What makes you game?: The differences of sexual minority and influence of gender identity on self-determined motivation and gaming enjoyment

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Chapter 1. Introduction

Video Games has been gaining the most global revenue of selected entertainment industry sector in 2019, overtaking Box office and music industry with more than 100 billion dollars (IFPI, 2020). Players investing large amount of money as well as time in different kinds of video games is not a new phenomenon in recent years. Online games have been one of the most popular media products since the last century (Buckley & Anderson, 2006). A study conducted in the U.S. showed that among the samples, 96% of the boys and 78% of the girls played video games regularly in a daily basis (Walsh, Gentile, Gieske, Walsh & Chasco, 2003). This was only a rate almost 20 years ago, while the rate is probably even higher now when personal gaming devices are accessible for every household. In Vorderer, Bryant, Pieper and Weber's (2006) study, participants even chose video games over other traditional entertainments such as television and movies. They qualified video games as a new way of entertainment challenging the traditional model by focusing on the interaction rather than passive intaking (Vorderer et al., 2006). In addition, with the rise of live-streaming and professional gaming tournaments in the last decade, video games have gone beyond merely an entertainment method and was given more interpretations in cyberculture (Johnson & Woodcock, 2017).

Within the scenario of video games, due to its feature of interactive and subjective, existing literature have focused on the perspective of game players themselves on different behaviors, habits or problems (Diamond, 2002; Fuster, Chamarro, Carbonell & Vallerand, 2014; Jansz, Avis & Vosmeer, 2010; Pawlikowski & Brand, 2011; Yee, 2006). Players tend to attach various yet significant meanings to the games, which lead to different playing motivations and behaviors (Ghuman & Griffiths, 2012). Based on this, scholars specifically linked certain gaming habits to gender and other gender-related variables (Greenberg, Sherry, Lachlan, Lucas & Holmstrom, 2010; Jansz et al., 2010; Kneer, Franken & Reich, 2019). For example, game consumption and problematic gaming seemed to be more likely associated with men (Kneer & Rieger, 2015), while social reasons tend to be attached to women (Poels, De Cock & Malliet, 2012).

Although researchers in games studies did justify that biological sex is associated with

different gaming patterns (Jansz et al., 2010; Yee, 2017), most studies tended to overgeneralize the findings by overlooking the effect of personal traits. In Quick and Atkinson's (2014) research, the results support the idea that gaming habits are different among different personalities. As Diamond (2002) suggested, gender identity is highly individualized and is influenced not only by biological sex but also other factors such as social learning and personal experiences. Some scholars noticed this gap in literature and further modified the idea by emphasizing the effect of gender-related traits. For example, in Kneer et al.'s (2019) study, it is suggested that gender-related traits have more significant influence on playing motivations and gaming problems than biological sex. Therefore, instead of using the simple predictor of biological sex, gender identity or gender-related traits could be used as better predictors in order to gain more comprehensive understandings in individual's gaming behaviors and motivations.

Based on gender identity, another main limitation with the contemporary research and literature in gaming studies is the missing role of sexual minority groups. According to Diamond (2002), traditional social discourses of sex and gender will lead to dichotomy and easily overlook individuals of sexual-minority group. Even though some studies addressed the divergence between biological sex and gender-related attributes, hardly any research could be found focusing on the special group of LGBTs in gaming field. In other relevant studies, for example, a study focused on sexual minority's sporting motivation showed that LGBT group has significant motivations in intellectual and social factors rather than competence (Place & Beggs, 2011). The significant results implied the necessity of investigating and clarifying the differences between LGBT players and non-LGBT players regarding gaming motivations and behaviors. This study investigated how gender identities are reflected on different gaming motivations from the perspective of psychological needs. Besides, a distinguish between LGBT group and non-LGBT group members was particularly addressed in this research. Therefore, the research question guiding this thesis is: *To what extend would players' gaming motivations be influenced by gender identity and differentiate with LGBT players?*

This study shows strong scientific relevance in various aspects. Firstly, the presenting thesis paid special attention to players from LGBT group and identify their different patterns which has been overlooked in the field of gaming studies for years. Although there has been a

few research on LGBT group in video games in recent years, generally it has been focused on the representation of LGBT characters in game contents rather than the actual players themselves (Shaw, 2009). This paper fills in the gap in the literature from the perspective of LGBT players and adds valuable scientific insights about how they reacted differently to different motivations. Secondly, this study contributes to a more reliable influential model between gender variables and gaming motivations. Regarding the impact on gaming habits and behaviors, whether the differences stem from biological sex or gender-related traits has always been a discussion (Kneer et al., 2019; Ogletree & Drake, 2007). By focusing on the gender identity of individuals, this study supported the developed insight of gender-related traits over biological sex and provided more solid evidence for further studies.

This research is relevant to the society as well. On the one hand, the study provides better understandings on the motivations and habits of LGBT players. As a marginalized group in the society for a long time, it is normally the case to overlook the likes and dislikes of sexual minority (Elling & Janssens, 2009). By putting more attention on these group of players, changes might be made in different aspects considering their needs and preferences. On the other hand, this paper also aimed to eliminate the take-it-for-granted gender bias in the society regarding game playing. Individuals should realize that biological sex is not the cause of certain behaviors, it is what "inside a man" that matters.

In order to investigate regarding the influence of gender identity on self-determined motivations, further on gaming enjoyment, as well as the differences between LGBT group and non-LGBT group, chapter two provides a framework and description of all the relevant theoretical concepts and hypotheses. Chapter three shows the research design and also justifies the methodological choices in this quantitative research. Chapter four demonstrates the results of each hypotheses based on the collected data and SPSS outcomes. Chapter five discussed the findings in combination with previous literature, and finally, presented an answer to the research question.

Chapter 2. Theoretical Background

2.1. Gender identity

For decades, the perception of gender roles has been fallen into the dominant ideology as a single dichotomy of masculinity and femininity (Bockting, 2008). This gender dichotomy distinguished men and women as idealized opposites: maleness is rational, assertive, independent and intellectual, while femaleness shows more quality of caring and sensibility (Hare-Mustin, 1987; Prokhovnik, 2012). However, these traditional views are quite simplistic and problematic, since it only conceptualized masculinity and femininity as a bunch of overgeneralized opposing personality traits that summarized individual psychological sense of maleness versus femaleness and guided overt behaviors (Bockting, 2008; Ashmore, 1990). The dichotomy theory provided an ideology where gender is divided into two extremely different parts with a basic requirement for being a man, for instance, is not being a woman (Cameron, 1998). In these traditional ideologies, the agency of personal characteristics is highly overlooked, and stereotypes are constructed merely based on biological sex. The studies of gender identity have been applied in other fields as well including studies in media entertainment. Researchers found out that individual gender identity is highly related to their behaviors and preferences in all kinds of media products and has even greater ability to predict these actions than biological sex (Dibben, 2002; Kneer et al., 2019; Jansz, 2000). This shows that the development of gender theories also contributed a lot to the studies of media behaviors and motivations.

In order to argue with this problematic theory, Bulter (1990), one of the most influential gender studies scholars, reconceptualized gender as a social-constructed and performative discourse. In her point of view, masculinity and femininity are not what one is nor what traits one has but should be the effect that individual produces through particular things that one does. In this sense, masculinity and femininity are not formed naturally together with biological sex but are constructed based on how the society and environment shape the individuals to perform and behave. Bulter's idea provided a different insight to understanding behavior in media context such as video games as gender-related instead of gender-decided.

This brings us to the concept of gender identity. Based on Bulter's performative model,

Cameron (1998, *pp. 329*) further suggested that one's gender identity is not achieved one time in his whole life but "has constantly to be reaffirmed and publicly displayed by repeatedly performing particular acts in accordance with the culture norms". In line with Cameron, Koestner and Aube (1995) also claimed that gender identity is constructed on a social level rather than biological sex, which gender is emerged into a self-concept in diverse and random ways individually.

Therefore, gender identity can account for complexity and diversity of personal behaviors in different media scenario. For example, studies in music showed that gender identity does not only have strong connection to consumer's music taste but even to musicians' musical performance and composition (Dibben, 2002). A study on Twitter also found out that individual linguistic styles and topical interests on social media varied among distinct gender-related clusters (Bamman, Eisenstein & Schnoebelen, 2014). These studies gave the field a new aspect to explain certain media behaviors and media consumption. In game studies, the ideas of gender identity variables such as gender attributes and own gender affiliation were also used to build connections with player's gaming motivation and problematic gaming (Kneer et al., 2019).

Gender identity also raises more awareness with the increasing attention on sexual minority in the recent years. According to Diamond and Butterworth (2008), the representation of individuals whose gender-related identification or an external presentation mixes different aspects of masculinity and femininity to different extent. As this study aimed to pay special attention on sexual minority, it was more meaningful to focus on the influential ability of gender identity to gaming motivation.

2.2. PN-SRI framework

Gender identity provokes a lot of discussion about relational individual characteristics and personalities. Besides struggling to define what it actually means by masculinity and femininity, scholars in gender studies also tried to develop different approaches to assess these social-constructed notions in a more comprehensive manner (Bem, 1974; Berger & Krahé, 2013; Deaux & Major, 1987). The framework of how masculinity and femininity

would be categorized and measured was closed linked to the impact of gender identity on behaviors of media consumption, and further played a crucial role in the present study of gaming motivation.

For the complexity and diversity perspective of gender identity, Deaux and Major (1987) already came up with a model describing the factors influencing the characteristics of gender identity. They suggested that the display of gender-related behaviors is impacted by the self-system of the individual, the expectations of others, and situational cues. On top of this, Koestner and Aube (1995) further justified McAdams's three-level model of the personality framework in the development of gender research. they believed that gender-related identities and personalities can be interpreted in terms of three different levels: dispositional traits, personal concerns and life narrative. Even though both models provided an advanced and general idea on the assessment of gender identity, they mostly focused on the behavioral aspect and contextual factors rather than personal identities of gender-related characteristics. Distinct measurement models of traits of gender identity are proposed and used in different studies. A mostly used one is Bem's (1974) model of Bem Sex-Role Inventory (BSRI). Her model contains a continuum measurement of gender identity rather than the bipolar distribution of masculinity-femininity, which lacks attention to people who fall at the middle, whom she identified as being non-sex-typed (Bem, 1974). BSRI successfully qualified the aspects of instrumentality and expressiveness in personality traits instead of gender schematization (Spence, 1993).

However, the attributes in these models are not able to fully capture the differences in men's and women's gender identity. The measurement was biased and only included desirable attributes for masculinity and femininity and only reflects views on the desirability, which can be simply seen as the positive qualities of gender identity. Since gaming motivations could be affected not only by positive traits but negative traits as well, an incomplete framework could possibly lead to biased and unreliable outcomes. On the basis of these lines, Berger and Krahé (2013) combined BSRI with up-to-dating ratings of both desirability and typicality and come up with a more comprehensive measure of gender identity, Positive-Negative Sex-Role Inventory (PN-SRI). One big breakthrough of PN-SRI model is the negative attributes of both masculinity and femininity. Berger and Krahé (2013) argued that gender identity encompasses

both negative and positive aspects that "are uniquely related to outcome variables for which gender differences have been identified" (*pp. 517*). Thus, an absence or reversal of either positive or negative masculine and feminine attributes will lead to the absence of distinct associations with measures of psychological well-being and social behavior of individuals (Berger & Krahé, 2013). Therefore, four categories of gender identity are being identified in PN-SRI model: positive masculinity, including characteristics such as practical and solution-focused; negative masculinity, including characteristics such as arrogant and harsh; positive femininity, including characteristics such as loving, empathic and passionate; and negative femininity, including characteristics such as self-doubting, oversensitive and naïve.

It is also worth mentioning that individuals are likely to incorporate both positive and negative attributes associated with certain social groups into their self-shaping identity (Berger & Krahé, 2013). Although sexual orientation and gender identity are separate constructs, LGBT group, as one significant social group, should be paid particular attention in the studies of gender traits. As Diamond and Butterworth (2008) claimed, the consideration of the juncture of sexual orientation and gender identity allows for new experiences that cannot be explained by either of the conceptions alone. An intersectional approach is particularly helpful to explore the overlapping meanings between gender identity and LGBT groups per se (Bosse & Chiodo, 2016). Therefore, PN-SRI was the most appropriate and reliable model for the study presented in this paper for its thorough demonstration of different gender identities.

2.3. LGBT and entertainment

The attention on LGBT communities has grown over the years, raising great importance in media research to urge for new interpretation. As a monitory group that has been marginalized in the society for centuries, the growing focus on LGBT group reflects greater societal acceptance nowadays, but at the same time brings up a huge challenge to stand up to traditional, dominated ideologies in every aspect (Ong, Vorobjovas-Pinta & Lewis, 2020). As SDT suggested that people seek satisfaction for needs in self-motivated activities, different social identities will give different meanings in the process of leisure and entertainment.

Although little studies have focused on the exact online gaming pattern for LGBT

people, some scholars did investigate the different media choices of LGBT people in other areas. For example, with the development of gaystreaming in television, contents were being made to target LGBT audiences (Ng, 2013). Also in music studies, scholars found out that LGBT people tended to identify certain kinds of music that were closely related to the LGBT culture (Dhoest, Herreman & Wasserbauer, 2015). In the context of physical sports, a few research tried to structure a new non-heterosexual landscape. Elling and Janssens (2009) suggested in their study that sport participation patterns are structured by sexuality. Even though they also argued the sports participation figures of LGBT cannot be totally generalized, their findings still show great challenge to the stereotypical images of sport involvement of LGBT people, particularly the traditional "masculine" sports and "feminine" sports within heteronormative sports spaces (Elling & Janssens, 2009). The tradition segregation in sports between men and women emphasizes a lot on things like "boy's game" or "girl's thing", which may even form certain phobia at an early stage for different group of people (Plummer, 2006).

The negotiations of sexual identities and sporting patterns struggle not only in the aspects of representation or cognitively stereotypical images. More importantly, the sexual 'mappings' of different sports spaces will have an impact on the sporting biographies of every individual with different sexual identifications, and ultimately end up with a certain compliance with heteronormativity (Skyes, 2006). In line with Skyes, Kivel and Kleiber (2000) also emphasized that leisure activities influence individual's process of identity formation by establishing a more overarching model in the study of leisure entertainment. They identified four themes of entertainment approaches that contribute to LGBT's sexual identification: reading oneself and seeing oneself, which are mostly accomplished through media consumption; playing oneself through sports; and expressing oneself through music (Kivel & Kleiber, 2000). This means that media products or other forms of entertainment could help LGBT people to negotiate and understand themselves. Based on this context, leisures are also able to provide a way for them to temporarily escape from real life and create an environment where the individual can build and experience their identity (Ong et al., 2020).

Social organizations play a significant role in the motivations of participation in leisure

activities. In the area of sports, organizations, clubs and event is always regarded as the core of teamwork and strength (Elling & Janssens, 2009). However, with the advent of more and more LGBT sports groups and events, new meanings have been given to sports association within this special social group. The establishment of LGBT leisure organizations provides two major functions according to Elling (2005): firstly, they offer a relatively discrimination-free space for every participant from all the constraints in mainstream society and associations; also, the LGBT organizations empower their social identities and create places of social bonding and culture resistance. Another constructive finding is that even though the LGBT participants are not necessarily active in such organizations, most of them still tend to engage with other ingroup members (Elling & Janssens, 2009). Therefore, it is rather complicated to conclude if the identified LGBT leisure organizations is merely facilitation or inhibition of entertainment participation for the group.

