E-SPORTS, A MAN'S WORLD?

HOW GENDER RATIOS IN E-SPORTS TEAMS AFFECT PERCEPTIONS

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Abstract:

E-sports have gone from being a niche community of video gamers to becoming mainstream, with million-dollar prize pools for the best players. With the growth of e-sports, companies have increasingly become interested in sponsoring teams, sometimes going as far as to found their own teams. Despite its growth, however, e-sports remains male-dominated with almost all professional gamers being male. Previous research shows that in sports perceived as being masculine, and in other masculine domains, stereotypes often exist, altering the perception of those who break these stereotypes. This study explores how the perception of e-sports teams differs depending on their gender ratios.

An experiment was administered where three groups received a respective simulated newspaper article about a new e-sports team, with different gender ratios for each group: one all-male team, one mixed female and male team and one all-female team. Data from 122 respondents was thereafter collected and measured with regards to attitude, interest, perceived skill, likelihood to share the article, and likelihood to watch the team play.

The results indicated that respondents tended to show more interest in teams including female players than in the all-male team. Interestingly, the added interest arose for both the mixed-gender team and the all-female team, suggesting that it was not the lack of males that added interest but rather the occurrence of females. Furthermore, this study suggests that e-sports teams looking to increase levels of interest should attempt to add female players, all else equal.

Keywords:

E-sports, Marketing, Perceptions, Gender, Online behavior, Streaming

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Definitions

E-sports – a form of competition using video games, usually multiplayer games played competitively for spectators by professional gamers.

Gender stereotype – an overgeneralized belief about the attributes of the people of a certain gender, encouraging prejudice with respect to particular individuals.

Attitude – a state of mind, encompassing thoughts and/or feelings, that an individual is inclined to as a response to a certain phenomenon.

Behavioral intention – a mental state representing internal commitments to carry out a corresponding behavior.

Attention – an individual's concentration of awareness specifically on a discrete piece of perceivable information, to the exclusion of other perceivable information.

Interest – defined in this paper, specifically vis-à-vis an e-sport team, independently of the liking of the object (as clarified to those asked about it), subsequently grouped together with the concept of attention to represent a statistical index.

Schema – in the context of psychology and cognitive science, an individual's mental structures used to organize various kinds of knowledge and beliefs, drawn upon to make interpretations and predictions about the world.

Schematic processing – the cognitive process of interactions between one's schemas and new inputs from the world, encompassing the interpretive application of schemas as well as their adaptive process.

1. Introduction

1.1. E-sports

E-sports, most commonly referring to multiplayer video games played competitively for spectators by professional gamers, are becoming increasingly popular (Hutchins, 2018). Sjöblom and Hamari define e-sports as "a form of sports where the primary aspects of the sport are facilitated by electronic systems; the input of players and teams as well as the output of the eSports system are mediated by human-computer interfaces" (Hamari & Sjöblom, 2017). Professional gamers, treated similarly to stars in traditional sports, can expect multimillion-dollar prize pools in games such as Dota 2, League of Legends and Counter Strike: Global Offensive, amongst others.

The growth of e-sports is projected to continue, with a worldwide audience of around 454 million. The audience is projected to further grow to 645 million by 2022 (Newzoo, 2019a). E-sports tournaments are generally highly accessible by being available on websites such as Twitch.tv and YouTube. Viewers tend to follow one particular game of interest – as opposed to watching "e-sports" in general, each game has its distinct audience, with 70% of viewers following a single game (Pannekeet, 2017). Furthermore, 42% of e-sports viewers don't play a game themselves, indicating that there is a substantial interest of following e-sports without necessarily participating.

With such an extensive audience, many brands have entered the e-sports market through sponsorships. Sponsorships are generally designed such that brands' logos are shown in segments between and during the games (on live broadcasting channels such as Twitch.tv and YouTube), or by displaying the sponsor's logo on the sponsored team's clothes. Some sponsors go as far as to sponsor or found entire teams, such as SK Telecom T1 which is sponsored by Korean telecommunications operator SK Telecom. This phenomenon is quite distinctive of e-sports and especially prevalent in Southeast Asian countries.

Sponsoring brands are not limited to the gaming or computer industry; rather, there are many opportunities for sponsors regardless of industry (Newzoo, 2019b). For sponsors, there is obvious benefit to having as large an audience as possible watching the sponsored team. The idea is that viewers will make positive associations to the sponsored e-sports team and that these associations will carry over to the brand itself. Nevertheless, not all e-sports teams are equal in their fanbase, fan loyalty or audience.

A distinctive property of e-sports is the skewed proportion of men and women in the audience. Indeed, 70% of e-sports viewers are male, although the proportion of female viewers is growing (Takahashi, 2019). Furthermore, the amount of actual professional gamers who are female is staggeringly low in comparison to males. Stephanie Harvey, a famous female professional gamer, estimates that only 5% of e-sports gamers are

female (Women in Games). This begs the question as to whether female e-sports players are seen differently compared to males given how rare they are. Studies have shown that while people may not be directly prejudiced against women, there are stereotypical images of women as warm and compassionate which creates prejudice against women in masculine domains (Eagly & Mladinic, 1994). Given the overwhelming amount of male e-sports players, professional gaming could be considered a masculine domain.

1.2. Gender stereotypes and representation within e-sports

The majority of professional e-sports gamers, organizers, commentators and fans identify as white men, and most people who identify as females within the gaming community have experienced harassment (Groen, 2016). The differences between genders within e-sports have given rise to tournaments which are female-exclusive, meaning gamers identifying as men cannot participate, despite there not being an apparent reason for such segregation as is the case with physical sports where men have a biological advantage.

Despite a large portion of the gaming population consisting of females – 45% of the US gaming population was female in 2018 according to a survey (Statista) – ideas of gaming and e-sports remain masculine. According to older studies, both men and women perceive computer games as masculine (Williams et al., 2009).

1.3. Problem area

E-sports is currently in a stage of growth, as is evident by the continuous expansion of its viewership and players (Newzoo 2019a). One component in its growth is the widening of its audience; e-sports may have started with a niche, male-dominated following during its beginning in tournaments such as World Cyber Games, but it has since grown to become mainstream with large tournaments such as The Internationals. In conjunction with its audience growth, e-sports teams attract many sponsors from varying industries – some of which found entire teams as previously mentioned. As such it is of interest to see whether certain team properties are more prone to attracting fans or creating positive brand associations.

It is evident that there is a disparity in the number of female viewers of e-sports and the amount of female e-sports players with around 30% female viewers and an approximated 5% female gamers. The disparity has been attributed to current stereotypes attached to gamers and that female gamers are judged for being different, by prominent professional female gamer Stephanie “missharvey” Harvey (Women in Games).

Nevertheless, the novelty of e-sports implies that there haven’t been many studies conducted within the field, in particular there is a lack of studies looking at possible

effects of skewed gender ratios from a brand's perspective. The research gap within e-sports with regards to the perception of teams given different gender ratios, and the perception of professional gamers by gender, is discussed in this thesis.

