Manchester
Metropolitan
University

Gaming addiction, motivation, and identity: investigating the effects of competitive play in a Multiplayer Online Battle Arena game.

Amy Walker

Supervisor: Jenny Cole   April 2017

Gaming addiction, motivation, and identity: investigating the effects of competitive play in a Multiplayer Online Battle Arena game.

ABSTRACT

The aim of the current study was to investigate the effects of competitive play in a Multiplayer Online Battle Arena (MOBA) on gaming addiction, gaming motivation, and gamer identity. A quasi-experimental design was utilised to assess these effects. The participants (N=121) were from the United Kingdom and were recruited through opportunity and snowball sampling. They were aged between 18 and 34 and played the MOBA *League of Legends*. Participants had to indicate whether they played the game casually or competitively, and completed a questionnaire which included the Gaming Addiction Scale (GAS), the Gaming Motivation Scale (GAMS), and the Group Identification Measure (GIM). Responses were recorded and the data was analysed using SPSS. One-way between-subjects ANOVAs were conducted to test the effects of type of play on gaming addiction and gaming motivation, and a non-parametric equivalent, a Kruskal-Wallis test, was conducted to test the effects on gamer identity. The analysis indicated there were no significant effects of type of play on any of the variables, which is inconsistent with existing literature. The reasons for this are explored and the implications are discussed. Future research could investigate the effects of time spent playing *League of Legends* on gaming addiction, gaming motivation, and gamer identity, as no inquiry was made in the current study and this may be an influencing factor. Additional suggestions for further research are given.

KEY WORDS:	ADDICTION	MOTIVATION	IDENTITY	MULTIPLAYER ONLINE BATTLE ARENA	CASUAL VS COMPETITIVE

Introduction

Video games are a platform of entertainment for which the global profits and consumer use have exceeded even those of the movie industry (Bartholomé, 2012), and individuals report to play games more than they watch television (Cuneo, 2004). It was found in 2015 that video games sold more than music or films in the United Kingdom, with the consumer spend being almost £4.2bn (Entertainment Retailers Association, 2016). Huizinga (1938) states that 'play' is an absorbing and free activity which has boundaries according to the rules of the type of play. Kuss and Griffiths (2012) suggest this description applies to video games, which are becoming progressively more engrained into individuals' everyday life due to the fact that they are a pleasurable, social, pastime activity. Furthermore, this type of play '…connects likeminded people, thereby fostering sociocultural protocols of behaviors [sic] associated with gameplay…' (Kuss and Griffiths, 2012:279). Therefore, it is not surprising that psychological links to gaming are increasingly being discussed and researched within psychology (Lemmens et al., 2009).

Massively Multiplayer Online Roleplaying Games (MMORPGs) are a form of game which are particularly time-consuming and are enjoyed by millions of people across the globe (Kuss and Griffiths, 2012). For example, *World of Warcraft (WoW)* boasted twelve million players in 2010 (Blizzard Entertainment, 2010) and MMORPGs in general reported to have 47 million worldwide subscribers in 2008 (Caplan et al., 2009). These games are typically in a fantasy, open-world setting meaning that players (gamers) can travel freely and complete quests using the unique character that they have created (Yee, 2014). There is a huge social aspect of these games, as you can explore the game content with friends (Beard and Wickham, 2016) and '…interpersonal behaviour and relationships are central features of the MMORPG experience…' according to Caplan et al. (2009:1312). Consequently, it is easy to see why these games are relevant from a psychological perspective and how they may impact upon an individuals' life and experiences.

Gaming Addiction

One major area of psychological interest is that of Internet gaming addiction. There is research to suggest that gamers who put a large amount of time into video games can experience symptoms such as mood modification, tolerance, and behavioural salience, which are typically associated with substance-related addictions (Hsu et al., 2009; Young, 2009). After a systematic review of Internet gaming addiction research, which focused on MMORPGs, Kuss and Griffiths (2012) suggested that gaming addiction may require professional treatment as it appears to have similar indicators as other addictions such as substance-related addiction and gambling addiction. Psychopharmacological interventions have been found to be effective in easing the symptoms of Internet gaming addiction which, according to Kuss and Griffiths (2012), supports its behavioural and biochemical basis.