Video games, as a significant part of media entertainment, have the hybrid meaning of sports and media content both. Although no previous research had given any sign of how differences pattern and insight might be found in the motivations of video games, the significant findings regarding the motivations and behaviors of LGBT group in sports studies could possibly lead to similar results in the context of video games.

2.4. Gaming motivations and enjoyment

For decades, players have been obsessed with video games and at the same time scholars have kept studying what actually drives them to play video games (Bartle, 2004; Ryan et al., 2006; Yee, 2006). Theories on users' different motivations of playing computer games have developed in decades. An early well-known taxonomy is the one came up by Bartle (2004), who identified four different types of players based on their gaming motivations: namely Killer, Achiever, Socializer and Explorer. These four types were defined by two dimensions of major player behavior: how they act or interact with the game elements and which element they are more focused on. Therefore, those who prefer to have actions on other players is defined as the Killers; who prefer to interact with others is defined as the Socializers; who tend to act on the game world itself is the Achievers; and who would like to have more

interactions with the game world is the Explorers (Bartle, 2004). Although Bartle's typology provides a pretty clear and straightforward model of player's motivations, one big problem of this theory is that he identified the four player types as indeed independent categories (Yee, 2006). Bartle (2004) divided four quadrants and assumed that tendency of one type of playing would suppress other types. However, empirical research showed that there was significant correlation among different types of motivations.

Building on Bartle's model, Yee (2006) further developed a more empirically grounded player motivation model, which categorizing three main motives in online game playing. In this model, three major motivations were identified: achievement, which refers to the intention of seeking competition and presenting power in video games; social, the motivation of socializing, building up relationship and teamworking with other players; and immersion, which refers to player's mentality of immersing in the game world or even escaping from real life (Yee, 2006). Yee's model constructed a relative comprehensive framework regarding varied game playing goals and provided solid theoretical foundation for numbers of studies in gaming motivations (Jansz et al., 2010; King, Delfabbro & Griffiths, 2010; Klimmt, Hefner & Vorderer, 2009; Kneer et al., 2019; Williams et al., 2009). For example, Jansz et al. (2010) identified the gender differences for the three motivations of playing the game *SIM2*, demonstrating that boys have higher motivations in achievement and social interactions. Furthermore, Kneer et al. (2019) identified how different gender-related traits would impact the motivations of achievement, social and immersion. The result showed that it was negative masculine attributes that would influence the motivation of achievement and positive feminine attributes would predict social interactions.

Another classic theory used a lot in the context of online gaming motivation is the uses and gratification theory (U&G). U&G was developed starting from the last century, with emphasizes on the idea that individuals actively and consciously choose media to fulfil their needs (Katz, Blumler & Gurevitch, 1974). People use media to gratify various personal wants and interests, which can serve as motivation for using certain media such as video games. Katz et al. (1974) specified these different needs as cognitive needs, affective needs and tension release needs that differently grounded from each individual's social and psychological situations. Suggesting that U&G approach took a user-level perspective and

focused on the differences in media use, Wu, Wang and Tsai (2010) applied U&G in the context of online gaming and verified that multiple gratifications will influence people's choice in video games to fulfil their varied interests. The different gratifications, categorized by McQuail (1984), contains information gaining, personal identification, integration and entertainment. Different from other theory, the U&G helps us have a better insight in what the players actually garnered psychologically from video games. The gratification of entertainment, thus, is a significant aspect in the studies gaming experiences.

Some scholars regarded video games as sports in today's context in order to have a better understanding of video games behaviors, which is also being called e-sport (Hutchins, 2008). Hutchins argued that with the growth of professional players and competition, such as World Cyber Games (WCG), the boundary between media consumption and sports is blurred in cyber context. Such event could be defined as a video gaming, media and sports event all at the same time. The hybrid meaning also contributes to the rising term of e-sport that indicates the seamless interrelationship of video games, sport and communications technologies (Hutchins, 2008). Therefore, some theories in sports studies could also be applied in gaming studies especially when there was a blank in the latter area.

Studies in entertainment psychology have shown that video games are able to provide entertainment gratification in more than just a shallow or superficial aspect (Oliver et al., 2016). This means that entertainment consumptions that would gratify audience is not equally linked to the experience of "enjoyment" or "pleasure", but may also contain deeper meanings. The deeper aspect in entertainment consumption is identified as the eudaimonic motivations, which refers to the appreciation and meaningfulness individuals gain from media products (Oliver & Raney, 2011). Oliver and Raney (2011, *p.984*) suggested that "entertainment can be used as a means of experiencing not only enjoyment, but also as a means of grappling with questions such as life's purpose and human meaningfulness". Audiences are able to have multiple feelings within the media entertainment including moved, compassionate and sad. In another study, Oliver and Bartsch (2010) also identified this feeling as the response of appreciation in contrast to enjoyment in the hedonic aspect. To look back at video games, both enjoyment and appreciation are significant gratification of game playing and are what motivates them to play. The gratification is closely associated with intrinsic psychological

needs, especially the media enjoyment, which argued by Oliver et al. (2016) may be conceptualized regarding the extent to which the entertainment fulfills these needs. Hopp and Fisher (2017) applied the enjoyment theory and identified different influential patterns of player enjoyment between men and women. However, their research still focused on the biological sex and the gender-related traits was again overlooked. The present study took a hedonic perspective to investigate the influence of gender-related traits on gaming motivations, as well as intersectional relationship among gender identity, gaming motivations and gaming enjoyment.

2.5. Self-determination Theory

Although previously mentioned theories supported a lot of studies in gaming behavior from difference perspectives, most of them only provided a model of motivations focusing on behavioral classification, instead of paying any attention on the interactions between the games themselves and players' propensities and psychological needs (Rigby, 2004). Following the gratification theory, some scholars intended to articulate a theoretical approach to investigate gaming motivations based on the idea that all types of players have the tendency to fulfill psychological needs in the context of game playing (Ryan et al., 2006). Therefore, in order to demonstrate player's "inherent growth tendencies and innate psychological needs" (Ryan & Deci, 2000, p.1), Ryan et al. (2006) applied self-determination theory (SDT) to investigate both intrinsic and extrinsic motivations in the play of video games.

SDT has been applied in many other game studies to explain self-motivated behaviors as well. Scholars have investigated the effect of self-determination on different aspects. Uysal and Yildirim (2016) studied digital games within the SDT framework and explored how satisfaction of psychological needs could facilitate user experiences in games. In a research conducted by Neys, Jansz and Tan (2014), the role of self-determination managed to explain why players are motivated to persist in gaming and also identify different intrinsic motivations among different types of players. Also, more advanced studies recently in Human-Computer Interaction (HCI) games research have widely apply SDT, particularly the

idea of need satisfaction and intrinsic motivation, in the analysis of player experience and game design (Allen & Anderson, 2018; Tyack & Mekler, 2020).

SDT was originally developed as a psychological model for the natural processes of self-motivation, healthy psychological development and well-being (Ryan & Deci, 2000). As mentioned before, Ryan and Deci (2000) emphasized the importance of satisfying psychological needs in different behaviors. In SDT, they identified three such needs: the needs for competence, relatedness, and autonomy, which appear to be vital for facilitating utmost influences of the natural propensities for integration, personal well-being, and also social development (Ryan & Deci, 2000). By identifying the differences between intrinsic motivations and extrinsic motivations, Ryan and Deci (2000) paid specific focus on the power that social and contextual conditions would facilitate or forestall during the processes of self-motivation, social development and well-being. The intrinsic motivations reflect the positive potential of human nature, the "inherent tendency to seek out novelty and challenges, to extend and exercise one's capacities, to explore, and to learn", while extrinsic motivations reflect the extent to which the social values or new responsibilities of the acquired behavior have been internalized and integrated (Ryan & Deci, 2000).

Based on SDT, two sub-theories were elaborated focusing on the different aspect of motivations. Cognitive evaluation theory (CET) is built on the social and environmental factors that support or undermine player's intrinsic motivations (Ryan & Deci, 2000). According to CET, individuals must not only experience capacity or effectiveness, they must also experience their actions to be seemingly self-determined for their own intrinsic motivations. On the other hand, another theory called basic psychological need theory (BPN) specifically suggested that the impact of certain events or activities on users' gratification such as online games, is a function of personal experience on satisfying psychological needs (Ryan, 1995).

These two sub-theories specified the significance of SDT in the context of video games. As Ryan et al., (2006) suggested, SDT does not only include the level of the player's choice-making between gaming products, but also player's enjoyment and satisfaction within a particular gaming context. Based on the identified psychological needs in BPN, Ryan et al., (2006) especially gave new meanings and specified three overarching aspects of basic needs

in the context of video games.

Autonomy, as an important part of intrinsic motivation, refers to the personal interest and willingness of making an action. Activities or conditions that boost a sense of choice, control or freedom in games would facilitate perceived autonomy, and intrinsic motivation as well regardless the means or the ends of action (Deci, Koestner & Ryan, 1999). However, even though Bartle (2004) argued that participation in games in free settings is almost always voluntary, players' willingness of playing certain games or having particular actions will differ in personal appeal, design and content (Ryan et al., 2006). This will bring us to the discussion of extrinsic motivations later. *Competence* is regarded as the second intrinsic motivation of game playing, referring to the psychological need of challenges and accomplishment feelings. According to CET, there are several factors that will enhance individual's experience of competence, such as the chances to gain new skills or abilities, to be optimally challenged, or to successfully finish a task (Ryan et al., 2006). These feelings also highly dependent on game controls and how the tasks and challenges are given within the games, which are also attached great importance in game studies. *Relatedness* is the psychological need of social interaction and feelings of connection with other real players (Ryan et al., 2006). This is the mostly agreed need or motivation for video gamer players in varied theories. Video games establish a virtual world where social connections can be built the same as other social circumstances. For some people, companionship and relationship are able to encourage them to make certain actions.

CET also identified two contextual factors as *presence* and *intuitive controls*, which clarify the extrinsic motivations from psychological needs and provide possibilities to specifically identify different influences (Ryan & Deci, 2000). As discussed before, these contextual factors are associated with intrinsic motivation, especially autonomy and competence. More specifically, these intrinsic motivations require a lot from the video games. The immersive experience of how the player feel within the game world and manipulate controls or characters, is identified as presence (Ryan et al., 2006). Lombard and Ditton (2000) defined presence as a state that users respond to the content of a particular media product as if the medium were not there. Intuitive controls are focusing on the operational aspect in games. How players satisfy with the game controls and how intuitive they find a

game to master are all contextual factors that need to be considered.

Building on the SDT adapted in Ryan et al.'s (2006) study, this study also used the three intrinsic motivations and two contextual motivations as the theoretical framework and establish possible relational model with gender identity.

2.6. Hypotheses

Scholars in game studies have investigated how gender or personalities will have an influence on personal gaming motivations. In Yee's (2006) own research, the result showed significant differences between female and male players among three gaming motivations. Particularly, he suggested that men were more likely to be motivated by achievement, control or manipulation, while females had higher score in the seek of relationship, immersion, and escapism. A study conducted by Jansz et al.'s (2010) supported Yee's finding. They also argued that socialization is more likely to be the motivation for female while achievement is the motivation for male to play video games (Jansz et al., 2010). The idea of gender-driven motivation is further questioned by other scholars. For example, Kneer et al. (2019) testified that it was gender related personalities rather than biological sex that could predict gaming motivation way better. For the perspective of gender identity, a single focus on gender will overlook a large group of people who do not necessary fit into the tradition gender discourse. Therefore, this study will focus on the scale of gender identity, which reflects more on the aspect of related personalities and attributes instead of biological sex.

Studies focusing on LGBT group also showed pretty interesting result in sports behavior. In Elling and Janssens's (2009) study, the motivations of engaging in sport did not show big differences from other sport participants. Among both groups, the intrinsic motivation of enjoyment scored the highest, followed by social contacts and appearance, compensating of daily life and achievement. However, differences could be found within each motivation. In Place and Beggs's (2011) study of LGBT group, the motivation of joining sports club is highly related to one's intention of socializing or involving mental activities such as learning, discovering, or creating. Achievement, social connection and activity enjoyment are more intrinsically related to the sports club contexts and teamwork, which were significantly more

important for heterosexual men than for the LGBT men (Elling & Janssens, 2009). Besides this, although Griffin (2012) found out that LGBT people were less likely to participate in physical sports due to the fierce body contacts, it is possible that the online virtual environment would provide them more save space to relax and entertain. Therefore, in the scenario of online gaming, the study do expect that LGBT people may spend more time on video games than non-LGBT people. As for motivations, no new findings in the motivation was expected difference from Elling and Janssens's, thus the research assumed that LGBT group were less motivated by achievement or social connection to take part in video games than non-LGBT group.

H1a: LGBT group has higher gaming hours than non-LGBT group.

H1b: LGBT group has lower relatedness gaming motivation than non-LGBT group.

H1c: LGBT group has lower competence gaming motivation than non-LGBT group.

The studies in the relation between gender and gaming motivation did provide a foundational idea to interpret motivation differences among each gender-related identity category. As suggested in SDT, when activities are done for interest or personal value, the score of perceived autonomy is high (Ryan et al., 2006). On the contrary, when the players feel controlled or overwhelmed in pursuing an activity, the sense of autonomy is diminished. Based on personality profiles, a significant result was shown in Graham and Gosling's (2013) study that the independence motivation is associated with the traits of openness. Individuals with attributes such as passionate, emotional and empathic might be possibly do activities out of personal interest. On the other hand, players with traits like oversensitive, dependent and self-doubting are more likely to feel controlled and overwhelmed. As certain traits in individual characteristics may lead to the intrinsic gaming motivation, different gender-related identities would have different influence on the motivation autonomy. Therefore, this paper assumed that:

H2a: Autonomy as gaming motivation is positively influenced by positive femininity.

H2b: Autonomy as gaming motivation is negatively influenced by negative femininity.

Although Sheldon and Filak (2010) suggested that autonomy, competence, and relatedness were equal human needs in gaming context, previous studies did show significant differences regarding the relationship between gender and the motivations of competence. In different studies, the results all pointed out that men have significantly higher score in seeking challenges and the feeling of achievement, which is identifies as the motivation of competence in this study (Carlisle, Neukrug, Pribesh & Krahwinkel, 2019; Jansz et al., 2010). To explain this phenomenon using gender identity theory, there are certain masculine personal traits that might lead to this motivation. For example, people who are competitive and tend to brag themselves are more likely to game for achievement (Kneer et al., 2019). Considering the low score for competence among female players, it would make sense to assume that certain feminine traits might also have a hindering effect on the motivation of competence, for example, tender and sensible. Thus, this study predicted that:

H3a: Competence as gaming motivation is positively influenced by negative masculinity.

H3b: Competence as gaming motivation is negatively influenced by positive femininity.

In comparison to autonomy and competence, there are still large number of players seek to establish connections with others in online game environment. However, conflicting results on socializing or relatedness were found in different studies. As the theorists believed, Park et al. (2011) found in a research that women tend to be motivated by relationship-building in game playing more than men. However, in Carlisle et al.'s (2019) study, they concluded that being male was also a predictor of social motivation. In line with this, males also have unexpected higher score on social interaction significantly higher than female (Jansz et al., 2010). The controversial results do not only give us an insight that gender may not be the most convincing variable to predict social motivation, but also aware us that both traits in masculinity and femininity could lead to relatedness. Normally speaking, people who have personalities with more social skills like emotional and empathic are more likely to socialize or build relationship in video games context. On the other hand, as video games are regarded as e-sports, communities and teams in the virtual world are also attached great value for masculine characteristics that focus on teamwork and tactics of winning. In addition, gamers

with introvert and neurotic personality traits, which reflected as negative femininity, may encounter social anxiety and find it hard to establish relationship in real life, and thus motivated to socialize through online environment (Cole & Hooley, 2013). Based on these findings, this research predicted that:

H4a: Relatedness as gaming motivation is positively influenced by (a) negative masculinity, (b) positive femininity, (c) negative femininity.