1.4. Purpose of the study

The aim of this thesis is to contribute to research regarding the perception of e-sports teams as a function of the gender ratio of the players. The research will provide a clearer picture of how the e-sports community perceives players and teams based on their gender and if their perceptions can have direct implications for the attitudes and success of a team from a marketing perspective. More specifically, this thesis aims to study how the attitude towards an e-sports team, interest in an e-sports team, perceived competence of an e-sports team, intention of watching an e-sports team and intention of sharing information about an e-sports team are affected by the gender of the team's players. Furthermore, we aim to study how spectators' view on gender and gender equality affects their perceptions of e-sports teams with differing gender ratios.

In summary, the purpose of our thesis is to answer the research question:

How does the gender ratio of an e-sports team affect spectators' perceptions of the team?

1.5. Delimitations

The scope of this thesis is limited to different constellations of gender within e-sports teams, given that it would require a magnitude more time and respondents to adequately measure a more continuous difference in gender ratios. Furthermore, given that it is impossible to find equally skilled (and equally perceived) existing teams with differing gender ratios, the study is limited to the perception of new teams. It is, nonetheless, possible that existing teams would find differing results than those found in this study.

With regards to the data collection, response data was not limited geographically, but through the forums through which the survey was spread. Respondents who found the survey are more likely to be active members within the e-sports community. Given the size of e-sports viewership, many viewers are casual and do not spend time on forums dedicated to games. It should be considered when looking at the results that the data stems from a part of the e-sports community that is possibly more dedicated than the average viewer. Future research could attempt a more diverse sampling, including casual viewers who are not active on e-sports forums, as there may be differing perceptions between the types of viewers.

1.6. Expected knowledge contribution

This thesis aims to build upon previous research within the fields of e-sports, marketing and online video streaming in order to contribute with further research regarding how gender can affect perceptions in e-sports. Research with regards to how gender affects perception is prevalent in many fields, yet is lacking in e-sports despite increasing attention from brands and spectators. E-sports has grown at a pace which has made it difficult for research to catch up. The aim of this study is to contribute with useful research and new perspectives, practically and academically.

2. Theoretical Background

2.1. Stereotypes

Stereotypes can be defined as generalized and prevalent perceptions of the personal characteristics of people belonging to certain social groups, often leading to these people being perceived and treated as generic representations of their group rather than individuals (Taylor et al., 2005). Stereotypes are specific to particular cultural contexts. In other words, they vary by temporal and spatial setting (Eisend, 2010). The emergence of stereotypes can be explained by particular cognitive processes that have the purpose of structuring complex information and facilitating the processing of it. In certain contexts, these processes in themselves are unproblematic and can even improve individuals' abilities to interact meaningfully with the surrounding world (Heilman, 1995).

Moreover, research has shown significant negative effects of stereotypes, such as gender-based or ethnic stereotypes, on the performance of the people being stereotyped, based on a number of interrelated psychological processes (Schmader, Johns, & Forbes, 2008). One example of such effects on performance was seen in that women performed significantly worse on tests when being told that such tests "produced gender differences", in comparison to women who had the test presented as "insensitive to gender differences". An inverse version of this applied for men, who performed better in the first test context compared to the latter one (Steele, 1997).

2.2. Gender stereotypes

Although, as previously mentioned, stereotypes across genders are prevalent in many domains, there is research to imply that such stereotypes can be diffused. Research suggests that in cultures where there is a bias against women in leadership positions, exposure to women in such positions could have a significant role in reducing bias. Nevertheless, the same research suggests that stereotypes that are deeply rooted in culture can be difficult to change and take a long time to be reduced (Beaman et al., 2009).

Within computer gaming, preconceived notions of males and females are prevalent. Stereotypes about how men and women approach gaming seem to hold up to some extent in reality: it has been shown that men tend to be more motivated by "achievement-related reasons" whereas women play more for "social reasons". Furthermore, the same study showed a distinct difference between male and female gamers in relationships: when playing with a partner, male gamers were significantly more aggressive (Williams et al., 2009). It has also been shown that sports in general is still seen as a masculine domain, although this has increasingly begun to be challenged

during recent years (Clément-Guillotin, Chalabaev, & Fontayne, 2012). Given that sports are seen as a masculine domain in general, and the aforementioned study shows that males tend to display "masculine" traits such as aggressiveness within gaming, it is possible that there is a bias for men within e-sports and gaming. This would be backed-up by studies showing that there appears to be prejudice against women in masculine domains (Eagly & Mladinic, 1994).

This part of the theoretical background justifies the following hypotheses:

H1a: E-sports fans will on average perceive an e-sports team to have a higher level of competence if it has only male players, than if it has only female players.

H1b: E-sports fans will on average perceive an e-sports team to have a higher level of competence if it has only male players, than if it has a near-equal share of male and female players.

H1c: E-sports fans will on average perceive an e-sports team to have a higher level of competence if it has a near-equal share of male and female players, than if it has only female players.

2.3. Desirable traits in e-sports

There are several reasons as to why spectators may be interested in watching e-sports. Research has shown that reasons as to why spectators watch e-sports include escaping everyday life, which could be seen as "entertainment-based", the acquisition of knowledge, where players spectate in order to improve at the game, as well as the enjoyment of aggression (Hamari & Sjöblom, 2017). More recent research has confirmed the usage of e-sports as an escape from everyday life as being an explanation for a strong interest in e-sports (Choi, 2019; Xiao, 2019). It has also further demonstrated entertainment (Lee et al., 2018) and drama – defined as the appreciation of uncertainty and suspense – (Xiao, 2019) as being main motivators behind watching e-sports. Based on these findings, as well as on the more likely attribution of aggression to males as opposed to females and the findings that males tend to behave more aggressively within video gaming (Williams et al., 2009), it could be hypothesised that a significant number of spectators will be more inclined to watch e-sports that feature specifically males. Furthermore, it seems that despite acquisition of knowledge being a main driving factor for watching e-sports, the perceived skill of a player does not significantly affect the watching frequency. This could possibly be attributed to player skill being a "hygiene factor", which any professional gamer would qualify for, making additional skill redundant (Hamari & Sjöblom, 2017).

Due to the discrepancy between the characteristics that are often appreciated in e-sports, and those that are widely associated with females, the following hypotheses are justified:

> **H2a**: E-sports fans will on average display more positive attitudes toward an e-sports team if it has only male players, than if it has only female players.
>
> **H2b**: E-sports fans will on average display more positive attitudes toward an e-sports team if it has only male players, than if it has a near-equal share of male and female players.
>
> **H2c**: E-sports fans will on average display more positive attitudes toward an e-sports team if it has a near-equal share of male and female players, than if it has only female players.

2.4. Attitudes and behavioral intentions

From the perspective of an e-sports team, the target audience's general attitudes toward the team, while important, may be seen as secondary to their actual intentions to watch the team compete. Ultimately, creating a base of devoted supporters is crucial for the team to be able to find any monetization abilities (Hallmann & Giel, 2018).

In this context, Theory of Reasoned Action (TRA), can serve as a theoretical bridge between attitudes and behavioral intentions. TRA posits that the strength of behavioral intentions is the main predictor of whether or not a behavior is carried out, and that these intentions are in turn determined by subjective norms and by attitudes pertaining to these behaviors. The concept of subjective norms here refers to the perceived social pressure about whether to perform a certain action. Its strength is determined by a combination of the strength of one's normative beliefs, i.e. beliefs of whether a certain behavior is approved in one's social reference group, and of one's motivation to comply with these norms. Furthermore, the characteristics of one's attitudes, in this setting, is determined by the strength of one's behavioral beliefs, i.e. beliefs about the the outcomes and features of the behavior in question, and by how one evaluates these (Fishbein & Ajzen, 1975).

