-identification (e.g., woman gamer identity). Future research

should note the subtle difference between women who engage in gaming behavior and women

who view themselves as a woman gamer (for example, see Kort-Butler, 2021), and choose

appropriate samples accordingly.

The reliability of the measure on self-stereotyping with game-irrelevant stereotypes in

Study 2 is relatively low (Cronbach's $\alpha = .66$). The measurement instrument (i.e., FGSS; Yao et

al., 2022a) was originally designed to capture people's stereotypical beliefs toward the woman

gamer group, but in the present research we also used the instrument to measure women gamers'

stereotypical perception about themselves. Thus, it is possible that social desirability becomes an

issue when a woman gamer is pressed to evaluate how much of her own behaviors overlap with

these negative stereotypes. Future research is encouraged to continue investigating the psychological property of this measurement instrument when assessing women gamers' stereotypical attribution to themselves. Additionally, the covariates of participants' age and their self-perception as a typical woman both significantly predicted self-stereotyping with game-irrelevant stereotypes but not game-relevant stereotypes in the adult sample. These two variables are beyond the focal interest of our research, but future research may continue exploring the role of individual differences in women gamers' self-stereotyping tendencies.

Additionally, individual mobility is likely a developmental process which happens over time. This means our cross-sectional surveys can only demonstrate relationships that are consistent with the phenomenon but cannot capture the complete process of individuals' gradual dissociation from their identity. Future research is encouraged to utilize longitudinal designs to examine how women gamers' individual mobilization unfolds over time. Such a design will help us better understand the causal relationships between key constructs, as well as other factors that may impact how women gamers' process and react to this stereotyped identity.

In Study 2 we used MTurk for data collection, which is reported to be a platform that allows researchers to work with a diverse pool of participants (Buhrmester et al., 2011). Thus, the platform had an advantage for this study's data collection as we sampled a niche population of self-identified women gamers. However, there are concerns that MTurk's survey takers may misrepresent their demographics to be qualified for desired studies (MacInnis et al., 2020). In our MTurk survey, the true purpose of the study was masked, and participants were unaware of our desired population when they started the survey. We also informed all participants that they would be compensated if they completed the survey, aiming to reduce the possibility of survey takers faking their identity for compensation. However, we still cannot exclude the possibility

that some participants may have guessed the desired population from the survey questions and incorrectly reported their identity. Future research is recommended to cross-validate our findings by replicating our studies on different survey platforms.

In the present research we treated the identity of a woman gamer as homogeneous, which may in fact be a broad concept and include multiple subgroups (e.g., Yao et al., 2022b). For example, preference of casual video games is an element of the stereotype of women gamers in general, but this stereotype could be interpreted differently by women gamers with different video game preferences. Those who play competitive video games may perceive this stereotype as threatening to their gaming competence (i.e., a game-relevant stereotype). However, women gamers who tend to play casual video games may think that this stereotype is non-threatening to their confidence in the gaming domain (i.e., a game-irrelevant stereotype). Due to the concern that some woman gamer subgroups may perceive the relevance of video game preference stereotypes differently, we removed all related stereotypes from the analyses of identity bifurcation. Future research is encouraged to examine the self-stereotyping processes for specific woman gamer subgroups and replicate the present research with more parsimonious understanding of the woman gamer identity.

The woman gamer identity includes two components: being a woman and being a gamer. According to identity research, demographic identities such as gender often function as a "master status" which are more likely to be salient regardless of contexts (Stryker, 1987). The salience of gamer identity, though, is highly dependent on specific contexts and situations (e.g., the gamer identity is more likely to be salient during a gaming session than during one's job interview). Thus, when their identity is threatened, it is unclear how women gamers would dissociate with the gender component of the identity, the gaming component of the identity, or the intersectional

identity of woman gamer. It would be interesting to see future research empirically test the complex cognitive process of individual mobility for intersectional identities.

Finally, the sample we obtained in this study was predominantly White. Previous research has found that women and racial minorities tend to be underrepresented or represented steroetypically in the gaming context (Peck et al., 2011). However, there is a lack of research on how intersectional identities in the gamer community are stereotyped (e.g., an Asian woman gamer vs. a White woman gamer). Although we had no expectation that our findings would be affected by the racial balance of the sample based on existing research, the intersectionality of race, gender, and gamer identity should be a focus of future work.