Ng and Wiemer-Hastings (2005) gathered information on the social behaviours and game usage of those who play MMORPGs and those who play offline, single player games. The findings confirmed that those who play MMORPGs have a higher inclination to be addicted to the game, spending more time on the game, and finding socialising in the game more fulfilling than in the

real world (Ng and Wiemer-Hastings, 2005). The fact that the most significant aspect linked to addiction was the social one aligns with previous studies that argue this is the most appealing feature of MMORPGs (Caplan et al., 2009; Griffiths et al., 2004). This might suggest that playing video games provides a unique, addictive kind of socialisation to individuals, although the conclusions can only be generalised to MMORPGs. Other kinds of games exist where there are extra elements such as competitive play and rewards for achieving certain levels of ability which may also have an impact on gaming addiction, but it is clear to see that MMORPGs are the focus in existing literature.

Despite research showing that there is a basis for, and need for recognition of Internet gaming addiction, it isn't considered a diagnosable disorder in the *Diagnostic and Statistical Manual of Mental Disorders* (Lemmens et al., 2009), although there are proposed criteria for "Internet Gaming Disorder" (American Psychiatric Association, 2013). It may be argued that further research into different types of Internet games must be conducted to gain a deeper understanding of gaming addiction.

Gaming Motivation

There is also research that considers the motivations to play video games. Lafrenière et al. (2012) proposed that there are few theories of motivation that have been applied gaming, but suggested that the Self-Determination Theory (SDT) can be used as a basic framework for understanding gaming motivation. SDT comprises of two types of motivation: intrinsic and extrinsic (Lafrenière et al., 2012). Intrinsic motivation is where one takes part in an activity for the activity itself, for example gamers who play because they relish in travelling through the game's world or simply because it's fun (Lafrenière et al., 2012). This contrasts with extrinsically motivated gamers who play as a means to an end, for example for a reward or to avoid a negative consequence from not playing such as feeling excluded from their social group (Lafrenière et al., 2012).

Fuster et al. (2012) were interested in how MMORPGs (e.g. *World of Warcraft, EverQuest, Final Fantasy*) enable players to '…manipulate their identities…' (Fuster et al., 2012:274) by creating their own unique character and how there are endless amounts of objectives (quests) and a rich environment can be powerful motivators to play these games. In addition, two major features include as playing as a team within the game environment (Player versus Environment, PvE) or competing against other players which sometimes results in in-game rewards such as virtual currency (Player versus Player, PvP). This relates to the proposal that SDT can be used to understand gaming motivation (Lafrenière et al., 2012): playing to complete quests and for the rich environment of MMORPGs are forms of intrinsic motivation, and taking part in PvP for rewards is extrinsic motivation. Certain individuals seem to be more inclined to take part in one over the other (Fuster et al., 2012), showing that individuals have different motivations for playing the same game.

In a study involving Spanish *World of Warcraft* players, a questionnaire was created to measure five types of motivations to play: socialisation, achievement, exploration, escapism, and identity/dissociation (Fuster et al., 2012). The results showed that the social aspect was the main incentive to play, followed by exploration and achievement (Fuster et al., 2012). However, like

most psychological based video game studies, the findings are only relevant to MMORPGs; other types of games exist that include additional competitive modes with extra rewards such as virtual rewards like 'skins' (customizations that alter a character's appearance), in-game items and a higher prestige within the game which may influence motivation, but are typically not considered within the research.

Gamer Identity

Following from the fact that social aspects of MMORPGs are linked to gaming addiction and incentive to play, it's not surprising that these games can be linked to an individual's sense of identity. According to Deshbandhu (2016) the term 'gamer', within the video game industry itself, is associated with one who plays in an excessive and 'hardcore' manner. Furthermore, they typically play a large number of games for long periods of time and enjoy difficult, serious games (Juul, 2010). To some extent, the most common stereotype of a gamer (a teenage boy who is unpopular, unattractive and never leaves his bedroom) stems from this notion of a hardcore gamer (Williams et al., 2008). Research indicates that the negative connotations associated with a stereotypical gamer leads to individuals avoiding identifying as a gamer even if they play games frequently (Shaw, 2012).

It is argued that this stereotypical view meant that a term for those who do not fit this stereotype, 'casual gamers', needed to be created, which resulted in a gamer/casual gamer binary (Consalvo, 2009). A casual gamer is one who plays few games, only committing a small amount of time and effort to them and preferring more light-hearted games (Juul, 2010). Therefore, it seems that the video game industry and mainstream culture only apply the term 'gamer' to select people and there are clear distinctions between these and 'casual gamers' (Deshbandhu, 2016).