In other words, according to TRA, behavior is directly grounded in related perceptions. In a given social setting, TRA predicts that more positive attitudes toward a given phenomenon will directly lead to a higher likelihood of intending to engage with – and ultimately of actually engaging with – that phenomenon (Fishbein & Ajzen, 1975). A meta-analysis covering 19 categories of human behavior, with a total sample size of 90 901, also demonstrated a strong connection between attitudes and related behavioral intentions (Kim & Hunter, 1993). Moreover, further empirical research has indicated that the influence of subjective norms on behavioral intention is more context-

dependent than the influence of personal attitudes, indicating that the latter often takes precedence over the former in influencing these intentions (Ajzen, 1991). This includes the context of behavioral intentions to specifically watch e-sports, on which the influence of subjective norms failed to be demonstrated in a recent paper using the TRA framework and its definitions. As for personal attitudes toward watching e-sports, these were demonstrated in the same paper to show a 0.832 correlation with the behavioral intention to do so, at a 0.001 significance level (Xiao, 2019).

Based on this theoretical background, the predictions in H2 – of how gender distributions in the team will affect attitudes toward it – can be extended to a third hypothesis, pertaining to the behavioral intention to watch a streamed competition that includes the fictitious e-sports team as a main competitor:

H3a: E-sports fans will on average display a higher likelihood of intending to watch a streamed competition featuring a certain e-sports team if this team has only male players, than if it has only female players.

H3b: E-sports fans will on average display a higher likelihood of intending to watch a streamed competition featuring a certain e-sports team if this team has only male players, than if it has a near-equal share of male and female players.

H3c: E-sports fans will on average display a higher likelihood of intending to watch a streamed competition featuring a certain e-sports team if this team has a near-equal share of male and female players, than if it has only female players.

2.5. Schematic processing

A schema, in psychology and cognitive science, is a cognitive framework by which an individual organizes and interprets information. Schemas (the plural form schemata is also in use) represent patterns of cognition, encompassing one's internal representation of the world. They are in general relatively resistant to change, and therefore relatively persistent over time. The term schematic processing refers to the cognitive processes by which cognitive schemas interact with new information (Piaget, 1971).

Piaget (1971) formulated two categories into which schematic processing could be divided. The first one, assimilation, takes place when individuals use current cognitive schemas to interpret new information. This information is assimilated into the schemas, which are not changed by the process. The other one, accommodation, takes place when the schemas are adapted to be consistent with the new information. In other words, the schemas accommodate the new information. The latter consumes significantly more mental energy and occurs only when the former has failed.

In this context, a state of equilibrium is said to occur when one's cognitive schema is capable of explaining new observed information through assimilation. The opposite, disequilibrium, creates the need for accomodation, which, depending on the context, can range from being fairly mild to being quite a dramatic process. In other words, when an individual encounters a phenomenon that is incongruent with their cognitive schemas, i.e. that deviates significantly from their expectations and preconceptions, this will tend to grab their attention and engage more mental faculties in the initiation of the accommodation process. This will entail an increased level of attention and mental engagement vis-à-vis the phenomenon (Piaget, 1971).

Piaget's theories of schematic processing have been subsequently elaborated on and further grounded in empirical findings, with e.g. elaborations on the processes activated when disequilibrium occurs (Axelrod, 1973). They have been applied and tested in a variety of research, e.g. demonstrating the increased focus of attention and cognitive processing when perceiving schema-discrepant events (Schützwohl, 1998) and schema-discrepant auditory and visual stimuli (Meyer et al., 1993). In addition, research in cognitive science has also directly applied Piaget's framework, demonstrating e.g. how the hippocampus and the prefrontal cortex interact in the processes of assimilation and accommodation (Eichenbaum & Preston, 2013) and how the hippocampus influences this process even for schemas that are in themselves hippocampus-independent (Armelin et al. 2016).

Moreover, these theories formulated by Piaget can be applied in the context of perceptions of the fictitious e-sports team featured in this study. As previously stated, men have been estimated to account for around 95% of e-sports gamers. Therefore, being exposed to an e-sports team that contains either a near-equal gender distribution or only women, could be hypothesized to constitute a significant deviation from the cognitive schemas of many e-sports fans. This would justify the following hypotheses:

H4a: E-sports fans will on average display a higher level of attention and general interest toward an e-sports team if it has only female players, than if it has only male players.

H4b: E-sports fans will on average display a higher level of attention and general interest toward an e-sports team if it has only female players, than if it has a near-equal share of male and female players.

H4c: E-sports fans will on average display a higher level of attention and general interest toward an e-sports team if it has a near-equal share of male and female players, than if it has only male players.

2.6. Gender representation

It is clear that some brands may be inclined to go against gender stereotypes within a given industry in order to try to make a change or gain positive brand attributes. Given that e-sports teams can be seen as brands – an especially clear connection in the cases of company-sponsored teams – such inclinations could be prevalent. One strategy, determined to be the best according to some research, for brands to engage with e-sports is through products used by e-sports gamers, so that such products are observed by spectators (Fanjul-Peyro, Gonzalez-Onate, & Pena-Hernandez, 2018).

It is possible that an e-sports team with a high number of female players will be seen as more socially engaged, since they are going against norms and giving female players a "chance" to prove themselves by investing in them. Such efforts could be seen as social involvements, which might be used to increase positive associations to a brand, which, in turn, could increase brand equity (Yoon, Gürhan-Canli, & Schwarz, 2006). People following the team may perceive the team and any brands associated with it more positively as a result of female representation, by e.g. contributing to creating a more sincere brand personality (Aaker, 1997).

Sections 2.5 and 2.6 together justify the final set of hypotheses:

H5a: E-sports fans will on average display a higher likelihood of sharing an article about an e-sports team if it has only female players, than if it has only male players.

H5b: E-sports fans will on average display a higher likelihood of sharing an article about an e-sports team if it has only female players, than if it has a near-equal share of male and female players.

H5c: E-sports fans will on average display a higher likelihood of sharing an article about an e-sports team if it has a near-equal share of male and female players, than if it has only male players.

3. Methodology

3.1. Choice of approach and research method

The topic of this paper is within a research gap, but it builds on theory from a broader research area that encompasses gender representation, gender stereotypes and similar topics. The aim of the paper is to test a number of hypotheses, generated from this theory, pertaining to the opinions of e-sports fans as a group. For our topic, the answers people would give, when theoretically self-assessing whether they would judge e-sports teams differently depending on their gender composition, could be expected to in some cases differ from what would be the case in practice. This could be both due to a self-image that does not completely match one's de-facto attitudes and due to social pressures leading to preference falsification. Because of these factors, we deemed a quantitative experimental study to be the most suitable for our purpose. With this method we can test how attitudes appear in practice for e-sports fans, on a group level, since each individual is only responding to one treatment without knowing which factors of the fictitious e-sports team is of interest to us as researchers.