H4b: Relatedness as gaming motivation is negatively influenced by positive masculinity.

According to Ryan et al. (2006), the contextual motivations provide conditions to intrinsic motivations in an online environment. Although these factors are highly dependent on each individual game itself, they are associated with how players experience the game playing and may differ among different types of playing. Based on what Ryan et al. (2006) already found in their research that the presence and intuitive controls were distinctively correlated with the three intrinsic motivations in different games, this study focused more on the general personal requirement from video games. Kneer et al. (2019) testified that negative feminine attributes significantly predicted immersion as gaming motivation building on Yee's (2006) taxonomy. The self-doubt and anxiety side of personality makes players want to escape from reality and immerse in the game world. The intuitive controls also showed a significant relation with the motivation of competence (Ryan et al., 2006). This could be explained that people who are competitive and eager for achievement would take intuitive operations in game seriously since it will impact how they control the game. Considering from these extrinsic perspectives, reasonable prediction was that:

H5a: Presence as contextual motivation in video games is positively influenced by negative femininity.

H5b. Intuitive controls contextual motivation in video games is positively influenced by negative masculinity.

Apart from diverse psychological needs, gaming enjoyment should also be attached great

importance to the study of gaming motivation and behaviors. The enjoyment emphasized on how the gamers feel about gaming experiences after their psychological needs are satisfied (Oliver et al., 2016). The discussion of enjoyment could further testify if the intrinsic motivations could really lead to gratification or pure pleasure in games, which may also contribute to a possible continuant playing. In Jansz et al.'s (2010) study, they identified enjoyment as one of the gaming motivations and indicated high scores in both males and females. This gave us an idea that gaming enjoyment could probably be better predicted by certain gender-related attributes that tend to have passion and gain fun from small activities. In addition, as this study considered enjoyment as a consequence of gaming experiences, how players gratify from game playing could be further predicted by different intentions of starting video games (Wu, & Liu, 2007). Based on the characters of each motivation, the assumptions were:

H6a. Gaming enjoyment is positively influenced by positive femininity.

H6b. Gaming enjoyment is positively influenced by (a) autonomy and (b) relatedness.

Chapter 3. Method

3.1. Research design

As discussed above, the aim of this research was to identify the impact of online game players' gender identities on their self-determined motivations, which was composed of intrinsic psychological needs and contextual motives. Therefore, it was clear that this study intended to reveal the relation between independent variables and dependent variables and created hypotheses based on theoretical supports. A quantitative research method was thus being used in this study since it was appropriate to observe the general patterns and relations among different social factors (Babbie, 2011).

The approach of survey was specifically used in the process of data collection in this research. On the one hand, survey allowed the research to measure respondents' attitudes, characteristics, experiences, behaviors and values (Neuman, 2014). In this study, gender identities, as one subcategory of characteristics, and gaming motivations, which could be considered as the combination of personal experiences and values, was able to be validly examined based on the collected data via survey research. On the other hand, the method of quantitative survey research helped to approach a great number of respondents and collect original data in a short time span (Babbie, 2011).

This research particularly used the form of online survey to send out the designed questionnaires with the help of Qualtrics. The use of Internet offered the opportunities to access the virtual communities, such as gaming communities and LGBT communities, which helped a lot to approach the target respondent in this research (Wright, 2005). Online survey also ensured the quality and reliability of the results as the online environment was familiar and comfortable for video gamers. In addition, the online questionnaire took less efforts to finish and provided more flexibility for the respondents in terms of time and places, which also contributed to the possibility of more responses (Punch, 2003). The questionnaire was provided in two language versions, English and Chinese. The English version was presented as the original version to reach more international and young participants. Another option in Chinese was also added in the questionnaire for the convenience of participants who cannot use English properly in Chinese communities. Making use of social media platforms, the

survey was thus distributed via WhatsApp, Instagram, Facebook and WeChat to approach several gaming communities, LGBT communities and college groups.

This study applied quantitative approaches in data analysis. Data gathered from online survey was then processed in SPSS. Several stages of data preparation were conducted in SPSS to ensure the possibility of further analyses. This included data cleaning, factor analysis and reliability analysis. After the preparation, hierarchical regression analyses were specifically processed to identify the correlations between different variables and testify the hypotheses.

3.2. Sampling

The units of analysis in this research were video game players who aged 18 years old and above. The age limit was a way to avoid any ethical issue regarding the consent of juvenile participants. No further limitations on age, nationality, educational level was set in sample criteria, since the study aimed to find the general pattern of gender trait's influence on gaming motivation, while only focusing on specific demographic groups might lead to deviation from the original hypotheses. There were also no limitations on what types of game one plays since game genres could be a useful variable that contributed to the final findings. In addition, the participants were well informed of the general purpose of the research. An informed consent was included in the introduction page of the online questionnaire, in which they were informed that their responses was totally voluntary, anonymous, confidential and would only be used for academic purposes. Only if they agreed on the consent, the survey would proceed further.

This research managed to recruit more than 200 respondents from sampling frame as desired originally. However, this study failed to reach the aiming amount of LGBT participants at 40% with a final proportion of 32% instead. The main reason was that LGBT member were still minority and occupied only a small portion of the gaming communities as well. Even so, meaningful comparisons between LGBT group and non-LGBT group was still able to be conducted to come up with reliable and valid results.

Participants was recruited through game communities and groups on social media where

most players discussed and shared their experiences. These users formed the sampling frame of this study and were rather representative of the target population. In this process, the method of self-selection sampling will be used, which allows the potential participants to make the decision voluntarily whether to take the survey and become part of the sample (Sterba & Foster, 2011). The use of self-selection sampling enabled this research to collect a large number of participants in a short time as well as reduced the chance of receiving respondents that did not meet the sampling criteria (Babbie, 2011).

3.3. Sample and Procedure

All participants filled out the questionnaire in a fixed order. By starting with the consent form, they answered the question step by step from gender-related personality, gaming habits, self-determined motivations, entertainment, and demographic questions. In this research, a total number of 319 responses were recorded in the dataset. $N = 209$ were remained valid in further analyses after data cleaning. Among these final sample, the percentage of female respondents was 56.0% and male was 38.8%. Also, 1.4% of the respondents identified themselves as non-binary or third gender and 3.8% preferred not to disclose their gender. The average age of the whole sample is 24.99 ($SD = 4.24$) ranging from 18 to 55. Participants recruited in this study had diverse culture background with a total of 14 different nationalities. Most of the sample came from China (76.6%), followed by the Netherlands (9.1%), Germany (7.2%), France (1.4%) and Italy (1.4%). Most of the participant had high educational level with graduate or professional degree (37.8%) or bachelor's degree (34.4%).

Since this study aimed to pay special attention to the difference of LGBT group non-LGBT group, 32.0% of the sample identified themselves as homosexual, bi-sexual or others (LGBT group) and 62.7% identified as heterosexual (non-LGBT group). However, 71.3% of the respondents did have close or friends contacts with LGBT people while 28.7% of them did not. The respondents were video game players of different genres: Multiplayer Online Battle Arena (42.1%), Role-Playing Games (34.9%), Simulation (31.6%), Action/ adventure (31.1%), Puzzle (26.3%), Strategy (23.0%), Shooter (19.6%), Sports (14.4%), Racing (13.9%), and Fighting (10.5%). The sample's average time spent playing video games per

week was 11.56 hours (*SD* = 12.62) with the highest score of 72 hours per week.

3.4. Measurement

Gender identity. Gender identity was the independent variable based on the research question. In this study, gender identity was conceptualized as the personal characteristics based on gender using Berger and Krahé's (2013) PN-SRI, to divide the strengths (positive attributes) and weakness (negative attributes) to measure the gender-related personal characteristics. Some items were slightly changed regarding the word choice as the pilot test showed some problems with certain words in the original version. For each item, participants were asked to rate in terms of how well it describes their own characteristics based on 5-point Likert scales (*1= not at all*, *5= totally describes me*). Four subscales were ultimately identified including positive masculinity, positive femininity, negative femininity, and negative masculinity.

Gaming habits. Individual's gaming habit were measured by the time spent on video games and their preferred game genres. Participants were asked to self-report the approximate hours they spent on video games per week. They were also able to choose multiple answers from nine different genres of video games: Action/ adventure, Sports, Role-Playing Games, Strategy, Simulation, Puzzle, Shooter, Racing, and Fighting (Lemmens & Hendriks, 2016).

Gaming motivation. The dependent variable was the motivations of why participants play video games. Based on Ryan et al.'s (2006) scale in SDT, the psychological needs, which is also identified as intrinsic motivations, was measured with 9 items on a 5-point scale (*1= not agree at all*, *5= totally agree*). This included autonomy, competence, and relatedness. In addition, two contextual motivations of presence and intuitive controls was measured based on individual's experience with the games themselves. All 4 items also used a 5-point scale from *1= not agree at all* to *5= totally agree*.

Entertainment. Based on Oliver and Raney's (2011) theory on the hedonic aspect entertainment, the entertainment was measured by how much fun and enjoyment players would obtain from video games. The 3-item scale were developed and testified in Oliver and Raney's (2011) study using a 5-point Likert scale from *1= not agree at all* to *5= totally agree.*

Gender and LGBT variables. Participants were asked about their gender affiliation, in a way of how they would identify their own gender (1 = male, 2 = female, 3 = non-binary/third gender, 4 = prefer not to say). Also, individuals were asked how they identified their sexual orientation (1 = heterosexual, 2 = homosexual, 3 = bisexual, 4 = others, 5 = prefer not to say). In addition, to provide more possibilities, participants also answered the question if they had close contacts with LGBT people in their daily life (1 = No, I do not have any LGBT friends, 2 = Yes, I have close friend(s) who is LGBT).

Demographics. Participants were asked questions about their nationality, age, and level of education.

3.5. Reliability of the measurements

The scales used to measure above variables were tested with factor analyses and reliability test as data preparation. Even though the scales already had solid support by previous research, it was still important to verify the scales' internal consistency to see if the items in one group were able to work together (Pallant, 2010). Therefore, for each variable, the factor analysis and reliability test were conducted, and the results were reported below:

Gender identity. The 24 items of gender identity variable were all 5-point Likert scale based and were conducted factor analysis using extraction method of Principal Components analysis with Varimax rotation with the fixed number of factors (= 4.00), $KMO = .82$, χ^2 ($N = 209, 276) = 2104.07$, $p < .001$. The resultant model explained 54.6% of the variance in gender identity. Factor loadings of each individual item into the four factors together with Cronbach's α of each factor are presented in Table 1. The factors presented were labelled based on the original scale of Berger and Krahé (2013):

Positive masculinity. The first factor contained 6 items of the listed gender-related personality, which reflected the strengths and advantages of masculinity. Items such as logical, analytical, rational, and solution-focused were included in this factor.

Negative masculinity. The second factor included 6 items that linked to negative side of masculine attributes such as boastful, competitive, and harsh.

Positive femininity. The 6 items related to positive traits of feminine personality included

loving, tender, passionate, emotional, sensible, and empathic.

Negative femininity. This factor included 6 traits regarded as the weaknesses and disadvantages of femininity such as dependent, self-doubting, humble and oversensitive.

Table 1: Factor and reliability analyses for scales for gender traits (*N* = 209)

Items	Positive masculinity	Positive femininity	Negative femininity	Negative masculinity
Logical	.814			
Analytical	.784			
Objective	.750			
Rational	.747			
Solution-focused	.626			
Practical	.467	(.310)		
Loving		.834		
Emotional		.732		
Empathic		.716		
Sensible		.679		
Tender		.657		
Passionate		.624	(-.328)	
Oversensitive			.782	
Self-doubting			.731	
Suspicious			.622	
Dependent			.587	
Humble			.510	
Naïve	(-.308)		.437	
Boastful				.819
Self-satisfied				.750
Competitive				.612
Harsh				.538
Hasty				.502
Sloppy	(-.400)			.357
R^2	.24	.13	.10	.07
Cronbach's α	.85	.83	.77	.72

Intrinsic motivations for video game playing. The 9 items of the intrinsic gaming motivations variable based on 5-point Likert scale were conducted factor analysis with extraction method of Principal Components analysis with Varimax rotation with the fixed number of factors (= 3.00), *KMO* = .72, χ^2 (*N* = 209, 36) = 915.13, $p < .001$. The resultant model explained 75.1% of the variance in intrinsic gaming motivations. However, it has been observed that the Cronabch's α of the third factor was merely .18 and would rise to .79 if the reversed item "I felt controlled and pressured to be a certain way while playing games" was deleted. In order to provide a high level of internal consistency and reliability, the item was deleted from measuring the variable autonomy and other 2 items were remained in the factor. Factor loadings of the final items into the three factors together with Cronbach's α of each factor are presented in Table 2. The factors were labelled following the intrinsic motivation in the SDT of Ryan et al. (2006):

Relatedness. This factor included three items related to feelings of relations and connections.

Competence. This factor included three items related to feelings of challenge and accomplishment.

Autonomy. This factor included two items related to individual's own willingness to actions in games.

Table 2: Factor and reliability analyses for scales for intrinsic gaming motivation (*N* = 209)

Items	Relatedness	Competence	Autonomy
I valued the relationships with people I met in games.	.949		
I found the relationships I formed in games fulfilling.	.944		
I had great connections with other people in games.	.842		
I enjoyed the challenges I met in games.		.869	
The game kept me on my toes but did not overwhelm me.		.855	
I felt capable and accomplished when I have something done.		.831	
I did things in the game because they interested me.			.804
I made my own decision to do things I want in games.			.778
R^2	.38	.21	.17
Cronbach's α	.90	.85	.79

Contextual motivations for video game playing. The 4 items of the contexual gaming motivations variable was based on 5-point Likert scale were conducted factor analysis with extraction method of Principal Components analysis with Varimax rotation with the fixed number of factors (= 2.00), *KMO* = .49, χ^2 (*N* = 209, 6) = 16557.13, $p < .001$. The resultant model explained 78.1% of the variance in intrinsic gaming motivations. Factor loadings of each individual item into the three factors together with Cronbach's α of each factor are presented in Table 3. The two variables kept consistent with the scales in SDT (Ryan et al., 2006) and were labelled the same way:

Presence. The first factor contained two items associated to immersive experience within the game world.

Intuitive control. The second factor contained two items associated to the experience with the operations and controls.

Table 3: Factor and reliability analyses for scales for contextual gaming motivation (*N* = 209)

Items	Presence	Intuitive control
I experienced feelings as deeply in the game as I have in real life.	.897	
When playing the game, I felt as if I am an important participant in the story.	.887	
The interface of a game would affect my gaming experience.		.867
It was important for me that a game is easy to operate and control.		.856
R^2	.43	.35
Cronbach's α	.74	.66

Gaming entertainment. The 3 items which were Likert-scale based were entered into factor analysis using Principal Components extraction with Varimax rotation, with fixed number of factors (= 1.00), KMO = .72, χ^2 (N = 209, 3) = 279.16, p < .001. The result model explained 77.3% of the variance in Gaming entertainment. The reliability analysis for these three items of the unidimensional scale was then tested with a result of Cronbach's α of .85, which indicates that this scale has a relatively high reliability.