McGonigal (2011) proposes that skilled gamers are extremely motivated to achieve success in a game and can spend hours on one particularly difficult goal, whereas others may give up and lack the persistence to keep trying. Neys et al. (2014) argued that this can be explained in terms of identity; those who identify strongly as being a 'gamer' are more likely to persevere with frustrating tasks in games than those who identify less strongly, as '…gaming is a salient element of self-perceived identity…' (Neys et al., 2014:196). Research has been shown to confirm this concept within MMORPGs (Neys et al., 2014, O'Connor et al., 2015), where individuals with a stronger gamer identity seek more competition and challenges. Although the research is rooted to MMORPGs, it may be applicable to other types of games that have systems for grouping together players of a similar skill level and displaying to others how skilled each player is. These kinds of systems may affect how strongly an individual perceives them self as gamer.

Multiplayer Online Battle Arenas

Despite the obvious significance of MMORPGs and amount of research dedicated to them, a new form of game has emerged in recent years: Multiplayer Online Battle Arenas (MOBAs). *League of Legends*, a significant MOBA game, was played by over 100 million people a month up to September 2016 (Riot Games, 2016). This makes it one of the most played games

worldwide (Kahn et al., 2015) even surpassing *World of Warcraft*, which fell to just 5.6 million players a month in 2015 (Blizzard Entertainment, 2015).

League of Legends is a game where two teams of players battle against each other whilst trying to destroy the enemy team's towers, and destroying them all wins the game (Riot Games, 2009). Players can choose from one-hundred and thirty-three characters (champions) to play, each with unique skills and properties, and certain combinations of champions lead to better team synergy (Riot Games, 2009). There are various modes of play, for example 'Ranked' has five individuals on each team, requires effective team coordination, high levels of communication and players with similar levels of skill are placed together depending on their 'rank'. The ranks include Bronze, Silver, Gold, Platinum, Diamond, Master, or Challenger and winning games allows individuals to move up through these (Riot Games, 2009). 'Low level' is considered Bronze to Gold, and 'high level' is considered Platinum upwards (Riot Games, 2009). A season of 'Ranked' play typically lasts for around eleven months, and players are rewarded at the end of a season with special in-game rewards that display the rank that they achieved as well as special 'skins' for champions (Riot Games, 2009). These may be motivating reasons to play this mode for some individuals. 'Normals' have the same concept towards winning, however they are far less competitive as there are no rewards for playing (Riot Games, 2009). The differences between these modes make it likely that the individuals who play in either one will have different experiences of the game in terms of addiction, motivation, and identity.

It has been argued that MOBAs such as *League of Legends* '…have brought with them new game mechanisms and social interaction protocols that may influence player motivations…' (Kahn et al., 2015:335). In addition, the fact that certain individuals have been found to be more motivated to play either the PvP or PvE modes in MMORPGs may be mirrored in individuals who play 'Ranked' or 'Normals' in *League of Legends.* Socialising in MMORPGs seems to be the main factor behind gaming addiction (Ng and Wiemer-Hastings, 2005) and gaming motivation (Fuster et al., 2012), and gamer identity has been found to be linked to persistence to achieve (Neys et al., 2014). Therefore, it may be assumed that those who play 'Ranked' (competitive) in *League of Legends* will have different experiences of gaming addiction, motivation, and identity than those who play the 'Normals' (casual) mode due to its highly social, team-orientated play style and need for perseverance.

Taking all of this into account, the current study aimed to investigate the effects of competitive play on gaming addiction, gaming motivation, and gamer identity in a MOBA game. The first hypothesis (H1) was those who play *League of Legends* competitively (high and low level) will score higher on gaming addiction, gaming motivation and will have a stronger sense of gamer identity than those who play casually. The second hypothesis (H2) was those who play *League of Legends* competitively (high level) will score higher on gaming addiction, gaming motivation and will have a stronger gamer identity than those who play competitively (low level).

Method

Design

The study was a quasi-experimental, independent measures design and involved the use of an online questionnaire. It was quasi-experimental because the participants were not sorted into the groups randomly, with the independent variables being usual mode of play for the participants. These were casual, high level competitive and low level competitive. High level was considered Platinum, Diamond, Masters and Challenger and low level was considered Bronze, Silver, and Gold. This also means that it was an independent measures design because the participants could only be in one condition. The dependent variables were the scores on each scale: Gaming Addiction Scale (Lemmens et al., 2009), Gaming Motivation Scale (Lafrenière et al., 2012), and Group Identification Measure (Doosje et al., 1995). Because a large number of participants were required for this study, a questionnaire was an appropriate method of data collection because they allow large amounts of data to be collected (Langdridge and Hagger-Johnson, 2009).