3.2. Study design

We created three different treatments for the experiment. These are all based on an article in a fictitious e-sports magazine, presenting a fictitious, newly founded e-sports team with a short presentation. The three treatments differ only in the proportion of players from each gender; the first team is made up of only males, the second team is mixed, consisting of 40% females in two games and 60% females in one game, and the third team consists solely of females. Using the online survey creation software Qualtrics, we were able to create a survey with an introduction explaining that users were about to observe a newspaper excerpt, followed by being presented one of the aforementioned treatments and finally answering a series of questions with regards to the treatment. The choice of treatment was randomized for each participant.

In each treatment, the presentation of the gender diversity within the team was done through displaying the name and an image of each player. As such, participants would be able to draw their own conclusions with regards to how the gender diversity looked in each team, so as to not influence participants by stating that a team had a certain percentage of a certain gender. This choice was done so that participants would be less likely to anticipate what the survey was about before answering the questions connected to the treatment.

Most of the questions in the survey allowed respondents to rate their response on a bipolar numerical seven-point Likert scale, where the left side always signified low values and point one signified for example "Not at all likely" or "It did not" and the

right side signified high values where point seven signified values such as “Likely” and “It did”. Values were tested on a seven-point scale because of its wide usage within research and bipolar differential scales, and although it allows for neutral responses, it could reduce bias from “fence-sitters” who would otherwise be forced to choose a side when they do not prefer one. At the end of the survey, respondents were asked a series of questions regarding the respondents’ attitude towards gender equality and engagement in such issues, as well as demographic questions and manipulation checks to see whether or not the respondent had processed the manipulation, e.g what the article was about and which genders were presented.

3.2.1. Data collection

The language of choice was English, meaning the fictitious newspaper articles were all written in English so as to mimic an international online e-sports newspaper. English was chosen as a language since the e-sports community is naturally international, given that it consists through the internet, which has no national boundaries. Large tournaments such as the ones mentioned in the introduction tend to be international and streamed to a global audience. Furthermore, forums where e-sports discussions occur and where suitable candidates for the survey could be chosen are mostly international and from a brand’s perspective, the global e-sports community as a whole is of interest when measuring attitudes.

Our choice of participant selection was e-sports fans of one or more of the games Dota 2, Counter Strike: Global Offensive and League of Legends. We defined “e-sports fans” as people who are likely to watch or play one of the aforementioned games within six months. We screened for this criterion in our survey through the question “How likely is it that you will either play or watch Dota 2, League of Legends or Counter-Strike: Global Offensive within the coming 6 months?”, on which survey takers would have to respond six or seven out of seven on a bipolar numerical seven-point scale with labels “Unlikely” as point one and “Likely” as point seven”. The choice of games was based upon their immense popularity within e-sports: in March 2019, the three aforementioned games encompassed the three most watched games on YouTube and Twitch.tv (Newzoo). To reach this group of people, we distributed the survey through different online forums dedicated to e-sports fans in general, or fans of either of the three games. These forums were mainly Reddit forums, namely the “subreddits” – forums within Reddit – of /r/Dota2, /r/LeagueOfLegends and /r/CSGO. Furthermore, we spread the survey through Facebook groups dedicated to e-sports.

The total data was compiled on the 8th of May 2019, at which point 231 responses had been gathered. Nevertheless, 102 of those responses were incomplete and thereby discarded, leaving 129 viable responses. Out of these responses, four were discarded as they did not meet the criterion for e-sports fans; they scored below six on a seven-point bipolar scale following the question “How likely is it that you will either play or watch

Dota 2, League of Legends or Counter-Strike: Global Offensive within the coming 6 months?" with labels "Unlikely/Likely". Furthermore, an additional three respondents were discarded as a result of failing the manipulation check, indicating that they did not perceive the correct gender of the players in the stimuli. In the end, 122 viable responses were left to be analyzed.

Out of the 122 finally viable responses, 116 or approximately 95,1% identified as "male", four or approximately 3,3% identified as "female" and 2 or approximately 1,6% identified as "other". The age span of respondents was 14 to 46 years old, with a median age of 22 years old.

35 respondents received the first treatment: a solely male team, 34 received the second treatment: a mixed team with both male and female players and 53 respondents received the third treatment: a solely female team.

3.2.2. Stimuli design

Given the internet-based nature of e-sports culture and the ease of spreading and creating a digital stimulus, an excerpt from an online e-sports newspaper was chosen as treatment object. Fictitious teams were created so that participants would not be affected by possible already held views regarding the teams and since there are very few professional teams with such a high number of female players as in two of our treatments. The excerpts were created in the software Sketch in a way to a way to mimic e-sports newspaper articles on webpages, although the newspaper is fictitious as well. After a short team-introduction, each sub-team (players specialized in each of the three games) was presented, featuring five players per game, totaling 15 players in the team as a whole. The players were presented with a portrait image and name which made it clear whether they were female or male (we chose traditional gender specific images and names). Apart from the names and images of the players, all three treatments were exactly the same. We displayed players of mixed ethnicities in all three treatments.

3.3. Data analysis

After gathering the data in Qualtrics, it was exported to the software IBM SPSS Statistics version 25. Several tests were conducted, and data was structured by creating indexes, as will be further explained below in section 3.5. Such indexes were thereafter tested with Cronbach's alpha, which was above 0,7 in all cases, thereby being seen as acceptable (Bryman, Bell 2015).

3.3.1. Testing

Given that the experiment had three different treatment groups, it was analyzed whether or not an ANOVA-test could be used to determine the results. An independent sample t-

test was not used given the number of groups, as several t-tests would have to be conducted on a single group, increasing the risk for a type 1 error. For an ANOVA-test to be conducted, it needed to be determined whether or not the results differ significantly from a normal distribution. As such, a Shapiro-Wilk test for normality was conducted for each of the three treatment groups, showing that, apart from the perceived competence of the groups, results differed significantly from a normal distribution. The results of the Shapiro-Wilk tests showed significance of under 0,05 for all questions apart from those regarding the perceived competence, which as a rule of thumb means they differ from normal distributions significantly. Thus, an ANOVA-test could not be used for analysis of the entire experiment.

Instead, analysis had to be done with nonparametric testing. The data was therefore analysed using a Kruskal-Wallis test in IBM SPSS to note if any significant differences in means occurred, and a pairwise comparison was thereafter used in order to note which of the means were significantly different. A significance level of 0.05 was used.

To determine potential moderators, a moderator analysis was completed through the well-known IBM SPSS extension tool PROCESS, created by Andrew Hayes. The test used the bootstrapping method with 1000 bootstrap iterations and used model 1, which is a simple moderator model, with a 95% confidence interval. The test was applied to all potential moderators that are listed under 3.5.2.

3.4. Main study

3.4.1. Parameters of the main study

Attitude towards the team

We measured the survey-taker's attitude towards the team in order to establish if and how attitudes differed between the three treatments. The attitude was measured by respondents entering an answer on three seven-point scales following the question "What is your attitude towards this team?". The first scale was a semantic differential scale with bipolar labels "Bad" and "Good". The second and third Likert scales had bipolar labels at each end of the scale, namely: "Negative impression/Positive impression" and "Like it/Do not like it". To ensure internal reliability it was analyzed to which extent the three variables relate to each other through Cronbach's alpha. In general, a Cronbach's alpha of over 0,7 indicates strong internal reliability (Bryman, Bell 2015). The three variables regarding attitude towards the team displayed a Cronbach's alpha of 0.950, implying they are to be seen as reliable.