Chapter 4. Results

4.1. Pretests: Difference between non-LGBT group and LGBT group on gender identity

Before testing the hypothetical relationships among sexual orientation, gender identity and gaming motivations, independent samples t-tests were conducted to reveal the differences of how non-LGBT group and LGBT group identified with different gender traits. However, the result showed that there were no significant differences between non-LGBT group for all four gender traits. Non-LGBT group (M = 3.63, SD = 0.70) had slightly higher score in positive masculinity than LGBT group (M = 3.48, SD = 0.88) but the difference was not significant, $t(196) = 1.32$, $p = .186$. In terms of negative masculinity, there were still no significant result between non-LGBT group (M = 2.63, SD = 0.65) and LGBT group (M = 2.61, SD = 0.87), $t(104.12) = 0.15$, $p = .883$. Non-LGBT group (M = 3.75, SD = 0.66) had identified slight higher positive feminine characters than LGBT group (M = 3.54, SD = 0.92) but the difference was not significant, $t(101.50) = 1.63$, $p = .105$. Also no significant result were found in negative femininity between non-LGBT group (M = 3.02, SD = 0.75) and LGBT group (M = 3.08, SD = 0.95), $t(108.66) = 0.45$, $p = .651$. In general, LGBT group and non-LGBT group showed no significant differences in all gender identities.

4.2. Difference between non-LGBT group and LGBT group on gaming hours

In order to test H1a, an independent samples t-test was conducted on gaming hours revealing the difference between non-LGBT group and LGBT group. The result showed that LGBT group (M = 13.90, SD = 14.05) had significant higher scores than non-LGBT group (M = 10.08, SD = 11.49), $t(196) = 2.05$, $p = .042$, regarding the average time spent on video games. The independent samples t-test demonstrated significant difference in weekly gaming hours between non-LGBT group and LGBT group. Therefore, H1a: LGBT group has higher gaming hours than non-LGBT group was accepted.

4.3. Difference between non-LGBT group and LGBT group on intrinsic gaming motivations

To have a look at the differences of gaming motivations between non-LGBT group and LGBT group, independent samples t-tests were conducted on all three intrinsic motivations

for video games. The result showed that there was no significant differences between non-LGBT group (M = 3.53, SD = 1.16) and LGBT group (M = 3.55, SD = 1.28) for the gaming motivation of autonomy, $t(196) = 0.12$, $p = .905$. Also no significant result were found in the motivation of relatedness (H1b) between non-LGBT group (M = 2.90, SD = 1.25) and LGBT group (M = 3.19, SD = 1.27), $t(196) = 1.56$, $p = .122$. However, significant differences were shown in competence (H1c) as motivation of playing video games. Non-LGBT group (M = 3.57, SD = 0.98) were more likely to play video games for competence than LGBT group (M = 3.18, SD = 1.12), $t(99.50) = 2.02$, $p = .046$. Therefore, H1b was rejected, while H1c: LGBT group has lower competence gaming motivation than non-LGBT group was accepted.

4.4. Impact of gender, sexual orientation, LGBT contacts, and gender identity on autonomy motivation

A hierarchical regression analysis was conducted with autonomy motivation of playing video games as the dependent variable in order to test H2a and H2b. Gender was included as control variables in the first block. A binary variable of sexual orientation (LGBT or non-LGBT) as well as contact with LGBT people were entered in the second block. In the third block, the categorized gender identity of positive masculinity, negative masculinity, positive femininity, and negative femininity were added (see Table 4 for beta weights and values for explained variance).

Gender was not significant when being used as single predictor in the first block, F (1, 187) = 1.92. The model stayed insignificant when sexual orientation and LGBT contacts were added in the second block, F_{change} (2, 185) = 1.43. However, adding gender identity in the third block improved the predictive value of the model to reach significance, F_{change} (4, 181) = 4.03. The third model showed that negative femininity (H2b) was a significant predictor of the model that had a negative relationship with autonomy as gaming motivations. While positive masculinity, negative masculinity, positive femininity (H2a), together with gender, sexual orientation and LGBT contacts remained insignificant.

In sum, the final model of using gender, sexual orientation, LGBT contacts, and gender identity could explain 10.5% of the variation in the score of autonomy motivations in video games. This model also showed that negative femininity was the predictor of autonomy

motivation. Therefore, H2a: autonomy as gaming motivation is positively influenced by positive femininity was rejected, while H2b: autonomy as gaming motivation is negatively influenced by negative femininity was accepted.

Table 4: Standardized Beta weights and R^2 for gender variables as predictors for autonomy motivations

Predictor	Model 1	Model 2	Model 3
Gender	-.10	-.14	-.12
Sexual orientation		-.08	-.06
LGBT contacts		.13	.14
Positive masculinity			-.05
Negative masculinity			-.01
Positive femininity			.06
Negative femininity			**-.29****
	R^2 = .01	ΔR^2 = .02	**ΔR^2 = .08**
	p = .168	p = .242	**p = .004**

Note: *p < .05, **p < .01, ***p < .001

4.5. Impact of gender, sexual orientation, LGBT contacts, and gender identity on competence motivation

In order to test H3a and H3b, a hierarchical regression analysis was conducted with the competence motivation of playing video games as the dependent variable. In the first block, gender was entered as a control variable. In the second block, the binary variable of sexual orientation (LGBT or non-LGBT) was entered as well as contact with LGBT people. In the third block, the categorized gender identity of positive masculinity, negative masculinity, positive femininity, and negative femininity were added (see Table 5 for beta weights and values for explained variance).

Even though gender was not significant when being used as single predictor in the first block, F (1, 187) = 1.82, together with sexual orientation and LGBT contacts added as predictors in the second block, the model reached significance, F_{change} (2, 185) = 3.23. Adding

gender identity in the third block further improved the predictive value of the model to a higher significance, F_{change} (4, 181) = 4.03. The final model showed that negative masculinity (H3a) was a significant predictor of the model having a strong and positive effect on competence as gaming motivations. While positive masculinity, positive femininity (H3b), negative femininity, together with gender, sexual orientation and LGBT contacts remained insignificant.

The final model of using gender, sexual orientation, LGBT contacts, and gender identity could explain 17.9% of the variation in the score of competence motivations of video game playing. This model also showed that negative masculinity was a strong predictor of competence motivation. Therefore, H3a: competence as gaming motivation is positively influenced by negative masculinity was accepted, while H3b: competence as gaming motivation is negatively influenced by positive femininity was rejected.

Table 5: Standardized Beta weights and R^2 for gender variables as predictors for competence motivations

Predictor	Model 1	Model 2	Model 3
Gender	.10	.07	.11
Sexual orientation		-.14	-.14
LGBT contacts		-.09	-.11
Positive masculinity			-.12
Negative masculinity			**.26*** **
Positive femininity			-.11
Negative femininity			.02
	R^2 = .01	**ΔR^2 = .03**	**ΔR^2 = .14**
	p = .180	**p = .042**	**p < .001**

Note: *p < .05, **p < .01, ***p < .001

4.6. Impact of gender, sexual orientation, LGBT contacts, and gender identity on relatedness motivation

In order to test H4a and H4b, a hierarchical regression analysis was conducted with the

competence motivation of playing video games as the dependent variable. Gender was added as a control variable in the first block. In the second block, the binary variable of sexual orientation (LGBT or non-LGBT) was entered as well as contact with LGBT people. In the third block, the categorized gender identity of positive masculinity, negative masculinity, positive femininity, and negative femininity were added (see Table 6 for beta weights and values for explained variance).

Gender was not significant when being used as single predictor in the first block, F (1, 187) = 2.40. The model stayed insignificant when sexual orientation and LGBT contacts were added in the second block, F_{change} (2, 185) = 1.90. However, adding gender identity in the third block improved the predictive value of the model to reach significance, F_{change} (4, 181) = 4.39. The final model showed that negative masculinity (H4aa) was a significant predictor of the model that had a positive relationship with autonomy as gaming motivations. Also, the final model of this hierarchical regression analysis revealed that LGBT group positively improved gaming motivation of relatedness than non-LGBT group. While positive masculinity (H4b), positive femininity (H4ab), negative femininity (H4ac), together with gender, and LGBT contacts remained insignificant.

In sum, the final model of using gender, sexual orientation, LGBT contacts, and gender identity could explain 11.8% of the variation in the score of relatedness motivations in video games. This model also showed that negative masculinity was the predictor of relatedness motivation. Therefore, H4aa: relatedness as gaming motivation is positively influenced by negative masculinity was accepted, while H4ab, H4ac, and H4b were rejected.

Table 6: Standardized Beta weights and R^2 for gender variables as predictors for relatedness motivations

Predictor	Model 1	Model 2	Model 3
Gender	-.11	-.06	-.01
Sexual orientation		.16	**.16***
LGBT contacts		-.08	-.10
Positive masculinity			-.10
Negative masculinity			**.23****
Positive femininity			-.10
Negative femininity			.08
	R^2 = .01	ΔR^2 = .02	$\Delta \boldsymbol{R^2}$ **= .09**
	p = .123	p = .152	$\boldsymbol{p}$ **= .002**

Note: *p < .05, **p < .01, ***p < .001

4.7. Impact of gender, sexual orientation, LGBT contacts, and gender identity on contextual motivation

In order to test the predictive model of contextual motivation (H5a and H5b), a hierarchical regression analysis was conducted with the contextual gaming motivation of presence and intuitive control as the dependent variables respectively. Gender was added as a control variable in the first block. In the second block, the binary variable of sexual orientation (LGBT or non-LGBT) was entered as well as contact with LGBT people. In the third block, the categorized gender identity of positive masculinity, negative masculinity, positive femininity, and negative femininity were added (see Table 7 for beta weights and values for explained variance).

For the motivation of presence, gender was not able to be used as single predictor in the first model, F (1, 187) < 0.01. Even when sexual orientation and LGBT contacts were added in the second model, F_{change} (2, 185) = 0.10, and gender identities were added in the third model, F_{change} (4, 181) = 0.41, all the predictive models were unable to reach the significance. Therefore, the contextual motivation of presence was not influenced by any factors of gender, sexual orientation, LGBT contacts, or gender identity. H5a: presence as contextual motivation

in video games is positively influenced by negative femininity is thus rejected.

For the motivation of intuitive control, gender was shown to be a significant single predictor in the first block, F (1, 187) = 4.40. The model remained significant when sexual orientation and LGBT contacts were added in the second model, F_{change} (2, 185) = 3.96, with sexual orientation being a relatively strong predictor. However, adding gender identity in the third block decreased the predictive value of the model and became insignificant, F_{change} (4, 181) = 1.65. Both the second and the final model showed that sexual orientation was a significant predictor of intuitive control as gaming motivations. LGBT group scored lower in contextual motivation of intuitive control than non-LGBT group. While positive masculinity, negative masculinity (H5b), positive femininity, negative femininity, together with gender, and LGBT contacts remained insignificant. Therefore, H5b: intuitive control as contextual motivation in video games is positively influenced by negative masculinity is thus rejected.

Table 7: Standardized Beta weights and R^2 for gender variables as predictors for contextual motivations

	Predictor	Model 1	Model 2	Model 3
Presence	Gender	.00	.01	.02
	Sexual orientation		.02	.03
	LGBT contacts		-.04	-.04
	Positive masculinity			-.04
	Negative masculinity			.05
	Positive femininity			.04
	Negative femininity			-.11
		$R^2 = .00$	$\Delta R^2 = .00$	$\Delta R^2 = .01$
		$p = .998$	$p = .909$	$p = .802$
Intuitive control	Gender	**.15***	.07	.05
	Sexual orientation		**-.22****	**-.21***
	LGBT contacts		.15	.13
	Positive masculinity			-.17
	Negative masculinity			.07
	Positive femininity			.16
	Negative femininity			-.02
		$R^2 = .02$	**$\Delta R^2 = .04$**	$\Delta R^2 = .03$
		$p = .037$	**$p = .021$**	$p = .165$

Note: *$p < .05$, **$p < .01$, ***$p < .001$

4.8. Impact of gender, sexual orientation, LGBT contacts, gender identity, intrinsic gaming motivations on gaming enjoyment

In order to test the predictive model of gaming enjoyment (H6a and H6b), a hierarchical regression analysis was conducted with the gender variables and gaming motivations as independent variables and gaming enjoyment as the dependent variable. Gender was added as a control variable in the first block. In the second block, the binary variable of sexual orientation (LGBT or non-LGBT) was entered as well as contact with LGBT people. In the

third block, the categorized gender identity of positive masculinity, negative masculinity, positive femininity, and negative femininity were added. Lastly, the three intrinsic gaming motivations, namely autonomy, competence and relatedness were entered in the fourth block (see Table 8 for beta weights and values for explained variance).

For gaming enjoyment, the control variables were not able to give significant results. Gender in the first model was not able to be used as single predictor, F (1, 187) = 2.34, while adding sexual orientation and LGBT contacts in the second model made the model more in significant, F_{change} (2, 185) = 0.92. The third model was still insignificant when gender identities were added in the third model, F_{change} (4, 181) = 2.12. However, when intrinsic gaming motivations were added, the model were able to reach the significance, F_{change} (3, 178) =32.44. According to the final model, males tended to enjoy more from video games than females. Negative femininity was shown to have a medium and negative effect on gaming enjoyment, while autonomy (H6ba) and relatedness (H6bb) had a strong and positive effect on the enjoyment of video games. Positive masculinity, negative masculinity, positive femininity (H6a), together with competence remained insignificant.

In sum, the final model of using gender, sexual orientation, LGBT contacts, gender identity and intrinsic gaming motivations could explain 36.2% of the variation in the score of gaming enjoyment. It also showed that gender, negative femininity, the gaming motivations of autonomy and relatedness could be used as significant predictors for gaming enjoyment. Therefore, H6a: gaming enjoyment is positively influenced by positive femininity is rejected, while H6b: Gaming enjoyment is positively influenced by (a) autonomy and (b) relatedness was accepted.

Table 8: Standardized Beta weights and R^2 for gender variables and intrinsic gaming motivations as predictors for gaming enjoyment

Predictor	Model 1	Model 2	Model 3	Model 4
Gender	-.11	-.15	-.14	**-.17***
Sexual orientation		-.08	-.07	.00
LGBT contacts		-.10	.10	.13
Positive masculinity			-.15	-.08
Negative masculinity			.07	-.07
Positive femininity			.07	.12
Negative femininity			-.23	**-.18***
SDT: Autonomy				**.20****
SDT: Competence				.05
SDT: Relatedness				**.49*****
	$R^2 = .01$	$R^2 = .01$	$\Delta R^2 = .04$	$\Delta \boldsymbol{R^2 = .33}$
	$p = .128$	$p = .399$	$p = .079$	$\boldsymbol{p < .001}$

Note: *$p < .05$, **$p < .01$, ***$p < .001$

4.9. Overview of hypotheses' acceptance and rejection

Based on collected data, a series of statistical analyses was able to testify the hypotheses that were generated previously in this study. Each of the hypothesis were verified and given a result of either acceptance or rejection as shown in the following table.

It is worth noticing that the collected data has led to unexpected results, which has shown on not only the rejected hypotheses but also other interesting findings that were not mentioned in previous studies. Conclusions based on these findings and results will be further discussed in detail in the next chapter.