Recruitment of Participants

A total of 125 participants were recruited through opportunity and snowball sampling. There were 115 males and 10 females aged between 18 and 34, and were all from the United Kingdom. Although opportunity sampling is sometimes considered flawed as the sample may not be representative of the target population (Langdridge and Hagger-Johnson, 2009), the questionnaire was distributed on the *League of Legends* forum meaning that it was likely that the target population would be reached and there would be minimal bias to the findings (Langdridge and Hagger-Johnson, 2009). It was hoped that individuals who took part would pass on the link to contacts who also play the game which would result in snowball sampling.

Materials

Gaming Addiction Scale

Gaming addiction was measured using the Gaming Addiction Scale (GAS) created by Lemmens et al. (2009) and was adapted to be applicable to *League of Legends* players. GAS has been found to have high reliability and validity (Lemmens et al., 2009; Hussain et al., 2015). The standard GAS has twenty-one questions, however a modified version was used for this study which comprises of seven questions, for example 'do you think about playing *League of Legends* all day long?' and 'have you felt bad when you were unable to play?'. The questions were answered on a 5-point Likert scale (1 = never, 5 = very often), with a further option of 'prefer not to say'. Permission to use the scale was not required as the original article states that it may be used for research purposes providing that credit is given.

Gaming Motivation Scale

A scale created by Lafrenière et al. (2012), Gaming Motivation Scale (GAMS), was utilized to measure the motivations behind playing *League of Legends* and permission was granted to use this scale by email (Appendix 1). The GAMS has been concluded to have acceptable levels of internal consistency, validity and reliability, making it a suitable choice to assess gaming

motivation (Lafrenière et al., 2012). The scale was modified to make sense to a *League of Legends* player, and the participants were asked to think about why they play the game before answering the questions. GAMS is comprised of eighteen statements including 'for the pleasure of trying/experiencing new game options (e.g., items, champions, roles)' and 'because it is a good way to develop social and intellectual abilities that are useful to me'. The answers were scored on a 7-point Likert scale (1 = do not agree at all, 7 = very strongly agree), and there was a 'prefer not to say' option.

Gamer Identity Measure

Gamer identity was measured using an adapted version of the Group Identification Measure (GIM) originally developed by Doosje et al. (1995) and deemed to be successful in measuring the perceived identity of participants with high reliability (Doosjie et al., 1995: Kowert and Oldmeadow, 2013). It consists of four statements, and permission was obtained by email to use the measure (Appendix 2). The original scale was aimed at psychology students with questions such as 'I see myself as a psychology student' and 'I feel strong ties with psychology students', so these were modified to 'I see myself as a gamer' and 'I feel strong ties with gamers' as seen in research by Kowert and Oldmeadow (2013). The statements were scored on a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree) and like the other scales, an additional 'prefer not to say' option.

Procedure

The questionnaire was constructed using *Qualtrics Survey Software* (Appendix 3). It was distributed on the *League of Legends* forum by an acquaintance with the link to the questionnaire (Appendix 4) and a brief introduction to the study (Appendix 5). The survey began with the participants being shown an information sheet (Appendix 6) followed by the consent form (Appendix 7). After informed consent was obtained, the participants were asked demographical questions such as 'are you from the UK?' and 'are you 18 or over?' to ensure that the participants met the criteria of the study. If they did not meet the criteria, the questionnaire ended. To sort them into the correct independent variable, the subjects were then asked whether they played *League of Legends* at a competitive or casual level, and if they selected competitive they were asked to select which 'rank' they were.

After the demographical questions, participants then had to respond to the questions from each of the scales described in the materials section. Overall, the questionnaire amounted to thirty-six questions. Once completed, the participants were presented with a debriefing (Appendix 8) and thanked for their participation. They were asked to enter a personal anonymous code, which should be quoted should they wish to withdraw from the study. The questionnaire was distributed until 5th February 2017, after which data analysis commenced.

Ethical Considerations

An Application for Ethics Approval Form (Appendix 9) was completed and approved by the Manchester Metropolitan University Psychology Ethics Panel. The study followed the ethical guidelines outlined by the *British Psychological Society* (2009) which states that a psychologist or researcher should work

respectfully with regards to privacy and confidentiality, obtain consent and debrief the participants. As such, the necessary documents were created and the proper procedures were followed to ensure that the participants were not at risk by taking part. The participants were not classed as vulnerable and were kept anonymous. Furthermore, the scales used in the questionnaire have been used in other research so are ethically approved.