Interest in the team

It was measured how attention-grabbing the article was perceived by respondents through a seven-point scale following the question "Did the presentation of this team

grab your attention" with bipolar labels "It did not/It did". Furthermore, we measured the respondents' general interest in the team through a seven-point scale following the question "Did this presentation of the team make you interested in them, regardless of whether or not you like them?" with the following bipolar labels on each end: "Uninterested" and "Interested". Another seven-point scale with bipolar labels "Not at all likely" and "Likely" was used to measure intention of searching for more information about the team, with the question "How likely are you to search for more information about this team on the internet?". Together, the three questions were indexed with Cronbach's alpha of 0.814.

Perceived skill of the team

The perceived skillfulness of the team was measured through two questions on a seven-point scale with bipolar labels. The first question measured the expectations of success of the team through the question "How successful would you expect this team to be in e-sports competitions?" with bipolar labels "Not at all successful/Successful". The second question measured respondents' perception of the likelihood that the presented team would win a major e-sports competition through the question "How likely do you think it is that this team, with the current players, would win a major e-sports competition in the coming years?" with bipolar labels "Not at all likely/Likely". To measure whether the respondent perceived that the members within the team had been selected based solely on their abilities respondents marked a point on a seven-point scale with bipolar labels "Not at all/Completely" following the question "To what extent do you believe the players in this team have been selected based on their competence?". The three aforementioned questions were put together in an index for the perceived skill of the team, with a Cronbach's alpha of 0.746.

Intention to watch

For any e-sports team or brand sponsoring an e-sports team, it is highly beneficial to have many viewers when the team is playing. Since the number of viewers does not have to depend entirely on e.g. how well the team performs, we measured the likelihood of a respondent for each of the three treatments watching a streamed competition with the team. Measurement was done through a seven-point scale with the question "How likely is it that you would watch a streamed competition that includes this team as a main competitor?". The scale had one set of bipolar labels on each end: "Not at all likely/Likely".

Intention of sharing the article

Respondents' intentions of sharing the article was measured through a seven-point scale with bipolar labels "Not at all likely/Likely", following the question "How likely are you to share this article?".

3.4.2. Potential moderators in the main study

Age

As a common demographic question, respondents' age was recorded in order to track the demographics and possible moderation of the results of the study through age. Age was measured through an open text entry space where respondents could enter their age in numbers by themselves.

Gender

Gender was gathered through a multiple-choice question with three choices: "male", "female" and "other". It was gathered for demographic purposes, with the possibility of moderating results.

Engagement in equality issues

Respondents' engagement in equality issues was measured through a seven-point scale with bipolar labels "Not at all engaged" and "Engaged" following the question "How engaged are you in gender equality issues?". Engagement was measured as it is a possible moderator for the results of the study.

Perception of female advantage

It was measured to which extent respondents felt women had an advantage or disadvantage in getting ahead in e-sports. This was done because of the perception's possible moderating effects and through a seven-point scale following the statement "I believe that, overall, a female e-sports player with the same competence as a male counterpart has it…" with bipolar labels "Easier getting ahead" and "Harder getting ahead".

Perception of female competence

The perception of female competence within e-sports was gathered through a seven-point scale following the statement "Within e-sports, I believe that women are in general…", with bipolar labels "Less competent than men" and "More competent than men". Respondents' perception of female competence within e-sports was measured a potential moderator.

3.5. Reliability

The reliability of a study has to do with the extent to which the results are consistently repeatable (Bryman & Bell, 2015). To ensure reliability within our study, we have attempted to use measures, theories, questions and methods that have been readily used within earlier research. Furthermore, some questions in the survey with the purpose of measuring a larger concept, such as attitude towards the team, have been measured

through multiple sub-questions so as to reduce the potential for misunderstandings in the respondents' answers. Such questions were thereafter indexed and tested for their internal reliability through Cronbach's alpha, which was above 0,7, implying high internal reliability (Bryman & Bell, 2015). Nevertheless, some of the questions are very specific and e-sports and the perception of e-sports teams, are not highly studied areas, making it difficult to find reliability through other studies but indicating higher importance of high levels of Cronbach's alpha.

3.6. Validity

Validity is determined by how well a measure of a concept really measures that concept and whether it represents reality adequately (Bryman & Bell, 2015). In other words, validity is about how well one is able to measure what is intended to be measured.

Internal validity

A main aspect of internal validity is causality. It deals with the question of whether one can be sure that a certain variable is what affects another variable, for example whether it is the fact that a team has more extensive gender diversity that leads to differences in perception or interest in the team (Bryman & Bell, 2015). The only difference between the three groups in our experiments was the stimuli which they were exposed to. The stimuli were, as previously mentioned, mostly held the same between the groups by for example keeping the same structure and introduction text, with only the player images and names being changed. Furthermore, the fact that the stimuli imitated an article regarding a newly formed team eliminated the risk of previously held beliefs about a certain team affecting the responses. The same reasoning was used with regards to using a fictional e-sports newspaper, as an established newspaper could lead to bias in how an article is perceived. To make sure that respondents were exposed to the treatment, they were asked control questions at the end of the survey with regards to what the stimuli encompassed. As a result, one can assume a high internal validity with regards to the causal relationship between gender composition in an e-sports team and the effects.

External validity

External validity deals with the extent to which results from research are applicable in a general sense beyond a specific research concept (Bryman & Bell, 2015). Factors that affect the external validity include the population of respondents - how they were chosen and how well they represent a larger population. Given that our study regards e-sports fans and their perception of e-sports teams, it is important that our respondents are representative for e-sports fans. Respondents were thereby reached through channels popular amongst e-sports fans and gamers of the three different games which were included in the stimuli: League of Legends, Dota 2 and Counter Strike: Global Offensive. Furthermore, the three games were chosen because of their wide audience,

since they encompassed the three most watched games on YouTube and Twitch.tv in March 2019, making up approximately 70% of the watched hours of the top 10 most watched games during the same month (Newzoo, 2019a). As such, fans of any the three games combined can be seen as representative of the e-sports community at large to some extent. The survey included a control question with regards to whether respondents would watch or play any of the three games within six months, which, combined with the forums through which respondents were gathered ensured responses from e-sports fans of any of the three aforementioned games.

Nevertheless, it is possible that e-sports communities of games that were not tested in this experiment are different in terms of demographics and behavior, lowering the external validity of this study. Our study also received responses overwhelmingly from males, with so few female responses that it is impossible to observe whether there are differences between how males and females respond to the stimuli. After manipulation and attention checks, four viable responses were from respondents identifying as "female" and three from respondents identifying as "other". Given that there seems to be a substantial community of female e-sports fans, although significantly smaller than that of males, this study's external validity is further lowered. Nevertheless, none of our hypotheses was related to the difference in perception between the genders, leading to the choice of not specifically seeking out respondents of a certain gender. The selection of respondents was thereby organic and solely based on their involvement in e-sports, making it representable for the community in general.

Ecological validity

Ecological validity has to do with to which extent the findings are applicable to the everyday life and social settings of people. With low ecological validity, research may be valid from a technical perspective but be inadequately connected with the real world, or what happens in people's everyday lives (Bryman & Bell, 2015).