Table 9. Overview of hypotheses' acceptance and rejection

Hypotheses	Result
H1a: LGBT group has higher gaming hours than non-LGBT group.	Accepted
H1b: LGBT group has lower relatedness gaming motivation than non-LGBT group.	Rejected
H1c: LGBT group has lower competence gaming motivation than non-LGBT group.	Accepted
H2a: autonomy as gaming motivation is positively influenced by positive femininity.	Rejected
H2b: autonomy as gaming motivation is negatively influenced by negative femininity.	Accepted
H3a: competence as gaming motivation is positively influenced by negative masculinity.	Accepted
H3b: competence as gaming motivation is negatively influenced by positive femininity.	Rejected
H4a: relatedness as gaming motivation is positively influenced by (a) negative masculinity, (b) positive femininity, (c) negative femininity.	(a) Accepted (b) Rejected (c) Rejected
H4b: relatedness as gaming motivation is negatively influenced by positive masculinity.	Rejected
H5a: presence as contextual motivation in video games is positively influenced by negative femininity.	Rejected
H5b: intuitive control as contextual motivation in video games is positively influenced by negative masculinity	Rejected
H6a. gaming enjoyment is positively influenced by positive femininity.	Rejected
H6b. gaming enjoyment is positively influenced by (a) autonomy and (b) relatedness.	(a) Accepted (b) Accepted

Chapter 5. Conclusion

5.1. Discussion

By conducting a quantitative survey research, this study investigated how different gender variables are reflected on self-determined gaming motivations building on previous research. The study revealed how gender identities could be used to predict gaming motivations of both intrinsic and contextual aspects. The research also further testified how these gaming motivations together with gender identities could have impacts on the enjoyment from video games. Another focus of the study was to particularly distinguish the difference on gaming behaviors and motivations between LGBT group and non-LGBT group members.

5.1.1. Sexual orientation and game play

The results first demonstrated the relationship between individual sexual orientation and four types of gender identities. Interestingly, there were no significant difference found between LGBT group and non-LGBT group of all four gender traits. Different sexual orientation did not necessarily suggest different personalities or behaviors regarding gender traits. This finding of this research showed that LGBT group has the same diversity in all kinds of gender identities. When Ong et al. (2020) suggested that the identified LGBT group brought great challenges to the traditional portraits of gender, it did not mean to build another stereotype for LGBT people that probably portrays gays as being girly and weak, or asexual being distant and cold.

Without stereotypes in gender identities, the studies did show significant difference in video game playing between the two different sexual orientation groups. It was found that LGBT group on average spent a slightly higher amount of time on video games than the non-LGBT group (H1a). Even though Elling and Janssens (2009) found out in their study that LGBT people were less active in physical sports, the result justified the expectation that online environment might provide these people a more comfortable place for leisure activities without confrontations with other people.

The unwillingness to confrontation and combat could further have an impact on their

gaming motivations. In line with Elling and Janssens (2009), achievement and challenges in games were less attractive and less important for LGBT people than heterosexual people, demonstrating in a significantly lower score of LGBT group in the motivation of competence (H1c). Among all three motivations according to SDT, competence the last psychological need that LGBT group seek to fulfil in video games. Besides competence, as suggested by previous literature, LGBT people were also less likely to join sports clubs since it relied on teamwork and strength to a great extent (Place & Beggs, 2011). However, the result unexpectedly rejected the idea that LGBT group would have higher relatedness gaming motivation than non-LGBT group (H1b). On the contrary, LGBT group was more likely to be motivated by relatedness than heterosexual group. The difference between two different sexual orientation groups was even significant in the final model of predicting gaming motivations of relatedness. Relatedness was defined as the psychological need of social interaction and feelings of connection with others (Ryan et al., 2006). In this case, the unexpected result could be explained that the interaction and connection of friendship in an online scenario were not as disciplined as real sports teamwork and were therefore, more welcomed and accepted by LGBT people. This also kept in line with what Elling and Janssens (2009) found in their studies: that even though the LGBT participants were not active in sports organizations, most of them would still like to engage with other ingroup members.

In sum, this research managed to reveal that gaming consumption and motivations varied between LGBT group and non-LGBT group. While some of the differences were slight and some were unexpected, the results were further explained in the next section when gender identities were considered in a more complete and valid model.

5.1.2. Gender identities and intrinsic gaming motivations

Different from what Yee (2006) and Jansz et al. (2010) found in their research, the results showed no significance in using gender to predict for all three gaming motivations, when gender was used as a control variable in the first place. Instead, the findings of this research kept in line with what Kneer et al. (2019) suggested, that gender-related traits were able to predict gaming motivations better than biological sex. In addition, while sexual orientation

was found to have significant impact on different gaming motivations, the final models showed that it was still not able to predict motivations as good as gender identities.

It was found in the result that negative femininity was a significant negative predictor for the gaming motivation of autonomy (H2b). This finding exactly reflected what was indicated in existing literature. As Ryan et al. (2006) suggested in SDT, the perceived autonomy evaluated whether activities are done for interest or personal values, which means that the score of autonomy would be low when the gamers feel controlled or overwhelmed in pursuing an activity. In video games, players are able to conduct or take part in a series of activities out of different reasons. Some individuals do things in games because they find it entertaining or enjoyable, while some individuals might have the feelings that they are all obliged to do certain activities because the other players or the game itself force them in a preferred way. The latter mentality is associated with negative femininity, which includes attributes such as oversensitive, dependent, and self-doubting. The lack of own will makes them easily under stress and feel overwhelmed when playing video games. Therefore, individuals with more negative femininity would score less in the gaming motivations of autonomy.

According to Graham and Gosling (2013), the study of personality profiles suggested that people with personal traits of openness and passion were more likely to be motivated by independence. However, different from the expectation, the result did not show a significant relation between autonomy and positive femininity (H2a). Although positive femininity described personal traits such as passionate and loving, it still included personalities like empathetic, emotional, and sensible. The emotional and sensible side of individuals might make them care more about objective elements in games, and to some extent hold them up from totally focusing on free will and personal interests. Thus, the result makes sense that positive femininity is not a significant predictor for autonomy.

Regarding competence, in line with Kneer et al.'s (2019) findings, negative masculinity appeared to have a strong and significant impact on competence motivation (H3a). The result could be explained by gender identity theory. Since negative masculinity described personal attributes such as competitive, self-satisfied, and boastful, individuals with such traits tend to seek for challenges and be eager for achievements. Video games provided a perfect virtual

scenario where players were able to gain rewards, as long as they put enough time and efforts on it (Bartle, 2004). The rewards in games could be regarded as sign of accomplishment, or even some kind of glory and victory. In light of this, players with negative masculine traits might easily have the impulsion to conquer the challenges and win the achievement in the game world, so that they could prove their abilities and brag to their peers. Therefore, it is convincing that negative masculinity could be used as a predictor for competence motivation.

On the other hand, not as expected, the results showed that positive femininity was not able to negatively predict competence (H3b). Even though Carlisle et al. (2019) merely focused on biological sex, they did prove that girls scored way lower in seeking for challenges in video games. Using gender identity theory to explain, feminine personal attributes like tender and loving would make individuals behave as the opposite of competitive. However, the attributes in positive femininity also included other aspects of personality, particularly passionate in this case. Individuals who are passionate in daily lives might also be passionate towards video games, which would also drive them to do as best as they could in game world. Players with traits like passionate might have a high score and positive femininity, but it is not necessarily associated with a low score in the motivation of competence.

Significant predictor for relatedness motivation appeared in negative masculinity (H4aa) and sexual orientation. Although there were different theories existed before, the findings of this research partly supported Carlisle et al. (2019) and Jansz et al.'s (2010) idea, that masculinity was a significant predictor for motivations of interaction building and socializing in the context of video games. However, their conclusion was only based on biological sex. It was found in this research that only negative masculinity could be used as a significant predictor for relatedness, while positive masculinity had no influence on the motivation (H4b). Such findings verified the idea that the influence of gender on gaming motivations was overgeneralized and not totally convincing, instead, they were impacted by certain gender-related personalities (Kneer et al., 2019). In this case, as negative masculinity described attributes such as competitive, self-satisfied, hasty and boastful, which may encounter some difficulties in establishing relationship in real life, and thus motivated to socialize through online environment (Cole & Hooley, 2013). Additionally, based on the previous findings that

negative masculinity tended to seek accomplishment and rewards in video games, individuals with negative masculine traits valued teamwork and tactics to win the game, and were thus more likely to join communities and teams in virtual world. Therefore, negative masculinity would have a great impact on the motivation of connection and relationship building.

However, the research also showed unexpected results from what was assume in the first place. Even though Park et al. (2011) claimed that women tend to be motivated by social connection in video games, the result suggested that both positive femininity (H4ab) and negative femininity (H4ac) were not able to predict relatedness motivation. The insignificant results of these two factors could be explained differently. On the one hand, people with personal traits like loving, empathic or passionate are equipped it with more social skills and more likely to socialize or build relationship with others in real life. This could lead to the fact that these people do not count too much on the relationship in a virtual context. On the other hand, negative femininity reflected the introvert and neurotic side of individual's personality. These attributes would easily raise social anxiety that would not only make it difficult to establish close connections with others in real life (Cole & Hooley, 2013), but might also hinder individual's intention to build online relationships in some way.

5.1.3. Sexual orientation, gender identities and contextual gaming motivations

According to Ryan et al. (2006), other than the psychological needs, how the players experience the contextual of game itself was also important for studying motivations of video games. Ryan et al. (2006) also found out that contextual motivations were closely correlated to intrinsic motivation, which could further help us to explain the predictive model of contextual motivations. Opposite to all the expectations, the result showed that gender identities had no relation to contextual gaming motivations, as none of the identity types was able to predict presence and intuitive control motivations, while some interesting findings did rise unexpectedly in the predictive models.

Against all expectations, the research failed to find any predictors for presence motivation. Presence was defined as the gaming experience of how immersive the players feel the game setting and manipulate controls or characters (Ryan et al., 2006). This was very similar to what Yee (2006) suggested as immersion motivation, only Yee's theory was

focusing on the player's mentality while presence in SDT was focusing on the context of games. However, due to such difference, the result demonstrated that findings in previous studies did not apply in the new context. Since video games were able to provide a way for individuals to escape from real life and stay in another world with different settings or stories (Ong et al., 2020), Kneer et al. (2019) found that people with negative feminine traits was more easily motivated by the immersing and escaping feelings. The insignificant result in this research further argued that what negative femininity valued was the feeling of immersion and presence to fulfil their psychological need, rather than the experience that game itself provided. That is to say, negative femininity was not able to become a predictor for the contextual motivation of presence (H5a).

As for intuitive control, even though it was shown having a significant positive relation with competence motivation (Ryan et al., 2006) and yet negative masculinity appeared to positively associate with competence, the result rejected the assumption that intuitive as contextual motivation in video games is positively influenced by negative masculinity (H5b). Intuitive control emphasized on operations and controls of the game design (Ryan et al., 2006). Players with ambition of achievement and victory in video games might be impacted by intuitive control to operate, but it was not able to decide or motivate whether players engaged in certain games or not. While gender identities were proved having no influence on such contextual motivation, the models unexpectedly showed that the control variable of sexual orientation could be used as a significant predictor. Results suggested that intuitive control seemed to be stronger motivation for non-LGBT group than LGBT group. Although the finding was unexpected, it kept in line with previous results and existing literature. According to Ryan et al. (2006), intuitive control was positively linked to competence motivation. This research also found that non-LGBT group had stronger competence motivations for gaming than LGBT group. Therefore, non-LGBT group was more likely to be motivated by intuitive control than LGBT group.

5.1.4. Gender identities, intrinsic gaming motivations and gaming enjoyment

In the final motel to predict gaming enjoyment, gender was first found have significant influence. Different from Jansz et al.'s (2010) study, this research showed that females scored

lower enjoyment of playing video games than male players. It indicated males were more likely to gain pure pleasure or simply have fun in games, which might also possibly lead to continuant playing (Oliver et al., 2016). The predictive value of biological sex provided explaining the findings on the impact of gender identities. Not as expectation, positive femininity could not be used as a positive predictor of gaming enjoyment (H6a). However, negative femininity was found to have a negatively impact on the pure pleasure gained from video games. This exactly kept in line with the last finding of low gaming enjoyment among females. Although characteristics such as passionate and sensitive had a positive effect on gaming enjoyment (Fang, & Zhao, 2010), certain commons in femininity also had a hindering effect that prevent them away.

Different intrinsic gaming motivations also appeared to have an impact on the enjoyment as expected. As suggested by Oliver et al. (2016), gaming enjoyment could be regarded as a kind of consequence of playing video games, which referred to how players experience the gaming process and how their psychological needs are satisfied. The present study showed that both autonomy (H6ba) and relatedness (H6bb) can positively influence gaming enjoyment. This means that if individual game for personal interest or for social connection, they are more likely to enjoy the experience the video game and gain happiness from it.

5.2. Limitations and further research

With the help of thorough theoretical and methodological supports and guidelines, this research was able to be conducted with relatively high reliability and validity. However, this study still contains some limitations in several aspects that should be acknowledged.

Although plans were made in sampling and distribution of the questionnaire to avoid bias caused by lack of representativeness, the final sample still did not have enough diversity (Wright, 2005). By distributing the questionnaire on multiple social media platforms, the research managed to gain a total of 14 nationalities to reach internationality. However, since the survey was made in Chinese and English, it only accessed populations who speak Chinese or mater English, which lead to the result that 76% of the final sample was from China. As Wagner, Hansen & Kronberger (2014) suggested, different culture and language groups may

behave variously and attach different meanings semantically. A cultural bias was thus inevitable and need to be considered for its impact on the reliability and validity of the results. As for gender and sexual orientation, the sample failed to reach the expected proportion. Unexpectedly, the research had more female participants (56%) than male (38.8%). According to Babbie (2011), the sample could be biased because certain groups have more social skills and are more willing to respond to researches. The proportion of LGBT participants also did not meet the expected rate of 40%, because LGBT member were still merely a small portion of the gaming communities. Due to the short time span of the research, new participants could not be collected to make adjustment to the sample towards a higher reliability. This should be taken into consideration while looking into the results of this study.

Based on the presenting study, further studies could verify the findings using a larger and unbiased sample size. Scholars are encouraged to include the variable of sexual orientation for future game studies since it could possibly make a difference. Furthermore, this research only revealed what the fact is regarding sexual orientation and gender identity's influence on gaming motivation. Studies could also focus on the interpretive aspects and investigate the deeper reasons and understanding behind the phenomenon.

5.3. Scientific and social impact

Building on the theoretical model of PN-SRI and SDT, the present research confirmed the significant influence of gender identity on gaming motivation. The intrinsic motivation of autonomy was proved to be negatively impacted by negative femininity, while competence motivation and relatedness motivation and could use negative masculinity as significant predictor. Further, this study also showed that gaming enjoyment could be predicted by gender identity and intrinsic gaming motivations. Negative femininity, the motivation of autonomy and relatedness were the significant predictors for enjoyment.

This research also managed to prove that focuses on different sexual identities was necessary in gaming behavior and motivations by demonstrating significant differences between LGBT group and non-LGBT group. Even though no significance appeared on different gender identities, the presents study still found out that LGBT group had significant

higher gaming hour and was less likely to be motivated by competence. In the predictive model, sexual orientation could also be used as significant predictor of the intrinsic motivation of relatedness and contextual motivation of intuitive control.

Some of these findings confirmed the existing literature in game studies or other leisure studies, while some of the showing results did provide a new direction to understand the relation between the gender variables and motivations of video games. To answer the research question, the present study could be concluded that gender identity had noticeable influence on the self-determined gaming motivations, and further predicted gaming enjoyment as well. Besides, the differences between LGBT group and non-LGBT group also contributed to the predictive model and played an important role in the study of gaming motivations. To put it in different words: gender does not make a difference to game play motivations, it is the inside of individual that counts.