The questionnaire was distributed by an acquaintance, which reduces the risk to the participants as they will not have felt pressured to take part by the researcher. It also reduces the risk to the researcher because the participants were not able to access the researchers' account on the forum or the researchers' personal details.

The participants were shown a detailed information sheet (Appendix 6) on the first page of the questionnaire which informed them of the full nature of the study, meaning that there were no elements of deception. Furthermore, they were made aware that they had the right to withdraw during the questionnaire by closing the page, or after completion by contacting the researcher by email (up until 5th February 2017, after which data analysis commenced). The participants were told that they didn't have to answer any questions that made them feel uncomfortable, but relevant details of support were provided. The information sheet also explained that only the researcher had access to the encrypted files on a password protected computer, ensuring confidentiality. After reading the information sheet, the subjects were asked to read various statements and confirm their consent (Appendix 7).

A debriefing sheet (Appendix 8) was shown to the participants at the end, providing details of support and further information about the study. The participants were required to create a unique, anonymous personal code that was to be sent to the researcher by email if they wished to withdraw.

Results

Overview of Analysis

The data was analysed on SPSS (Appendix 10). There were four incomplete responses within the data as the questionnaire didn't force participants to answer every question, therefore the whole responses of these participants were removed from the dataset. After the removal of these responses, there were 111 males and 10 females. The participants' average scores on each scale (GAS, GAMS and GIM) were computed. Three independent groups were created from the data: casual ($N = 43$), low level competitive (Bronze, Silver, Gold, $N = 37$) and high level competitive (Platinum, Diamond, Challenger, Masters, $N = 41$). Descriptive statistics were calculated for the three dependent variables/factors (gaming addiction, gaming motivation and gamer identity) for each condition.

Levene's tests were conducted for each dependent variable to indicate whether the homogeneity of variances assumption was violated, and the results were not significant meaning that the assumption was met and parametric testing could be conducted. To assess whether the data was normally distributed, Kolmogorov-Smirnov tests of normality were conducted for each factor. The data for gaming addiction and gaming motivation was found to be normally distributed, however the data for gamer identity was not. Therefore,

one-way between-subjects ANOVAs were conducted to test the effects of type of play on gaming addiction and gaming motivation, and a non-parametric equivalent of an ANOVA, a Kruskal-Wallis test, was conducted to test the effects of type of play on Gamer Identity. Furthermore, effect sizes for type of play on each factor were conducted.

Gaming Addiction

The means and standard deviations of gaming addiction can be found in Table 1 below.

Table 1.

The means and standard deviations for gaming addiction scores.

N = 121	M	SD
Casual	2.44	0.75
Low level competitive	2.56	0.75
High level competitive	2.59	0.77
Total	2.53	0.75

Table 1 shows that those in the high level competitive group had higher scores for gaming addiction than those in the low level competitive group, and those in the casual group, who scored the least.

The results of the one-way between-subjects ANOVA show that there was no significant effect of type of play on gaming addiction, $F(2,118) = .504$, $p = .605$, $\eta^2 = 0.008$. This means that competitive players were no more likely to be addicted to *League of Legends* than casual players.

Gaming Motivation

The means and standard deviations of gaming motivation can be found in Table 2 below.

Table 2.

The means and standard deviations for gaming motivation scores.

N = 121	M	SD
Casual	3.94	0.94
Low level competitive	3.70	0.93
High level competitive	3.81	0.92
Total	3.82	0.93

Table 2 shows that those in the casual group scored higher on gaming motivation than those in the low level competitive group, who scored the least, and those in the high level competitive group.

The results of the one-way between-subjects ANOVA show that there was no significant effect of type of play on gaming motivation, $F(2,118) = .695$, $p = .501$, $\eta^2 = 0.012$. This means that competitive players were no more likely to be motivated to play *League of Legends* than casual players.

Gamer Identity

The means and standard deviations of gamer identity can be found in Table 3 below.

Table 3.

The means and standard deviations for gamer identity scores.

N = 121	M	SD
Casual	5.11	1.36
Low level competitive	5.38	1.28
High level competitive	5.43	1.14
Total	5.30	1.26

Table 3 shows that those in the high level competitive group had higher scores for gaming identity than those in the low level competitive group and those in the casual group, who scored the least.

The results of the Kruskal-Wallis test show that there was no significant effect of type of play on gaming identity, $\chi^2(2, 121) = 1.22$, $p = .545$, $\eta^2 = 0.01$. This means that competitive players didn't have a stronger sense of gamer identity than casual players.