Practice Implications

The findings of these studies have implications for women gamers, who may be subject to toxic behaviors from others in the gaming domain because of these stereotypes. Past research has tended to study gamer behavior by treating identity as a dichotomous variable (e.g., Kowert et al., 2012). While social identity has been illustrated to be a useful approach to study gamer behavior, we argue that identity is a broad concept and our understanding of gamer behavior can be refined if we look at specific components of the gamer identity. In our studies, instead of simply using woman gamer identity dichotomously, we demonstrated how women differentially apply the dominant stereotypes of women in the gaming domain to themselves and other women gamers based on their commitment levels to the women gamer identity. It appears that women gamers can rid themselves of the negative stereotypes that might limit their behavior in the gaming domain. Understanding the implications of these processes for women's well-being and resilience in the often-times toxic gaming environment is an important issue for future research.

Conclusion

These studies demonstrated that both ingroup commitment and stereotype relevance are associated with women gamers' self-attribution of stereotypes, suggesting that this is a way that women gamers might protect their self-evaluation in the gaming domain. Ingroup commitment was found to moderate the relationship between ingroup- and self-stereotyping in both studies, where weakly committed women gamers attributed more stereotypes to the group than to themselves but strongly committed women gamers attributed stereotypes to the group and themselves similarly. Findings in Study 2 also supported stereotype relevance as a strategy for women gamers to protect their domain success. Women gamers bifurcated stereotypes associated with their identity to maintain positive self-evaluation in the gaming domain. We hope our research contributes to a shift of studying video game sexism from primarily focusing on men gamers' prejudice and discrimination against women gamers to one that also examines how women gamers can maintain a positive sense of self in the gaming domain.

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Table 1

Descriptive Statistics and Correlations of Study 1

Variable	*M*	*SD*	1	2	3	4	5	6
1. Total ingroup-stereotyping	2.25	1.76	-					
2. Total self-stereotyping	3.15	1.29	.54**	-				
3. Ingroup commitment	3.72	2.94	-.06	.20**	-			
4. Ingroup-stereotyping with game-relevant stereotypes	1.79	2.05	.94**	.49**	-.01	-		
5. Self-stereotyping with game-relevant stereotypes	2.64	1.69	.55**	.83**	.01	.56**	-	
6. Ingroup-stereotyping with game-irrelevant stereotypes	1.92	1.94	89**	.43**	-.15*	.74**	.40**	-
7. Self-stereotyping with game-irrelevant stereotypes	2.64	1.72	.31**	.73**	.17**	.27**	.36**	.30**

Note. *p* < .05. **p* < .01.

Table 2

Regression Results for Study 1

	Effect	Estimate	*SE*	*t*	*p*
	Constant	**3.47***	.84	4.14	< .001
	Ingroup-Stereotyping	**.24***	.06	4.23	< .001
	Ingroup Commitment	.01	.03	.34	.74
Total Woman Gamer Stereotypes (H1)	Ingroup-Stereotyping *Ingroup Commitment	**.04***	.01	3.65	< .001
	Age	-.06	.04	-1.50	.14
	$R^2 = .38, F(4, 242) = 37.76, p < .001$				
	Constant	**4.10***	1.11	3.69	< .001
	Ingroup-Stereotyping	**.25***	.07	3.78	< .001
	Ingroup Commitment	**-.08***	.04	-2.08	< .05
Game-Relevant Woman Gamer Stereotypes (H2)	Ingroup-Stereotyping *Ingroup Commitment	**.05***	.01	3.97	< .001
	Age	-.10	.06	-1.75	.08
	$R^2 = .36, F(4, 242) = 34.45, p < .001$				
	Constant	**3.33***	1.24	2.69	< .01
	Ingroup-Stereotyping	-.03	.08	-.40	.69
	Ingroup Commitment	-.02	.04	-.51	.61
Game-Irrelevant Woman Gamer Stereotypes (H3)	Ingroup-Stereotyping *Ingroup Commitment	**.09***	.02	5.61	< .001
	Age	-.05	.06	-.87	.39
	$R^2 = .24, F(4, 242) = 19.52, p < .001$				

Note. Self-stereotyping is the dependent variable in each regression model. Significant coefficients are bolded.