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Appendix A. Questionnaire

You are invited to participate in the research project conducted by Agnes at Erasmus University Rotterdam. This survey is part of a research project on the relations between personalities and online gaming experiences. We appreciate your contributions to our project!
The survey will take you **approximately 8 minutes**. Your information will totally be kept confidential. The data collected in this research will be **anonymous** be used under academic circumstances only. Once you keep on with the survey, it means you are informed are give us consent with this fact. If you have any further problem, please contact the email address: agneszhang.eshcc@gmail.com.

Your participation in this research study is **voluntary**. You are free to choose not to participate. Please make sure you are over 18 years old. If you agree to participate in this study, please click *Yes, I agree*. Thank you so much in advance.

- ○ Yes, I agree. (1)
- ○ No, I do not want to participate. (2)

Skip To: End of Survey If You are invited to participate in the research project conducted by Agnes at Erasmus Univers... = No, I do not want to participate.

Start of Block: Default Question Block

Intro The following questions ask about the characteristics of your personality. Please respond to each question using the scale below. For each question, select the number that reflects your situation the most.

On a scale from 1-5, to what extent do the following character traits describe your personality?

	1 (= not at all) (1)	2 (2)	3 (3)	4 (4)	5 (= totally describes me) (5)
Analytical (1)	○	○	○	○	○
Logical (2)	○	○	○	○	○
Objective (3)	○	○	○	○	○
Practical (4)	○	○	○	○	○
Rational (5)	○	○	○	○	○
Solution-focused (6)	○	○	○	○	○

On a scale from 1-5, to what extent do the following character traits describe your personality?

	1 (= not at all) (1)	2 (2)	3 (3)	4 (4)	5 (= totally describes me) (5)
Competitive (1)	○	○	○	○	○
Hasty (2)	○	○	○	○	○
Self-satisfied (3)	○	○	○	○	○
Sloppy (4)	○	○	○	○	○
Boastful (5)	○	○	○	○	○
Harsh (6)	○	○	○	○	○

On a scale from 1-5, to what extent do the following character traits describe your personality?

	1 (= not at all) (1)	2 (2)	3 (3)	4 (4)	5 (= totally describes me) (5)
Tender (1)	○	○	○	○	○
Loving (2)	○	○	○	○	○
Sensible (3)	○	○	○	○	○
Emotional (4)	○	○	○	○	○
Empathic (5)	○	○	○	○	○
Passionate (6)	○	○	○	○	○

On a scale from 1-5, to what extent do the following character traits describe your personality?

	1 (= not at all) (1)	2 (2)	3 (3)	4 (4)	5 (= totally describes me) (5)
Dependent (1)	○	○	○	○	○
Naive (2)	○	○	○	○	○
Humble (3)	○	○	○	○	○
Oversensitive (4)	○	○	○	○	○
Suspicious (5)	○	○	○	○	○
Self-doubting (6)	○	○	○	○	○

On average, how many hours a week have you spent on playing video games? (Please only use numbers)

_____

Which video game genre do you prefer to play? (Multiple answers allowed)

- Action/ adventure (1)
- Sports (2)
- Role-Playing Games (3)
- Strategy (4)
- Simulation (5)
- Puzzle (6)
- Shooter (7)
- Racing (8)
- Fighting (9)
- Multiplayer Online Battle Arena (MOBA) (10)
- Others (11)

The following part is questions about your own gaming experiences. Please choose on a scale between 1 (= totally agree) to 5 (= totally disagree) based on the extent you agree with the following statements.

	1 = totally agree (1)	2 (2)	3 (3)	4 (4)	5 = totally disagree (5)
I made my own decision to do things I want in games. (1)	○	○	○	○	○
I felt controlled and pressured to be a certain way while playing games. (2)	○	○	○	○	○
I did things in the game because they interested me. (3)	○	○	○	○	○

Please choose on a scale between 1 (= totally agree) to 5 (= totally disagree) based on the extent

you agree with the following statements.

	1 = totally agree (1)	2 (2)	3 (3)	4 (4)	5 = totally disagree (5)
I felt capable and accomplished when I have something done. (1)	○	○	○	○	○
I enjoyed the challenges I met in games. (2)	○	○	○	○	○
The game kept me on my toes but did not overwhelm me. (3)	○	○	○	○	○

Please choose on a scale between 1 (= totally agree) to 5 (= totally disagree) based on the extent you agree with the following statements.

	1 = totally agree (1)	2 (2)	3 (3)	4 (4)	5 = totally disagree (5)
I had great connections with other people in games. (1)	○	○	○	○	○
I valued the relationships with people I met in games. (2)	○	○	○	○	○
I found the relationships I formed in games fulfilling. (3)	○	○	○	○	○

Please choose on a scale between 1 (= totally agree) to 5 (= totally disagree) based on the extent

you agree with the following statements.

	1 = totally agree (1)	2 (2)	3 (3)	4 (4)	5 = totally disagree (5)
I experienced feelings as deeply in the game as I have in real life. (1)	○	○	○	○	○
When playing the game, I felt as if I am an important participant in the story. (2)	○	○	○	○	○

Please choose on a scale between 1 (= totally agree) to 5 (= totally disagree) based on the extent you agree with the following statements.

	1 = totally agree (1)	2 (2)	3 (3)	4 (4)	5 = totally disagree (5)
It was important for me that a game is easy to operate and control. (1)	○	○	○	○	○
The interface of a game would affect my gaming experience. (2)	○	○	○	○	○

Please choose on a scale between 1 (= totally agree) to 5 (= totally disagree) based on the extent

you agree with the following statements.

	1 = totally agree (1)	2 (2)	3 (3)	4 (4)	5 = totally disagree (5)
It was important to me that i have fun playing video games. (2)	○	○	○	○	○
Games that made me happy were among my favorites. (3)	○	○	○	○	○
I found playing video games entertaining. (4)	○	○	○	○	○

What is your gender?

- ○ Male (9)
- ○ Female (10)
- ○ Non-binary / third gender (11)
- ○ Prefer not to say (12)

Which one of the following best describes your sexual orientation?

- ○ Heterosexual (straight) (1)
- ○ Homosexual (gay) (2)
- ○ Bi-sexual (3)
- ○ Others (4)
- ○ Prefer not to say (5)

Do you have any close friend who is openly LGBT member?

- ○ No, I do not have any LGBT friend. (1)
- ○ Yes, I have close friend(s) who is LGBT. (2)

What is your year of birth? (Example: 1996)

_____

What is your nationality?

▼ Afghanistan (1) ... Zimbabwe (1357)

What is the highest level of education you have completed?

- ○ Some high school or less (1)
- ○ High school diploma or GED (2)
- ○ Some college, but no degree (3)
- ○ Associates or technical degree (4)
- ○ Bachelor's degree (5)
- ○ Graduate or professional degree (MA, MS, MBA, PhD, JD, MD, DDS) (6)

Appendix B. SPSS Output

Factor analysis and reliability test

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.816
Bartlett's Test of Sphericity	Approx. Chi-Square	2104.072
	df	276
	Sig.	.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	5.863	24.429	24.429	5.863	24.429	24.429	4.541
2	3.089	12.871	37.300	3.089	12.871	37.300	3.742
3	2.399	9.997	47.297	2.399	9.997	47.297	3.058
4	1.747	7.281	54.578	1.747	7.281	54.578	3.210
5	1.254	5.226	59.804				
6	.986	4.108	63.912				
7	.891	3.714	67.627				
8	.822	3.424	71.050				
9	.801	3.336	74.386				
10	.748	3.116	77.502				
11	.705	2.938	80.440				
12	.556	2.318	82.758				
13	.528	2.198	84.957				
14	.452	1.884	86.841				
15	.436	1.817	88.658				
16	.420	1.750	90.408				
17	.377	1.570	91.978				
18	.347	1.445	93.423				
19	.331	1.380	94.803				
20	.314	1.308	96.111				
21	.288	1.199	97.311				
22	.260	1.084	98.394				
23	.227	.946	99.340				
24	.158	.660	100.000				

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

Pattern Matrix[a]

	Component			
	1	2	3	4
On a scale from 1–5, to what extent do the following character traits describe your personality? – Logical	.814			
On a scale from 1–5, to what extent do the following character traits describe your personality? – Analytical	.784			
On a scale from 1–5, to what extent do the following character traits describe your personality? – Objective	.750			
On a scale from 1–5, to what extent do the following character traits describe your personality? – Rational	.747			
On a scale from 1–5, to what extent do the following character traits describe your personality? – Solution-focused	.626			
On a scale from 1–5, to what extent do the following character traits describe your personality? – Practical	.467	.310		
On a scale from 1–5, to what extent do the following character traits describe your personality? – Sloppy	-.400		.357	

On a scale from 1-5, to what extent do the following character traits describe your personality? - Loving		.834		
On a scale from 1-5, to what extent do the following character traits describe your personality? - Emotional		.732		
On a scale from 1-5, to what extent do the following character traits describe your personality? - Empathic		.716		
On a scale from 1-5, to what extent do the following character traits describe your personality? - Sensible		.679		
On a scale from 1-5, to what extent do the following character traits describe your personality? - Tender		.657		
On a scale from 1-5, to what extent do the following character traits describe your personality? - Passionate		.624		-.328
On a scale from 1-5, to what extent do the following character traits describe your personality? - Boastful			.819	
On a scale from 1-5, to what extent do the following character traits describe your personality? - Self-satisfied			.750	

On a scale from 1-5, to what extent do the following character traits describe your personality? - Competitive			.612	
On a scale from 1-5, to what extent do the following character traits describe your personality? - Harsh			.538	
On a scale from 1-5, to what extent do the following character traits describe your personality? - Hasty	-.319		.502	
On a scale from 1-5, to what extent do the following character traits describe your personality? - Oversensitive				.782
On a scale from 1-5, to what extent do the following character traits describe your personality? - Self-doubting				.731
On a scale from 1-5, to what extent do the following character traits describe your personality? - Suspicious				.622
On a scale from 1-5, to what extent do the following character traits describe your personality? - Dependent				.587
On a scale from 1-5, to what extent do the following character traits describe your personality? - Humble				.510
On a scale from 1-5, to what extent do the following character traits describe your personality? - Naive	-.308			.437

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 11 iterations.

Component Correlation Matrix

Component	1	2	3	4
1	1.000	.179	-.133	-.187
2	.179	1.000	-.106	-.040
3	-.133	-.106	1.000	.157
4	-.187	-.040	.157	1.000

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

Case Processing Summary

		N	%
Cases	Valid	209	100.0
	Excluded[a]	0	.0
	Total	209	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.853	6

Item Statistics

	Mean	Std. Deviation	N
On a scale from 1-5, to what extent do the following character traits describe your personality? - Analytical	3.61	.965	209
On a scale from 1-5, to what extent do the following character traits describe your personality? - Logical	3.60	1.015	209
On a scale from 1-5, to what extent do the following character traits describe your personality? - Objective	3.45	.980	209
On a scale from 1-5, to what extent do the following character traits describe your personality? - Practical	3.54	1.056	209
On a scale from 1-5, to what extent do the following character traits describe your personality? - Rational	3.46	1.005	209
On a scale from 1-5, to what extent do the following character traits describe your personality? - Solution-focused	3.59	1.057	209

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
On a scale from 1-5, to what extent do the following character traits describe your personality? - Analytical	17.65	15.566	.629	.830
On a scale from 1-5, to what extent do the following character traits describe your personality? - Logical	17.66	14.745	.707	.815
On a scale from 1-5, to what extent do the following character traits describe your personality? - Objective	17.81	15.300	.656	.825
On a scale from 1-5, to what extent do the following character traits describe your personality? - Practical	17.72	15.761	.526	.850
On a scale from 1-5, to what extent do the following character traits describe your personality? - Rational	17.79	14.876	.697	.817
On a scale from 1-5, to what extent do the following character traits describe your personality? - Solution-focused	17.67	15.070	.622	.831

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
21.26	21.289	4.614	6

Case Processing Summary

		N	%
Cases	Valid	209	100.0
	Excluded[a]	0	.0
	Total	209	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.720	6

Item Statistics

	Mean	Std. Deviation	N
On a scale from 1-5, to what extent do the following character traits describe your personality? - Competitive	3.09	1.211	209
On a scale from 1-5, to what extent do the following character traits describe your personality? - Hasty	2.60	.996	209
On a scale from 1-5, to what extent do the following character traits describe your personality? - Self-satisfied	2.30	1.041	209
On a scale from 1-5, to what extent do the following character traits describe your personality? - Sloppy	2.92	1.124	209
On a scale from 1-5, to what extent do the following character traits describe your personality? - Boastful	2.26	1.096	209
On a scale from 1-5, to what extent do the following character traits describe your personality? - Harsh	2.53	1.225	209

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
On a scale from 1-5, to what extent do the following character traits describe your personality? - Competitive	12.61	13.797	.388	.703
On a scale from 1-5, to what extent do the following character traits describe your personality? - Hasty	13.10	14.033	.501	.669
On a scale from 1-5, to what extent do the following character traits describe your personality? - Self-satisfied	13.40	13.434	.556	.652
On a scale from 1-5, to what extent do the following character traits describe your personality? - Sloppy	12.78	14.483	.352	.711
On a scale from 1-5, to what extent do the following character traits describe your personality? - Boastful	13.44	12.786	.609	.633
On a scale from 1-5, to what extent do the following character traits describe your personality? - Harsh	13.17	14.015	.354	.714

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
15.70	18.760	4.331	6

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	209	100.0
	Excluded[a]	0	.0
	Total	209	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.827	6

Item Statistics

	Mean	Std. Deviation	N
On a scale from 1-5, to what extent do the following character traits describe your personality? - Tender	3.43	1.054	209
On a scale from 1-5, to what extent do the following character traits describe your personality? - Loving	3.75	1.072	209
On a scale from 1-5, to what extent do the following character traits describe your personality? - Sensible	3.81	.900	209
On a scale from 1-5, to what extent do the following character traits describe your personality? - Emotional	3.60	1.052	209
On a scale from 1-5, to what extent do the following character traits describe your personality? - Empathic	3.94	.966	209
On a scale from 1-5, to what extent do the following character traits describe your personality? - Passionate	3.47	1.156	209

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
On a scale from 1-5, to what extent do the following character traits describe your personality? - Tender	18.57	14.996	.565	.805
On a scale from 1-5, to what extent do the following character traits describe your personality? - Loving	18.24	13.868	.714	.773
On a scale from 1-5, to what extent do the following character traits describe your personality? - Sensible	18.19	15.258	.661	.788
On a scale from 1-5, to what extent do the following character traits describe your personality? - Emotional	18.39	14.970	.570	.804
On a scale from 1-5, to what extent do the following character traits describe your personality? - Empathic	18.06	14.660	.692	.780
On a scale from 1-5, to what extent do the following character traits describe your personality? - Passionate	18.53	15.558	.419	.840

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
22.00	20.716	4.552	6

Case Processing Summary

		N	%
Cases	Valid	209	100.0
	Excluded[a]	0	.0
	Total	209	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.767	6

Item Statistics

	Mean	Std. Deviation	N
On a scale from 1-5, to what extent do the following character traits describe your personality? - Dependent	2.98	1.187	209
On a scale from 1-5, to what extent do the following character traits describe your personality? - Naive	2.60	1.181	209
On a scale from 1-5, to what extent do the following character traits describe your personality? - Humble	3.36	.996	209
On a scale from 1-5, to what extent do the following character traits describe your personality? - Oversensitive	3.17	1.278	209
On a scale from 1-5, to what extent do the following character traits describe your personality? - Suspicious	2.99	1.242	209
On a scale from 1-5, to what extent do the following character traits describe your personality? - Self-doubting	3.22	1.263	209

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
On a scale from 1-5, to what extent do the following character traits describe your personality? - Dependent	15.34	17.054	.541	.725
On a scale from 1-5, to what extent do the following character traits describe your personality? - Naive	15.72	17.502	.493	.738
On a scale from 1-5, to what extent do the following character traits describe your personality? - Humble	14.96	20.609	.240	.791
On a scale from 1-5, to what extent do the following character traits describe your personality? - Oversensitive	15.15	15.146	.702	.678
On a scale from 1-5, to what extent do the following character traits describe your personality? - Suspicious	15.33	16.743	.539	.726
On a scale from 1-5, to what extent do the following character traits describe your personality? - Self-doubting	15.10	16.581	.543	.724

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
18.32	23.767	4.875	6

activate

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.723
Bartlett's Test of Sphericity	Approx. Chi-Square	915.126
	df	36
	Sig.	.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	3.383	37.587	37.587	3.383	37.587	37.587	2.648
2	1.863	20.695	58.281	1.863	20.695	58.281	2.734
3	1.512	16.798	75.079	1.512	16.798	75.079	1.924
4	.773	8.587	83.666				
5	.410	4.552	88.218				
6	.364	4.042	92.259				
7	.302	3.359	95.618				
8	.266	2.959	98.577				
9	.128	1.423	100.000				

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

Pattern Matrix[a]

	Component		
	1	2	3
- I enjoyed the challenges I met in games.	.869		
- The game kept me on my toes but did not overwhelm me.	.855		
- I felt capable and accomplished when I have something done.	.831		
- I valued the relationships with people I met in games.		-.949	
- I found the relationships I formed in games fulfilling.		-.944	
- I had great connections with other people in games.		-.842	
- I did things in the game because they interested me.			-.804
- I made my own decision to do things I want in games.			-.778
- I felt controlled and pressured to be a certain way while playing games.			.680

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 6 iterations.