Power Analysis

The power of the effect of each independent variable was between 0.008 and 0.012, which means that there is only between 0% and 1% chance of detecting an effect that was present. To gain a significant effect, with the current effect size, over 300 participants would be needed per group with around 900 participants in total.

There were no significant effects in any of the tests and the effect sizes were extremely small. The results suggest that type of play in the video game *League of Legends* has no effect on being addicted to the game, being more motivated to play the game, or having a stronger sense of gamer identity.

Discussion

Summary of Results

The current study set out to investigate the effects of competitive play in the popular MOBA *League of Legends* on gaming addiction, gaming motivation, and gamer identity. The findings found no significant effects, and fail to support the hypothesis that those who play *League of Legends* competitively would score higher on gaming addiction, gaming motivation, and have a stronger sense of gamer identity (H1). They also do not support the hypothesis that those who play competitively at a high-level ability would score higher on gaming addiction, gaming motivation, and have a stronger sense of gamer identity than those who play competitively at a low-level ability (H2). Nevertheless, there are still noteworthy inferences that can be made from the results.

Findings and Implications

Gaming Addiction

The analysis of the data clearly indicated that there was no significant difference between playing *League of Legends* competitively (either at a high or low level) or casually on gaming addiction. As the competitive mode in *League of Legends* requires more communication and involves individuals creating specialised teams of players to increase the chances of winning, the findings contradict the reviewed research and literature that suggest that games or game modes that involve more socialisation are more addictive (Ng and Wiemer-Hastings, 2005; Caplan et al., 2009).

Despite the inconsistencies, the majority of existing research focuses on MMORPGs, so perhaps it isn't surprising that different results are found in the current study that focuses on a game with entirely different mechanics (the ways in which the video game is designed and played) and goals (Riot Games, 2016). Online video games have been shown to be more addictive than offline ones (Ng and Wiemer-Hastings, 2005) and it could be that no significant effects were found due to this fact, as both the casual and competitive modes are played on the Internet (Riot Games, 2016). The current study suggests that there would be no differences between players of the same online game regardless of the type of play.

However, this does not mean that there are no implications following these results. In fact, a positive suggestion is that the competitive mode of *League of Legends* is no more addictive than the casual mode, inferring that there are no harmful ramifications of playing competitively. Some research indicates that addiction can be characterised by excessive play (Charlton and Danforth, 2007) and it may be that those who play competitively engage with the game for no longer than those who play casually. Therefore, no differences would be found between casual and competitive players regarding gaming addiction. Furthermore, it could be argued that playing MOBAs has less negative effects than found for MMORPGs (Kuss and Griffiths, 2012).

Gaming Motivation

Contrary to previous the reviewed literature which states that achievement is a major motivating factor to play video games (Fuster et al., 2012), the analysis of the data indicated that there was no significant difference between playing *League of Legends* competitively (either at a high or low level)

or casually on gaming motivation. This suggests that players are no more motivated to play the competitive mode of the game even though there are rewards such as character 'skins' and gaining a higher prestige within the game.

One of the reasons as to why no effects were found may be because although the competitive mode requires a higher level of communication, both modes are still extremely social (Riot Games, 2016). Fuster et al. (2012) found that social aspects of video games are the main incentives to play, and perhaps the differences in the social features between the two modes is not substantial enough to find a difference in motivation. Similarly, the current study only measured gaming motivation on a whole, and made no investigation into the differences between casual and competitive players concerning intrinsic and extrinsic motivation. There is evidence to illustrate that gamers have various kinds of intrinsic and extrinsic motives for playing the same game such as external regulation, introjected regulation and identified regulation (Lafrenière et al., 2012), and effects may have been found if a distinction was made in the present study.

Amongst the extremely small amount of research into MOBA games, player age, excessive play and psychological characteristics have been found to be contributing factors to behaviour patterns and motivations to playing MOBAs (Kokkinakis et al., 2016). Therefore, although it can be suggested from the current study that type of play has no effect on gaming motivation, significant differences may have been found player age, excessive play, and psychological characteristics were investigated.

Gamer Identity

The analysis showed that there were no significant effects of type of play on the strength of the sense of gamer identity. This is not in align with previous literature which claims that more 'hardcore' and serious players (i.e. those that play competitively) identify stronger as being a gamer than those who play casually (Neys et al., 2014). This means that the results also contrast with research that found that individuals with a higher perceived gamer identity seek more competition and challenges (Neys et al., 2014; O'Connor et al., 2015).