The stimuli presented to respondents was made to imitate a realistic news article and was shared on forums where such news articles are readily shared, such as Facebook and Reddit. These factors increase the ecological validity of the experiment, as they represent a closeness to real events that could possibly happen. Furthermore, respondents were e-sports fans of one or more of the specific games that were included in the stimuli.

4. Results

The following segment will display the results from the main study conducted, wherein the aforementioned hypotheses are tested and either rejected or retained. The significance level chosen is 0.05. The total amount of respondents was 122, with 35 respondents receiving the first treatment (only male team), 34 respondents receiving the second treatment (mixed team) and 53 respondents receiving the third treatment (only female team).

4.1. No significant differences in attitude

Table 1. Results from Kruskal-Wallis test of differences in attitude.

Variable	Test	Significance (2-sided)
Attitude Index	Independent samples Kruskal-Wallis test	0.273

An independent samples Kruskal-Wallis test was conducted for the Attitude index, consisting of three questions mentioned in the parameters of the study, with a Cronbach's alpha of 0.950. The test was done in order to see if there were significant ($p < 0.05$) differences between the three treatment groups (only men, only women and both men and women). The test showed no significant differences between the three groups.

4.2. Significant differences in interest

Table 2. Results from Kruskal-Wallis test of differences in attitude.

Variable	Test	Significance (2-sided)
Interest Index	Independent samples Kruskal-Wallis test	0.001

With regards to the Interest index, consisting of three questions with a Cronbach's alpha of 0.814, the independent samples Kruskal-Wallis test indicated a significant difference between the different groups, on a significance level of 0.001. As a result, pairwise comparisons were used so as to determine which of the groups differed significantly, showing the following results.

Table 3. Further results from Kruskal-Wallis test of differences in interest.

Sample 1 - Sample 2	Test Statistic	Std. Error	Std. Test Statistic	Sig.	Adj. Sig.

Only men - Only women	-25.391	7.679	-3.307	0.001	**0.003**
Only men - Both men and women	-28.340	8.490	-3.338	0.001	**0.003**
Only women - Both men and women	2.950	7.747	0.381	0.703	1.000

Each row in the above table tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same. Asymptotic significances (2-sided tests) are displayed. The significance level is 0.05. Significance values have been adjusted by the Bonferroni correction for multiple tests.

Results thereby show that the two groups that differed significantly were the group shown the stimuli with only men and the group shown the stimuli with only women, as well as the group shown the stimuli with only men and the group shown the stimuli with both men and women. Both groups showed differences at a significance level of 0.003. There was no statistically significant difference between the group only women and the group both men and women with regards to perceived interest.

Table 4. Sample average rank of the displayed interest per group, higher values indicating a higher level of interest.

Group	Sample average rank
Only men	42.57
Both men and women	70.91
Only women	67.96

Results further showed that the difference between groups was such that the group with both men and women in it and the group with only women in it received higher levels of interest than the group consisting solely of men. In other words, respondents showed more interest in groups consisting partly or solely of females in comparison to the group consisting solely of males.

4.3. No significant differences in perceived skill

Table 5. Results from Kruskal-Wallis test of differences in skill.

Variable	Test	Significance (2-sided)
Skill Index	Independent samples Kruskal-Wallis test	0.979

An independent samples Kruskal-Wallis test of the Skill index consisting of three questions with Cronbach's alpha of 0.746 showed no significant difference between the

three groups. The significance level of 0.979 was far from what is considered significant, 0.05.

4.4. No significant differences in intention to share article

Table 6. Results from Kruskal-Wallis test of differences in intention to share article.

Variable	Test	Significance (2-sided)
Intention to share article	Independent samples Kruskal-Wallis test	0.375

An independent samples Kruskal-Wallis test of the intention of sharing the article was conducted, showing a significance level of 0.375 with regards to the differences between the three groups. The significance level was not enough for the differences to be considered significant.

4.5. No significant differences in intention to watch team

Table 7. Results from Kruskal-Wallis test of differences in intention to watch team.

Variable	Test	Significance (2-sided)
Intention to watch team play	Independent samples Kruskal-Wallis test	0.402

No significant differences between the three groups were noted with regards to intention of watching the team play a streamed competition as a main competitor, after an independent samples Kruskal-Wallis test showed a significance level of 0.402.

4.6. No significant moderator

As outlined in section 3.3, Andrew Hayes' PROCESS extension tool was used in IBM SPSS to determine potential moderators on the above effects. Moderators were tested specifically for displayed interest, since this was the only significant difference found, as outlined in section 4.2. No significant moderator out of those tested in this study could be found, as the interaction between potential moderating variables and the level of displayed interest toward the different treatments all had p-values of above 0.05.

Table 8. Results from potential moderator analysis.

Potential moderator	Significance
Age	0.0675
Engagement in equality issues	0.4934

Perception of females having an advantage in e-sports	0.8285
Perception of females being competent in e-sports	0.2312

4.7. Summary of results

H1	
H1a: "E-sports fans will on average perceive an e-sports team to have a higher level of competence if it has only male players, than if it has only female players."	**Not supported**
H1b: "E-sports fans will on average perceive an e-sports team to have a higher level of competence if it has only male players, than if it has a near-equal share of male and female players."	**Not supported**
H1c: "E-sports fans will on average perceive an e-sports team to have a higher level of competence if it has a near-equal share of male and female players, than if it has only female players."	**Not supported**
H2	
H2a: E-sports fans will on average display more positive attitudes toward an e-sports team if it has only male players, than if it has only female players.	**Not supported**
H2b: E-sports fans will on average display more positive attitudes toward an e-sports team if it has only male players, than if it has a near-equal share of male and female players."	**Not supported**
H2c: E-sports fans will on average display more positive attitudes toward an e-sports team if it has a near-equal share of male and female players, than if it has only female players.	**Not supported**
H3	
H3a: E-sports fans will on average display a higher likelihood of intending to watch a streamed competition featuring a certain e-sports team if this team has only male players, than if it has only female players.	**Not supported**

H3b: E-sports fans will on average display a higher likelihood of intending to watch a streamed competition featuring a certain e-sports team if this team has only male players, than if it has a near-equal share of male and female players.	**Not supported**
H3c: E-sports fans will on average display a higher likelihood of intending to watch a streamed competition featuring a certain e-sports team if this team has a near-equal share of male and female players, than if it has only female players.	**Not supported**
H4	
H4a: E-sports fans will on average display a higher level of attention and general interest toward an e-sports team if it has only female players, than if it has only male players.	**Supported**
H4b: E-sports fans will on average display a higher level of attention and general interest toward an e-sports team if it has only female players, than if it has a near-equal share of male and female players.	**Not supported**
H4c: E-sports fans will on average display a higher level of attention and general interest toward an e-sports team if it has a near-equal share of male and female players, than if it has only male players.	**Supported**
H5	
H5a: E-sports fans will on average display a higher likelihood of sharing an article about an e-sports team if it has only female players, than if it has only male players.	**Not supported**
H5b: E-sports fans will on average display a higher likelihood of sharing an article about an e-sports team if it has only female players, than if it has a near-equal share of male and female players.	**Not supported**
H5c: E-sports fans will on average display a higher likelihood of sharing an article about an e-sports team if it has a near-equal share of male and female players, than if it has only male players.	**Not supported**

5. Discussion and conclusion

The following segment presents an analysis of the results presented in the previous segment, grounded in the theoretical framework of the paper.