Component Correlation Matrix

Component	1	2	3
1	1.000	-.243	-.134
2	-.243	1.000	.121
3	-.134	.121	1.000

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	209	100.0
	Excluded[a]	0	.0
	Total	209	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.180	3

Item Statistics

	Mean	Std. Deviation	N
- I made my own decision to do things I want in games.	3.60	1.334	209
- I did things in the game because they interested me.	3.48	1.297	209
- I felt controlled and pressured to be a certain way while playing games.	3.04	1.220	209

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
- I made my own decision to do things I want in games.	6.52	2.280	.389	-.783[a]
- I did things in the game because they interested me.	6.64	2.558	.333	-.555[a]
- I felt controlled and pressured to be a certain way while playing games.	7.08	5.739	-.274	.793

a. The value is negative due to a negative average covariance among items. This violates reliability model assumptions. You may want to check item codings.

Case Processing Summary

		N	%
Cases	Valid	209	100.0
	Excluded[a]	0	.0
	Total	209	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.845	3

Item Statistics

	Mean	Std. Deviation	N
- I felt capable and accomplished when I have something done.	3.52	1.366	209
- I enjoyed the challenges I met in games.	3.30	1.240	209
- The game kept me on my toes but did not overwhelm me.	3.49	1.286	209

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
- I felt capable and accomplished when I have something done.	6.78	5.247	.715	.783
- I enjoyed the challenges I met in games.	7.00	5.889	.692	.804
- The game kept me on my toes but did not overwhelm me.	6.81	5.508	.733	.764

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
10.30	11.587	3.404	3

Case Processing Summary

		N	%
Cases	Valid	209	100.0
	Excluded[a]	0	.0
	Total	209	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.901	3

Item Statistics

	Mean	Std. Deviation	N
- I had great connections with other people in games.	3.06	1.384	209
- I valued the relationships with people I met in games.	3.02	1.381	209
- I found the relationships I formed in games fulfilling.	2.95	1.382	209

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
- I had great connections with other people in games.	5.98	7.091	.726	.923
- I valued the relationships with people I met in games.	6.01	6.408	.863	.806
- I found the relationships I formed in games fulfilling.	6.09	6.589	.825	.840

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
9.04	14.354	3.789	3

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.493
Bartlett's Test of Sphericity	Approx. Chi-Square	165.568
	df	6
	Sig.	.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings[a]
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	1.722	43.039	43.039	1.722	43.039	43.039	1.607
2	1.403	35.067	78.106	1.403	35.067	78.106	1.545
3	.518	12.959	91.065				
4	.357	8.935	100.000				

Extraction Method: Principal Component Analysis.

a. When components are correlated, sums of squared loadings cannot be added to obtain a total variance.

Pattern Matrix[a]

	Component	
	1	2
- I experienced feelings as deeply in the game as I have in real life.	.910	
- When playing the game, I felt as if I am an important participant in the story.	.873	
- The interface of a game would affect my gaming experience.		.864
- It was important for me that a game is easy to operate and control.		.859

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 5 iterations.

Case Processing Summary

		N	%
Cases	Valid	209	100.0
	Excluded[a]	0	.0
	Total	209	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.744	2

Item Statistics

	Mean	Std. Deviation	N
- I experienced feelings as deeply in the game as I have in real life.	2.78	1.297	209
- When playing the game, I felt as if I am an important participant in the story.	3.07	1.252	209

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
- I experienced feelings as deeply in the game as I have in real life.	3.07	1.567	.593	.
- When playing the game, I felt as if I am an important participant in the story.	2.78	1.682	.593	.

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
5.85	5.175	2.275	2

Case Processing Summary

		N	%
Cases	Valid	209	100.0
	Excluded[a]	0	.0
	Total	209	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.663	2

Item Statistics

	Mean	Std. Deviation	N
- It was important for me that a game is easy to operate and control.	3.58	1.218	209
- The interface of a game would affect my gaming experience.	3.95	1.229	209

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
- It was important for me that a game is easy to operate and control.	3.95	1.512	.496	.
- The interface of a game would affect my gaming experience.	3.58	1.485	.496	.

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
7.53	4.481	2.117	2

Case Processing Summary

		N	%
Cases	Valid	209	100.0
	Excluded[a]	0	.0
	Total	209	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.852	3

Item Statistics

	Mean	Std. Deviation	N
- It was important to me that i have fun playing video games.	4.06	1.129	209
- Games that made me happy were among my favorites.	3.86	1.211	209
- I found playing video games entertaining.	3.77	1.090	209

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
- It was important to me that i have fun playing video games.	7.63	4.215	.776	.741
- Games that made me happy were among my favorites.	7.83	4.134	.709	.808
- I found playing video games entertaining.	7.92	4.671	.686	.826

Scale Statistics

Mean	Variance	Std. Deviation	N of Items
11.69	9.090	3.015	3

T-test

Group Statistics

	LGBT	N	Mean	Std. Deviation	Std. Error Mean
Positive_masculinity_mean	Non-LGBT	131	3.6272	.69701	.06090
	LGBT group	67	3.4751	.87917	.10741
Negative_masculinity_mean	Non-LGBT	131	2.6323	.64838	.05665
	LGBT group	67	2.6144	.87483	.10688
Positive_femininity_mean	Non-LGBT	131	3.7506	.65645	.05735
	LGBT group	67	3.5448	.91820	.11218
Negative_Femininity_mean	Non-LGBT	131	3.0216	.74776	.06533
	LGBT group	67	3.0821	.95274	.11640
autonomy	Non-LGBT	131	3.5305	1.16149	.10148
	LGBT group	67	3.5522	1.28256	.15669
relatedness	Non-LGBT	131	2.8957	1.25138	.10933
	LGBT group	67	3.1891	1.26627	.15470
competence	Non-LGBT	131	3.5674	.97988	.08561
	LGBT group	67	3.1791	1.41103	.17238
On average, how many hours a week have you spent on playing video games? (Please only use numbers)	Non-LGBT	131	10.08	11.485	1.003
	LGBT group	67	13.90	14.045	1.716

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Positive_masculinity_mean	Equal variances assumed	2.809	.095	1.327	196	.186	.15210	.11463
	Equal variances not assumed			1.232	109.509	.221	.15210	.12347
Negative_masculinity_mean	Equal variances assumed	10.816	.001	.163	196	.871	.01789	.11002
	Equal variances not assumed			.148	104.121	.883	.01789	.12096
Positive_femininity_mean	Equal variances assumed	9.709	.002	1.816	196	.071	.20586	.11337
	Equal variances not assumed			1.634	101.496	.105	.20586	.12599
Negative_Femininity_mean	Equal variances assumed	10.598	.001	-.489	196	.625	-.06046	.12354
	Equal variances not assumed			-.453	108.661	.651	-.06046	.13348
autonomy	Equal variances assumed	3.110	.079	-.120	196	.905	-.02170	.18078
	Equal variances not assumed			-.116	122.075	.908	-.02170	.18668
relatedness	Equal variances assumed	.002	.962	-1.555	196	.122	-.29338	.18871
	Equal variances not assumed			-1.549	131.716	.124	-.29338	.18944
competence	Equal variances assumed	27.429	.000	2.261	196	.025	.38833	.17173
	Equal variances not assumed			2.018	99.499	.046	.38833	.19247
On average, how many hours a week have you spent on playing video games? (Please only use numbers)	Equal variances assumed	1.926	.167	-2.050	196	.042	-3.819	1.863
	Equal variances not assumed			-1.921	112.201	.057	-3.819	1.988

Regression

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.101[a]	.010	.005	1.19666	.010	1.915	1	187	.168
2	.159[b]	.025	.009	1.19393	.015	1.428	2	185	.242
3	.324[c]	.105	.070	1.15663	.080	4.031	4	181	.004

a. Predictors: (Constant), gender2

b. Predictors: (Constant), gender2, Do you have any close friend who is openly LGBT member?, LGBT

c. Predictors: (Constant), gender2, Do you have any close friend who is openly LGBT member?, LGBT, Negative_Femininity_mean, Positive_femininity_mean, Negative_masculinity_mean, Positive_masculinity_mean

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.743	1	2.743	1.915	.168[b]
	Residual	267.784	187	1.432		
	Total	270.526	188			
2	Regression	6.815	3	2.272	1.594	.192[c]
	Residual	263.711	185	1.425		
	Total	270.526	188			
3	Regression	28.386	7	4.055	3.031	.005[d]
	Residual	242.140	181	1.338		
	Total	270.526	188			

a. Dependent Variable: autonomy

b. Predictors: (Constant), gender2

c. Predictors: (Constant), gender2, Do you have any close friend who is openly LGBT member?, LGBT

d. Predictors: (Constant), gender2, Do you have any close friend who is openly LGBT member?, LGBT, Negative_Femininity_mean, Positive_femininity_mean, Negative_masculinity_mean, Positive_masculinity_mean

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.919	.291		13.462	.000
	gender2	-.244	.176	-.101	-1.384	.168
2	(Constant)	3.706	.485		7.638	.000
	gender2	-.335	.190	-.138	-1.761	.080
	LGBT	-.195	.214	-.076	-.911	.364
	Do you have any close friend who is openly LGBT member?	.356	.213	.134	1.672	.096
3	(Constant)	4.793	.952		5.036	.000
	gender2	-.296	.197	-.122	-1.506	.134
	LGBT	-.142	.215	-.056	-.660	.510
	Do you have any close friend who is openly LGBT member?	.372	.211	.140	1.760	.080
	Positive_masculinity_mean	-.074	.132	-.047	-.560	.576
	Negative_masculinity_mean	-.015	.140	-.009	-.105	.917
	Positive_femininity_mean	.091	.126	.058	.726	.469
	Negative_Femininity_mean	-.421	.120	-.288	-3.507	.001

a. Dependent Variable: autonomy

Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics Tolerance
1	LGBT	-.019[b]	-.246	.806	-.018	.909
	Do you have any close friend who is openly LGBT member?	.104[b]	1.425	.156	.104	.988
	Positive_masculinity_mean	.087[b]	1.186	.237	.087	.984
	Negative_masculinity_mean	-.111[b]	-1.510	.133	-.110	.967
	Positive_femininity_mean	.070[b]	.957	.340	.070	.992
	Negative_Femininity_mean	-.274[b]	-3.899	.000	-.275	.994
2	Positive_masculinity_mean	.082[c]	1.105	.271	.081	.959
	Negative_masculinity_mean	-.135[c]	-1.811	.072	-.132	.941
	Positive_femininity_mean	.057[c]	.769	.443	.057	.969
	Negative_Femininity_mean	-.278[c]	-3.958	.000	-.280	.986

a. Dependent Variable: autonomy

b. Predictors in the Model: (Constant), gender2

c. Predictors in the Model: (Constant), gender2, Do you have any close friend who is openly LGBT member?, LGBT

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			
					R Square Change	F Change	df1	df2	Sig. F Change
1	.098[a]	.010	.004	1.16049	.010	1.815	1	187	.180
2	.207[b]	.043	.028	1.14689	.033	3.231	2	185	.042
3	.424[c]	.179	.148	1.07369	.136	7.521	4	181	.000

a. Predictors: (Constant), gender2

b. Predictors: (Constant), gender2, Do you have any close friend who is openly LGBT member?, LGBT

c. Predictors: (Constant), gender2, Do you have any close friend who is openly LGBT member?, LGBT, Negative_Femininity_mean, Positive_femininity_mean, Negative_masculinity_mean, Positive_masculinity_mean

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.444	1	2.444	1.815	.180[b]
	Residual	251.842	187	1.347		
	Total	254.286	188			
2	Regression	10.944	3	3.648	2.773	.043[c]
	Residual	243.341	185	1.315		
	Total	254.286	188			
3	Regression	45.627	7	6.518	5.654	.000[d]
	Residual	208.659	181	1.153		
	Total	254.286	188			

a. Dependent Variable: competence

b. Predictors: (Constant), gender2

c. Predictors: (Constant), gender2, Do you have any close friend who is openly LGBT member?, LGBT

d. Predictors: (Constant), gender2, Do you have any close friend who is openly LGBT member?, LGBT, Negative_Femininity_mean, Positive_femininity_mean, Negative_masculinity_mean, Positive_masculinity_mean

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.066	.282		10.860	.000
	gender2	.230	.171	.098	1.347	.180
2	(Constant)	4.015	.466		8.612	.000
	gender2	.156	.183	.067	.856	.393
	LGBT	-.337	.205	-.136	-1.641	.103
	Do you have any close friend who is openly LGBT member?	-.225	.205	-.087	-1.099	.273
3	(Constant)	4.006	.883		4.535	.000
	gender2	.257	.183	.109	1.405	.162
	LGBT	-.346	.200	-.139	-1.731	.085
	Do you have any close friend who is openly LGBT member?	-.295	.196	-.114	-1.503	.135
	Positive_masculinity_mean	-.176	.122	-.116	-1.436	.153
	Negative_masculinity_mean	.429	.130	.264	3.311	.001
	Positive_femininity_mean	-.163	.117	-.107	-1.394	.165
	Negative_Femininity_mean	.025	.112	.018	.228	.820

a. Dependent Variable: competence

Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics Tolerance
1	LGBT	-.173[b]	-2.291	.023	-.166	.909
	Do you have any close friend who is openly LGBT member?	-.140[b]	-1.933	.055	-.140	.988
	Positive_masculinity_mean	-.217[b]	-3.017	.003	-.216	.984
	Negative_masculinity_mean	.325[b]	4.626	.000	.321	.967
	Positive_femininity_mean	-.204[b]	-2.838	.005	-.204	.992
	Negative_Femininity_mean	.157[b]	2.171	.031	.157	.994
2	Positive_masculinity_mean	-.246[c]	-3.446	.001	-.246	.959
	Negative_masculinity_mean	.335[c]	4.779	.000	.332	.941
	Positive_femininity_mean	-.220[c]	-3.075	.002	-.221	.969
	Negative_Femininity_mean	.174[c]	2.431	.016	.176	.986

a. Dependent Variable: competence

b. Predictors in the Model: (Constant), gender2

c. Predictors in the Model: (Constant), gender2, Do you have any close friend who is openly LGBT member?, LGBT