Despite the lack of significant results, there are still implications about MOBA games and gamer identity that can be drawn from the current study. All three groups within the study scored highly on gamer identity, which implies that players see themselves as 'gamers' regardless of the mode they play most frequently on *League of Legends*. Therefore, level of skill may not be a contributing factor to gamer identity within the *League of Legends* player base as suggested by McGonigal (2011). It also implies that individuals are not wary of identifying as a gamer despite the negative connotations that surround this stereotype, which contrasts with the literature which suggests otherwise (Shaw, 2012). Because of this, it may be likely that *League of Legends* brings these gamers together and allows them to feel comfortable about their identity.

Shaw (2012) argued that playing *Farmville* (a cheerful game that appeals to all kinds of people which is usually labelled as a casual game) for hours on end cannot be said to be casual gaming, and playing *Halo* (a serious shooting game) for just an hour cannot be considered hardcore gaming (Shaw, 2012). On a similar note, Juul (2010) argued that 'hardcore' gamers play video games excessively, for extended periods of time. Taking into account both of these concepts, it could be that no differences regarding gamer identity were found

between those that play *League of Legends* casually or competitively as both groups may have played for lengthy amounts of time. Gamer identity may be characterised by time spent playing like gaming addiction (Charlton and Danforth, 2007).

Strengths and Limitations

Around 90% of the *League of Legends* player base is male, and 10% is female (Riot Games, 2016). Therefore, the current study successfully represented the percentages of males and females in the target population (around 90% were male and around 10% were female). However, the sample only consisted of participants from the United Kingdom even though individuals from all across the globe play *League of Legends* (Riot Games, 2016). Therefore, care must be taken when generalising the findings to the whole player base. Furthermore, *League of Legends* is just one of many MOBA style games, and so the conclusions cannot be generalised to all MOBA games.

The scales used in the questionnaire were previously established to be highly valid and reliable (Lemmens et al., 2009; Lafrenière et al., 2012; Kowert and Oldmeadow, 2013). However, the GAS is only intended for use among adolescents, meaning that it may not have been suitable for those that were twenty and over which applies to approximately two thirds of the participants in the current study (Lemmens et al., 2009).

The data was collected using self-reports, and therefore there may have been issues with bias, variance error, social desirability, and the reliability of these self-reports (Lafrenière et al., 2012). For example, some of the participants may behave in a way that would have indicate that their type of play has effects on gaming addiction, but they could have responded differently on the questionnaire to avoid appearing in an undesirable way. It may have been useful to gather data qualitatively or even from the participants' parents and friends also for a more accurate insight.

The power analysis indicated that nearly eight times more participants than the present study would be required to find significant effects. This suggests that perhaps repeating the study in its current form may not be useful, however there are alterations that could be made and proposals for alternative research.

Further Research

Considering the implications and limitations of the current study, there are suggestions for further research. Future research could make an inquiry into the length of time gamers play *League of Legends* for, and assess the effects of play time on gaming addiction, gaming motivation, and gamer identity. Furthermore, investigation could be conducted into the differences between *League of Legends* (an online game) and an offline game, to assess whether comparable results can be found with research that suggest that online MMORPGs are more addictive than offline games (Ng and Wiemer-Hastings, 2005). Further study is also recommended to assess whether casual and competitive players of *League of Legends* are motivated to play in opposing ways (such as intrinsically and extrinsically) as the present study only measured motivation as one construct. Investigation into the effects of player age and psychological characteristics on motivation may also be useful. Determining the effects of these factors is important because MOBAs are currently more popular

than MMORPGs (Kahn et al., 2015), with over 100 million individuals (Riot Games, 2016) that could be affected by any findings.

Conclusion

The current study unexpectedly demonstrated that competitive play had no effects on gaming addiction, gaming motivation, and gamer identity when compared with casual play. Despite the contradictions with previous literature, it can be suggested that MOBAs may have less complications regarding gaming addiction than MMORPGs, however further research must be conducted to ascertain this. The study established that both casual and competitive players identify highly as gamers, but neither group was more motivated to play than the other. These findings are contradictory with research that suggests a higher level of play leads to a stronger gamer identity (Neys et al., 2014) and a more socially demanding part of a game increases motivation to play (Fuster et al., 2012). Nevertheless, the study has given an introductory insight into MOBA games as almost all the previous research was focused on MMORPGs. MMORPGs are currently far less popular than MOBAs (Kahn et al., 2015), meaning that there is likely much more to be learnt from further study into MOBA games through the suggestions given.