5.1. The experiment

The sample size for the experiment was considerable, with well over 30 respondents per stimuli. This is often considered by experts to, as a rule of thumb, constitute a large enough sample for experiments, e.g. to justify using certain statistical tests (Söderlund, 2018). Nevertheless, it was confirmed that the data gathered from this experiment did not follow a normal distribution (to a statistically significant degree), forcing the use of non-parametric testing. It remains a possibility that more data points would have allowed the data to constitute a normal distribution, and that the then subsequently applicable statistical tests would have allowed for clearer conclusions.

Two out of the fifteen sub-hypotheses, H4a and H4c, were supported by the experiment – each at a 0.003 significance level (a 0.001 significance level as for any effect within the hypothesis set H4). Thus, the main finding of this study is that e-sports teams appear to draw a higher level of attention and general interest if they feature women – whether representing a near-equal share of the team members or the entirety of the team – than if they feature only men. More specifically, the generated levels of attention and general interest were measured as an index of three questions, as presented in section 3.5.1.

In contrast, the fact that H4b was not supported indicates that there was no significant difference in levels of attention and general interest among e-sports fans depending on if they are exposed to the team with only females or the team with 40% females in two games and 60% females in one game, i.e. a near-equal share of females in total. In other words, it does not seem to necessarily be the absence of men in the team that raises the level of attention and general interest among e-sports fans, but rather the presence of women with a level of representation corresponding to the latter team, or higher. Since the experiment did not feature treatments where the e-sports team had a presence of women at a percentage lower than that, no conclusions can be drawn about how levels of attention and general interest among e-sports fans would vary as a function of variations in female representations between the respective levels of the experiment's all-male team and its mixed-gender team.

5.2. Schematic processing

Within the theories of schematic processing originally formulated by Piaget (1971), it would have been argued that the information about the e-sports teams that deviated the most from the cognitive schemas of e-sport fans, would be the most difficult for these

schemas to assimilate. As previously stated in this paper, the proportion of males among e-sports gamers has been estimated at around 95%. It seems, in other words, to generally be rare with female players in e-sports teams, let alone at the proportion featured in two of our experiment's treatments. The fact that, among the e-sports fans that the experiment reached, approximately 95,1% of viable responses came from people identifying as "male", appears to point in the same direction.

The schematic processing theories in question would, with this background, predict that the schemas of e-sports fans generally do not expect to encounter the information of an e-sports team that includes a significant proportion of female players. Subsequently, when such an encounter in fact takes place, these schemas would then tend to fail in assimilating this new information into their current form to maintain a state of equilibrium. Instead, there would be a need for these schema to accommodate – i.e. to adapt their structure to be consistent with – the information (Piaget, 1971).

This process, while not necessarily in itself being subjectively perceived, nevertheless would tend to raise the level of attention and the general interest toward the information that has been perceived, in comparison to information that can be directly assimilated by the schemas (Piaget, 1971). The latter would in this case represent the team featuring only males.

The results of this study are in line with this theory. The two teams that are likely to constitute the largest deviations from the schemas of the respondents, given the aforementioned situation in the e-sports industry, were shown to generate higher levels of attention and general interest from the respondents, as measured through their ranked levels of grabbed attention, interest regardless of attitude, as well as likelihood of looking for more information on the internet. Furthermore, if the failure to support H4b is to be interpreted in this context, it would seem to indicate that an e-sports team featuring only women and one featuring a near-equal share of women constitute similarly large deviations from the cognitive schemas of e-sports fans at this point.

5.3. Remaining hypotheses

The failure of the study to support either of the sub-hypotheses of H1, H2, H3 and H5 indicate a number of takeaways. As for H1, H2 and H3, the results support the interpretation that the levels of prejudice against women in e-sports may not be quite as high as we had hypothesized based on the theory and previous empirical findings – with reservations for the caveats outlined in section 5.5. Moreover, as for implications with respect to Theory of Reasoned Action (TRA), little can be concluded from the study since there were no significant results about either attitudes or behavioral intent.

As for H5, this set of hypotheses was grounded in a combination of the same theoretical and empirical background as H4, and theories encompassing the connection between

brand equity and social involvement. Implications from this study would mostly pertain to the latter, since this is what separates the motivations used for H5 from those used for H4.

5.4. Implications

This study does, despite its limitations and relatively few significant results, contribute to further research and practical implications. In general, there is a lack of research within e-sports, in particular with regards to marketing and other business aspects. Through the results of this study, contributions are made towards initial research with regards to how the, often misunderstood, e-sports community perceives teams and how skewed gender ratios within a community can affect perceptions. A common stereotype attributed to e-sports culture is hostility towards females, which may have been increased given the male dominated nature of e-sports. As this study was unable to show significant preference with regards to attitude and competence for males as opposed to females, such claims have lowered credibility.

Although the study was unable to show significant differences in the intentions of watching a streamed competition with any of the three teams, such intentions can be difficult to measure. It is possible that other research methods need to be employed in order to further investigate the issue, as it is of high importance for e-sports teams and possibly teams within sports with similarly skewed gender ratios.

Given the increasing amount of video game players and e-sports spectators, it is possible for future teams to successfully attract female talent to the team. This study suggests possible benefits for e-sports teams putting in an extra effort in attracting female players, as it could increase interactions with the brand and make it easier to advertise (given increased interest), which could lead to other brand benefits in the long run. There seem to be possibilities of increased exposure to the team and thereby its sponsors if the team includes female players, implying that brands looking for teams to sponsor might benefit from sponsoring a team including female players, compared to an all-male team, all other factors being equal.

5.5. Limitations and critique

This study is within a research gap. There are, in other words, few similar studies, which indicates that the results should be interpreted cautiously. Moreover, it should be pointed out that the overall research question, which addresses how the gender ratio of an e-sports team affects perceptions of it, was inevitably only covered by the tested hypotheses to a limited extent. There is likely to be a number of other dimensions of e-sports fans' perceptions of teams that are of relevance to the topic of e-sports marketing.

It is also possible that there would be an interest in learning about the perceptions of a wider subset of the public than the dedicated e-sports fans targeted in this study.

Furthermore, the results did not indicate how perceptions are affected by gender ratios that are in-between those of the all-male team and the team with a near-equal proportion of females. In addition, most or all of the women displayed in the pictures of the fictitious article could possibly be argued to physically present themselves in ways that do not deviate substantially from typical gender norms in western societies. There remains a possibility that the results would have been different had there been less of a physical distinction between the males and the females in the photos.

Many e-sports players are only known by their gaming handles and not by their real names. The stimuli in this study used real names as opposed to handles when presenting the teams. This, coupled with factors such as the lack of concrete information about the teams' performance and highly unlikely share of female players, could have lead to a lack of perceived realism. Respondents may have found the study unrealistic, in particular those exposed to teams with high proportions of females, which could affect the results.

With time and with the growth of e-sports, the share of women may increase, especially if perceptions of gaming as a masculine domain diminish. As a result, it is possible that differences in perception between teams of differing gender ratios vanish, for example the increased levels of interest for female inclusive teams found in this study. Results may be rapidly changing as public opinion and the demographics of e-sports players and fans evolves.