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics: R Square Change	F Change	df1	df2	Sig. F Change
1	.113[a]	.013	.007	1.24407	.013	2.399	1	187	.123
2	.180[b]	.033	.017	1.23811	.020	1.902	2	185	.152
3	.344[c]	.118	.084	1.19512	.086	4.387	4	181	.002

a. Predictors: (Constant), gender2

b. Predictors: (Constant), gender2, Do you have any close friend who is openly LGBT member?, LGBT

c. Predictors: (Constant), gender2, Do you have any close friend who is openly LGBT member?, LGBT, Negative_Femininity_mean, Positive_femininity_mean, Negative_masculinity_mean, Positive_masculinity_mean

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.713	1	3.713	2.399	.123[b]
	Residual	289.421	187	1.548		
	Total	293.133	188			
2	Regression	9.543	3	3.181	2.075	.105[c]
	Residual	283.590	185	1.533		
	Total	293.133	188			
3	Regression	34.609	7	4.944	3.462	.002[d]
	Residual	258.525	181	1.428		
	Total	293.133	188			

a. Dependent Variable: relatedness

b. Predictors: (Constant), gender2

c. Predictors: (Constant), gender2, Do you have any close friend who is openly LGBT member?, LGBT

d. Predictors: (Constant), gender2, Do you have any close friend who is openly LGBT member?, LGBT, Negative_Femininity_mean, Positive_femininity_mean, Negative_masculinity_mean, Positive_masculinity_mean

Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	3.488	.303		11.525	.000
	gender2	-.284	.183	-.113	-1.549	.123
2	(Constant)	3.065	.503		6.092	.000
	gender2	-.139	.197	-.055	-.708	.480
	LGBT	.430	.221	.161	1.939	.054
	Do you have any close friend who is openly LGBT member?	-.217	.221	-.078	-.981	.328
3	(Constant)	3.421	.983		3.479	.001
	gender2	-.019	.203	-.008	-.094	.925
	LGBT	.438	.222	.164	1.970	.050
	Do you have any close friend who is openly LGBT member?	-.273	.218	-.098	-1.249	.213
	Positive_masculinity_mean	-.157	.136	-.096	-1.149	.252
	Negative_masculinity_mean	.403	.144	.231	2.794	.006
	Positive_femininity_mean	-.164	.130	-.100	-1.261	.209
	Negative_Femininity_mean	-.120	.124	-.079	-.963	.337

a. Dependent Variable: relatedness

Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics Tolerance
1	LGBT	.128[b]	1.686	.094	.123	.909
	Do you have any close friend who is openly LGBT member?	-.015[b]	-.203	.839	-.015	.988
	Positive_masculinity_mean	-.196[b]	-2.720	.007	-.196	.984
	Negative_masculinity_mean	.226[b]	3.135	.002	.224	.967
	Positive_femininity_mean	-.209[b]	-2.917	.004	-.209	.992
	Negative_Femininity_mean	.064[b]	.872	.384	.064	.994
2	Positive_masculinity_mean	-.179[c]	-2.455	.015	-.178	.959
	Negative_masculinity_mean	.252[c]	3.482	.001	.249	.941
	Positive_femininity_mean	-.192[c]	-2.653	.009	-.192	.969
	Negative_Femininity_mean	.056[c]	.772	.441	.057	.986

a. Dependent Variable: relatedness

b. Predictors in the Model: (Constant), gender2

c. Predictors in the Model: (Constant), gender2, Do you have any close friend who is openly LGBT member?, LGBT

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.000[a]	.000	-.005	1.13243	.000	.000	1	187	.998
2	.032[b]	.001	-.015	1.13795	.001	.095	2	185	.909
3	.100[c]	.010	-.028	1.14530	.009	.409	4	181	.802

a. Predictors: (Constant), gender2

b. Predictors: (Constant), gender2, Do you have any close friend who is openly LGBT member?, LGBT

c. Predictors: (Constant), gender2, Do you have any close friend who is openly LGBT member?, LGBT, Negative_Femininity_mean, Positive_femininity_mean, Negative_masculinity_mean, Positive_masculinity_mean

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.000	1	.000	.000	.998[b]
	Residual	239.810	187	1.282		
	Total	239.810	188			
2	Regression	.247	3	.082	.063	.979[c]
	Residual	239.563	185	1.295		
	Total	239.810	188			
3	Regression	2.390	7	.341	.260	.968[d]
	Residual	237.419	181	1.312		
	Total	239.810	188			

a. Dependent Variable: presence

b. Predictors: (Constant), gender2

c. Predictors: (Constant), gender2, Do you have any close friend who is openly LGBT member?, LGBT

d. Predictors: (Constant), gender2, Do you have any close friend who is openly LGBT member?, LGBT, Negative_Femininity_mean, Positive_femininity_mean, Negative_masculinity_mean, Positive_masculinity_mean

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.912	.275		10.571	.000
	gender2	.000	.167	.000	.002	.998
2	(Constant)	2.970	.462		6.422	.000
	gender2	.022	.181	.010	.121	.904
	LGBT	.045	.204	.019	.221	.825
	Do you have any close friend who is openly LGBT member?	-.088	.203	-.035	-.434	.665
3	(Constant)	3.119	.942		3.310	.001
	gender2	.054	.195	.024	.278	.781
	LGBT	.080	.213	.033	.376	.707
	Do you have any close friend who is openly LGBT member?	-.108	.209	-.043	-.516	.607
	Positive_masculinity_mean	-.056	.131	-.038	-.431	.667
	Negative_masculinity_mean	.078	.138	.049	.563	.574
	Positive_femininity_mean	.063	.125	.042	.503	.616
	Negative_Femininity_mean	-.148	.119	-.107	-1.242	.216

a. Dependent Variable: presence

Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics Tolerance
1	LGBT	.004[b]	.047	.962	.003	.909
	Do you have any close friend who is openly LGBT member?	-.028[b]	-.377	.706	-.028	.988
	Positive_masculinity_mean	.000[b]	.005	.996	.000	.984
	Negative_masculinity_mean	-.002[b]	-.023	.982	-.002	.967
	Positive_femininity_mean	.016[b]	.223	.824	.016	.992
	Negative_Femininity_mean	-.076[b]	-1.033	.303	-.076	.994
2	Positive_masculinity_mean	.002[c]	.028	.978	.002	.959
	Negative_masculinity_mean	.003[c]	.046	.964	.003	.941
	Positive_femininity_mean	.021[c]	.274	.784	.020	.969
	Negative_Femininity_mean	-.076[c]	-1.023	.307	-.075	.986

a. Dependent Variable: presence

b. Predictors in the Model: (Constant), gender2

c. Predictors in the Model: (Constant), gender2, Do you have any close friend who is openly LGBT member?, LGBT

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics: R Square Change	F Change	df1	df2	Sig. F Change
1	.152[a]	.023	.018	1.05167	.023	4.403	1	187	.037
2	.251[b]	.063	.048	1.03542	.040	3.958	2	185	.021
3	.310[c]	.096	.061	1.02827	.033	1.645	4	181	.165

a. Predictors: (Constant), gender2

b. Predictors: (Constant), gender2, Do you have any close friend who is openly LGBT member?, LGBT

c. Predictors: (Constant), gender2, Do you have any close friend who is openly LGBT member?, LGBT, Negative_Femininity_mean, Positive_femininity_mean, Negative_masculinity_mean, Positive_masculinity_mean

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	4.870	1	4.870	4.403	.037[b]
	Residual	206.823	187	1.106		
	Total	211.693	188			
2	Regression	13.357	3	4.452	4.153	.007[c]
	Residual	198.336	185	1.072		
	Total	211.693	188			
3	Regression	20.315	7	2.902	2.745	.010[d]
	Residual	191.378	181	1.057		
	Total	211.693	188			

a. Dependent Variable: intuitive_control

b. Predictors: (Constant), gender2

c. Predictors: (Constant), gender2, Do you have any close friend who is openly LGBT member?, LGBT

d. Predictors: (Constant), gender2, Do you have any close friend who is openly LGBT member?, LGBT, Negative_Femininity_mean, Positive_femininity_mean, Negative_masculinity_mean, Positive_masculinity_mean

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.213	.256		12.558	.000
	gender2	.325	.155	.152	2.098	.037
2	(Constant)	3.524	.421		8.374	.000
	gender2	.149	.165	.070	.904	.367
	LGBT	-.492	.185	-.217	-2.654	.009
	Do you have any close friend who is openly LGBT member?	.359	.185	.152	1.939	.054
3	(Constant)	3.492	.846		4.128	.000
	gender2	.113	.175	.053	.645	.520
	LGBT	-.475	.191	-.210	-2.482	.014
	Do you have any close friend who is openly LGBT member?	.309	.188	.131	1.644	.102
	Positive_masculinity_mean	-.230	.117	-.167	-1.963	.051
	Negative_masculinity_mean	.097	.124	.065	.778	.438
	Positive_femininity_mean	.219	.112	.158	1.962	.051
	Negative_Femininity_mean	-.029	.107	-.023	-.273	.785

a. Dependent Variable: intuitive_control

Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
						Tolerance
1	LGBT	-.152[b]	-2.024	.044	-.147	.909
	Do you have any close friend who is openly LGBT member?	.067[b]	.919	.359	.067	.988
	Positive_masculinity_mean	-.084[b]	-1.157	.249	-.085	.984
	Negative_masculinity_mean	.095[b]	1.302	.195	.095	.967
	Positive_femininity_mean	.105[b]	1.457	.147	.106	.992
	Negative_Femininity_mean	.046[b]	.634	.527	.046	.994
2	Positive_masculinity_mean	-.115[c]	-1.587	.114	-.116	.959
	Negative_masculinity_mean	.067[c]	.906	.366	.067	.941
	Positive_femininity_mean	.076[c]	1.056	.292	.078	.969
	Negative_Femininity_mean	.054[c]	.755	.451	.056	.986

a. Dependent Variable: intuitive_control

b. Predictors in the Model: (Constant), gender2

c. Predictors in the Model: (Constant), gender2, Do you have any close friend who is openly LGBT member?, LGBT

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.111[a]	.012	.007	1.00163	.012	2.343	1	187	.128
2	.149[b]	.022	.006	1.00205	.010	.922	2	185	.399
3	.257[c]	.066	.030	.99007	.044	2.126	4	181	.079
4	.629[d]	.396	.362	.80275	.330	32.445	3	178	.000

a. Predictors: (Constant), gender2

b. Predictors: (Constant), gender2, Do you have any close friend who is openly LGBT member?, LGBT

c. Predictors: (Constant), gender2, Do you have any close friend who is openly LGBT member?, LGBT, Negative_Femininity_mean, Positive_femininity_mean, Negative_masculinity_mean, Positive_masculinity_mean

d. Predictors: (Constant), gender2, Do you have any close friend who is openly LGBT member?, LGBT, Negative_Femininity_mean, Positive_femininity_mean, Negative_masculinity_mean, Positive_masculinity_mean, autonomy, relatedness, competence

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2.351	1	2.351	2.343	.128[b]
	Residual	187.612	187	1.003		
	Total	189.962	188			
2	Regression	4.203	3	1.401	1.395	.246[c]
	Residual	185.759	185	1.004		
	Total	189.962	188			
3	Regression	12.537	7	1.791	1.827	.084[d]
	Residual	177.425	181	.980		
	Total	189.962	188			
4	Regression	75.259	10	7.526	11.679	.000[e]
	Residual	114.703	178	.644		
	Total	189.962	188			

a. Dependent Variable: entertainment

b. Predictors: (Constant), gender2

c. Predictors: (Constant), gender2, Do you have any close friend who is openly LGBT member?, LGBT

d. Predictors: (Constant), gender2, Do you have any close friend who is openly LGBT member?, LGBT, Negative_Femininity_mean, Positive_femininity_mean, Negative_masculinity_mean, Positive_masculinity_mean

e. Predictors: (Constant), gender2, Do you have any close friend who is openly LGBT member?, LGBT, Negative_Femininity_mean, Positive_femininity_mean, Negative_masculinity_mean, Positive_masculinity_mean, autonomy, relatedness, competence

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	4.247	.244		17.429	.000
	gender2	-.226	.147	-.111	-1.531	.128
2	(Constant)	4.197	.407		10.306	.000
	gender2	-.297	.160	-.147	-1.865	.064
	LGBT	-.172	.179	-.080	-.961	.338
	Do you have any close friend who is openly LGBT member?	.227	.179	.102	1.269	.206
3	(Constant)	5.094	.815		6.253	.000
	gender2	-.277	.168	-.137	-1.646	.101
	LGBT	-.147	.184	-.069	-.798	.426
	Do you have any close friend who is openly LGBT member?	.213	.181	.095	1.174	.242
	Positive_masculinity_mean	-.194	.113	-.148	-1.720	.087
	Negative_masculinity_mean	.098	.120	.069	.816	.415
	Positive_femininity_mean	.097	.108	.074	.903	.368
	Negative_Femininity_mean	-.284	.103	-.231	-2.757	.006
4	(Constant)	2.448	.722		3.393	.001
	gender2	-.334	.140	-.165	-2.396	.018
	LGBT	.003	.153	.002	.023	.982
	Do you have any close friend who is openly LGBT member?	.286	.151	.128	1.889	.061
	Positive_masculinity_mean	-.101	.092	-.077	-1.093	.276
	Negative_masculinity_mean	-.098	.102	-.070	-.964	.336
	Positive_femininity_mean	.158	.089	.120	1.777	.077
	Negative_Femininity_mean	-.218	.087	-.178	-2.497	.013
	autonomy	.169	.059	.202	2.863	.005
	relatedness	.044	.052	.054	.837	.404
	competence	.421	.064	.487	6.554	.000

a. Dependent Variable: entertainment

Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics Tolerance
1	LGBT	-.037[b]	-.483	.630	-.035	.909
	Do you have any close friend who is openly LGBT member?	.070[b]	.960	.338	.070	.988
	Positive_masculinity_mean	-.047[b]	-.638	.524	-.047	.984
	Negative_masculinity_mean	.012[b]	.164	.870	.012	.967
	Positive_femininity_mean	.023[b]	.315	.753	.023	.992
	Negative_Femininity_mean	-.154[b]	-2.131	.034	-.154	.994
	autonomy	.452[b]	6.927	.000	.453	.990
	relatedness	.213[b]	2.968	.003	.213	.987
	competence	.499[b]	7.865	.000	.500	.990
2	Positive_masculinity_mean	-.057[c]	-.768	.444	-.057	.959
	Negative_masculinity_mean	-.004[c]	-.059	.953	-.004	.941
	Positive_femininity_mean	.010[c]	.131	.896	.010	.969
	Negative_Femininity_mean	-.155[c]	-2.135	.034	-.155	.986
	autonomy	.447[c]	6.769	.000	.446	.975
	relatedness	.228[c]	3.162	.002	.227	.967
	competence	.518[c]	8.091	.000	.512	.957
3	autonomy	.434[d]	6.302	.000	.425	.895
	relatedness	.233[d]	3.118	.002	.226	.882
	competence	.602[d]	9.171	.000	.564	.821

a. Dependent Variable: entertainment

b. Predictors in the Model: (Constant), gender2

c. Predictors in the Model: (Constant), gender2, Do you have any close friend who is openly LGBT member?, LGBT