Figure 1

Interaction between Total Ingroup-stereotyping and Ingroup Commitment on Total Self-
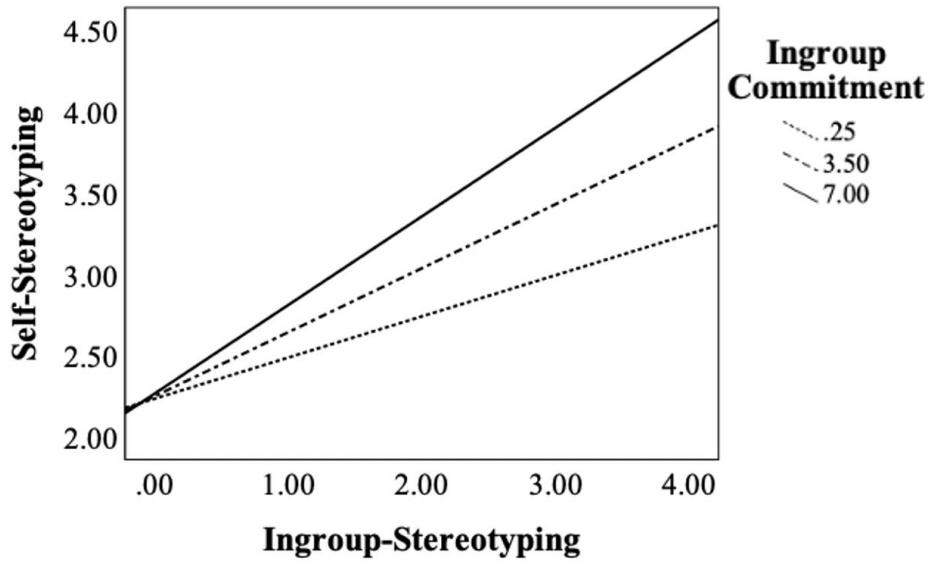
stereotyping (Study 1)

Table 3

Descriptive Statistics and Correlations of Study 2

Variable	*M*	*SD*	1	2	3	4	5	6
1. Total ingroup-stereotyping	3.28	1.70	-					
2. Total self-stereotyping	2.97	1.11	.62**	-				
3. Ingroup commitment	4.33	1.46	-.20**	-.12*	-			
4. Ingroup-stereotyping with game-relevant stereotypes	2.60	2.38	.92**	.53**	-.21**	-		
5. Self-stereotyping with game-relevant stereotypes	1.96	1.67	.59**	.80**	-.17**	.62**	-	
6. Ingroup-stereotyping with game-irrelevant stereotypes	2.83	1.84	80**	.49**	-.15**	.57**	.35**	-
7. Self-stereotyping with game-irrelevant stereotypes	2.95	1.72	.21**	.60**	-.09	.06	.11*	.38**

Note. *p < .05. **p < .01.

Table 4

Regression Results for Study 2

	Effect	Estimate	*SE*	*t*	*p*
Total Woman Gamer Stereotypes (H1)	Self-perception as a typical woman	.04	.03	1.32	.19
	Age	-.001	.004	-.38	.71
	Constant	**2.09***	.04	5.17	< .001
	Ingroup-Stereotyping	**.22***	.09	2.52	< .05
	Ingroup Commitment	-.12	.07	-1.71	.09
	Ingroup-Stereotyping *Ingroup Commitment	**.04***	.02	2.20	< .05
	$R^2 = .39$, $F(5, 312) = 40.45$, $p < .001$				
Game-Relevant Woman Gamer Stereotypes (H2)	Self-perception as a typical woman	-.04	.05	-.86	.39
	Age	.01	.01	.99	.32
	Constant	**1.50***	.50	2.99	< .01
	Ingroup-Stereotyping	**.22***	.10	2.23	< .05
	Ingroup Commitment	**-.18***	.08	-2.34	< .05
	Ingroup-Stereotyping *Ingroup Commitment	**.05***	.02	2.36	< .05
	$R^2 = .40$, $F(5, 312) = 42.29$, $p < .001$				
Game-Irrelevant Woman Gamer Stereotypes (H3)	Self-perception as a typical woman	**.24***	.05	4.41	< .001
	Age	**-.02***	.01	-2.05	<.05
	Constant	**2.33***	.65	3.61	<.001
	Ingroup-Stereotyping	.07	.14	.48	.63
	Ingroup Commitment	-.13	.11	-1.19	.23
	Ingroup-Stereotyping *Ingroup Commitment	.06	.03	1.88	.06
	$R^2 = .22$, $F(5, 312) = 17.50$, $p < .001$				

Note. Significant coefficients are bolded.

Figure 2

Interaction between Total Ingroup-stereotyping and Ingroup Commitment on Total Self-

stereotyping (Study 2)