As mentioned previously in the paper, the sample size of the study leads to limitations. A larger sample size could have given more valid results, especially if the respondents were fans of a broader range of games. Although the three games studied in this paper together account for a substantial part of the e-sports community, it is possible that other games have differing cultures and differing perceptions. A larger sample size could also allow for segmentation between the games in order to explore whether such differences in gaming culture exist between games.

5.6. Future research

Given the scope of this study, several areas of gender perceptions within e-sports that could not be covered in this paper could be covered in future research. There is a possibility that more realistic adaptations of the stimuli, using handles and fewer women in the teams could have differing results. Furthermore, some e-sports games, such as Starcraft 2, are played by individual players as opposed to teams. It could be interesting to find out if there are differences in the perception of individual players given their gender as opposed to teams as a whole.

As has been mentioned in this paper, brands play a significant role in e-sports. Some brands in industries unrelated to e-sports sponsor entire teams and found their own teams. Given that this study only looked at how a team without a name is perceived, there is a possibility for future research to be carried out looking at whether there are differences in brand perception given differing teams. This study suggests that people show more interest towards teams containing female players and it could be interesting to see if such interest transfers to a sponsoring brand.

This study only focused on three of the major e-sports games in 2019. Because of a limited sample size, we were unable to measure differences in perception of teams between fans of each game. Future research could attempt a broader look at e-sports by incorporating more games and looking at possible cultural differences between them.

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7. Appendix

7.1. Stimulus 1 – All-male team

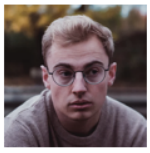
e-sports news

New e-sports team with promising track record to launch

A new e-sports team, which will compete in Dota 2, League of Legends and Counter Strike: Global Offensive, is set to launch. They have had an impressive track record in local tournaments and could soon compete with the top teams in upcoming tournaments.

These are the players:

DOTA 2


Martin Wahlberg


Allmir Lushi


Magnus Jakobsson


Anders Sjöström


Peter Schmidt

LEAGUE OF LEGENDS


Jorge Sánchez


Adam Ali


Vilhelm Hammarström


Josh Silverman


Oscar Halmstedt

COUNTER STRIKE: GLOBAL OFFENSIVE


Fernando Arias


Robin Asplund


Johan Källström


Pontus Liljefors


Max Rosell

7.2. Stimulus 2 – Mixed team

e-sports news

New e-sports team with promising track record to launch

A new e-sports team, which will compete in Dota 2, League of Legends and Counter Strike: Global Offensive, is set to launch. They have had an impressive track record in local tournaments and could soon compete with the top teams in upcoming tournaments.

These are the players:

DOTA 2


Matilda Jonsson


Elsa Skog


Magnus Jakobsson


Anders Sjöström


Peter Schmidt

LEAGUE OF LEGENDS


Veronica Bergman


Adam Ali


Maya Elmi


Josh Silverman


Oscar Halmstedt

COUNTER STRIKE: GLOBAL OFFENSIVE


Fernando Arias


Robin Asplund


Sara Bolinder


Emma Liljefors


Ebba Rosell

7.3. Stimulus 3 – All-female team

e-sports news

New e-sports team with promising track record to launch

A new e-sports team, which will compete in Dota 2, League of Legends and Counter Strike: Global Offensive, is set to launch. They have had an impressive track record in local tournaments and could soon compete with the top teams in upcoming tournaments.

These are the players:

DOTA 2


Matilda Jonsson


Elsa Skog


Stina Jakobsson


Amanda Sjöström


Helena Schmidt

LEAGUE OF LEGENDS


Veronica Bergman


Kristina Hallgren


Maya Elmi


Ida Hurtig


Anna Thalberg

COUNTER STRIKE: GLOBAL OFFENSIVE


Hanna Arias


Emilia Asplund


Sara Bolinder


Emma Liljefors


Ebba Rosell

7.4. Questionnaire

Start of Block: Introtext

Intro On the following page you will see a newspaper article about e-sports. Afterwards, you will be asked a series of questions regarding this article. You will not be able to go back to view the article again, so make sure to observe it carefully before proceeding.

End of Block: Introtext

Start of Block: Default Question Block

Q1 What is your attitude toward this team?

	1	2	3	4	5	6	7	
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
Bad	○	○	○	○	○	○	○	Good
Negative impression	○	○	○	○	○	○	○	Positive impression
Do not like it	○	○	○	○	○	○	○	Like it

Q2 How likely is it that you would watch a streamed competition that includes this team as a main competitor?

	1	2	3	4	5	6	7	
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
Not at all likely	○	○	○	○	○	○	○	Likely

Q3 How likely are you to search for more information about this team on the internet?

	1	2	3	4	5	6	7	
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
Not at all likely	○	○	○	○	○	○	○	Likely

Q4 How likely are you to share this article?

	1	2	3	4	5	6	7	
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
Not at all likely	○	○	○	○	○	○	○	Likely

Q5 How successful would you expect this team to be in e-sport competitions?

	1	2	3	4	5	6	7	
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
Not at all successful	○	○	○	○	○	○	○	Successful

Q6 How likely do you think it is that this team, with the current players, would win a major e-sports competition in the coming years?

	1	2	3	4	5	6	7	
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
Not at all likely	○	○	○	○	○	○	○	Likely

Q7 Did this presentation of the new team grab your attention?

	1	2	3	4	5	6	7	
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
It did not	○	○	○	○	○	○	○	It did

Q8 Did this presentation of the team make you interested in them, regardless of whether or not you like them?

	1	2	3	4	5	6	7	
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
Uninterested	○	○	○	○	○	○	○	Interested

Q9 To what extent do you believe the players in this team have been selected based on their competence?

	1	2	3	4	5	6	7	
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
Not at all	○	○	○	○	○	○	○	Completely

Page Break

T1 Thank you! Now only a few general and background questions remain.

Q10 I believe that, overall, a female e-sports player with the same competence as a male counterpart has it...

	1	2	3	4	5	6	7	
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
Easier getting ahead	○	○	○	○	○	○	○	Harder getting ahead

Q11 Within e-sports, I believe that women are in general...

	1	2	3	4	5	6	7	

	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
Less competent than men	○	○	○	○	○	○	○	More competent than men

Q12 How engaged are you in gender equality issues?

	1	2	3	4	5	6	7	
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
Not at all engaged	○	○	○	○	○	○	○	Engaged

Page Break

Q13 Now only five quick questions remain.

Q14 What is your gender?

- ○ Male (1)
- ○ Female (2)
- ○ Other (3)

Q15 What is your age?

_____

Q16 How likely is it that you will either play or watch Dota 2, League of Legends or Counter-Strike: Global Offensive within the coming 6 months?

	1	2	3	4	5	6	7	
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
Unlikely	○	○	○	○	○	○	○	Likely

Q17 So that we know that you read it: the article was about...

- ○ A chess team (1)
- ○ An e-sports team (2)
- ○ A football team (3)

Q18 The team in the article had...

- ○ Only men in it (1)
- ○ Both men and women in it (2)
- ○ Only women in it (3)

End of Block: Default Question Block