References

American Psychiatric Association. (2013) 'Conditions for Further study.' In *Diagnostic and Statistical Manual of Mental Disorders*. 5th ed., Arlington: American Psychiatric Publishing, pp 783-806.

Bartholomé, A. A. J. (2012) *Exploring gamer identity: validation of a gamer identity scale and its impact on motivational need fulfilment and persistence*. M.Sc. University of Amsterdam.

Beard, C. L. and Wickham, R. E. (2016) 'Gaming-contingent self-worth, gaming motivation and internet gaming disorder.' *Computers in Human Behavior*, 61, August, pp. 507-515.

Blizzard Entertainment (2010) *Calendar 2010 Annual Report.* [Online] [Accessed on 16th November 2016] http://files.shareholder.com/downloads/ACTI/3236668981x0x461467/F432BA16-3D54-4EDB-9269-4F744E33B771/Activision_Blizzard_2010_ARS_Final_PDF.pdf

Blizzard Entertainment (2015) *2015 Annual Report*. [Online] [Accessed on 16th November 2016] http://files.shareholder.com/downloads/ACTI/3236668981x0x887600/BE853918-329D-4E90-ABDC-E669E9D097B9/Activision_Blizzard_2015_Annual_Report.pdf

British Psychological Society (2009) *Code of Ethics and Conduct.* [Online] [Accessed on 20th November 2016] http://www.bps.org.uk/system/files/documents/code_of_ethics_and_conduct.pdf

Caplan, S., Williams, D. and Yee, N. (2009) 'Problematic internet use and psychosocial well-being among MMO players.' *Computers in Human Behavior*, 25(6) pp. 1312-1319.

Charlton, J. P. and Danforth, I. D. W. (2007) 'Distinguishing addiction and high engagement in the context of online game playing.' *Computers in Human Behavior*, 23(3) 1531-1548.

Consalvo, M. (2009) 'Hardcore casual: gaming culture return(s) to Ravenhearts.' Paper presented at: *4th International Conference on Foundations of Digital Games.* Port Canaveral, Florida, 26th-30th April.

Cuneo, A. Z. (2004) 'Marketers game for action.' *Advertising Age*, 75(3) pp. 6-16.

Deshbandhu, A. (2016) 'Player perspectives: what it means to be a gamer.' *Press Start*, 3(2) pp. 48-64.

Doosje, B., Ellemers, N. and Spears, R. (1995) 'Perceived intragroup variability as a function of group status and identification.' *Journal of Experimental Social Psychology*, 31(5) pp. 410-436.

Entertainment Retailers Association (2016) *UK Market Statistics*. [Online] [Accessed on 16th November 2016] http://www.eraltd.org/media/3934/2016-yearbook-stats-intro.pdf

Fuster, H., Oberst, U., Griffiths, M., Carbonell, X., Chamarro., A. and Talarn, A. (2012) 'Psychological motivation in online role-playing games: A study of Spanish World of Warcraft players.' *Anales de Psiciologia*, 28(1) pp. 275-280.

Griffiths, M. D., Davies, M. N. and Chappell, D. (2004) 'Demographic factors and playing variables in online computer gaming.' *CyberPsychology and Behavior,* 7(4) pp. 479-487.

Hsu, S. H., Wen, M. H. and Wu, M. C. (2009) 'Exploring user experiences as predictors of MMORPG addiction.' *Computers & Education*, 53(2) pp. 990-999.

Huizinga, J. (1938) *Homo ludens: A study of the play-element in culture.* Boston: Beacon.

Hussain, Z., Williams, G. A. and Griffiths, M. D. (2015) 'An exploratory study of the association between online gaming addiction and enjoyment motivations for playing massively multiplayer online role-playing games.' *Computer in Human Behavior*, 50, September, pp. 271-230.

Juul, J. (2010) *A casual revolution: reinventing video games and their players.* Cambridge, MA: MIT Press.

Kahn, A.S., Shen, C., Lu, L., Ratan, R. A., Coary, S., Hou, J., Meng, J., Osborn, J. and Williams, D. (2015) 'The Trojan Player Typology: A cross-genre, cross-cultural, behaviourally validated scale of video game play motivations.' *Computers in Human Behavior*, 49, August, pp. 354-361.

Kokkinakis, A. V., Lin, J., Pavlas, D. and Wade, A. R. (2016) 'What's in a name? Ages and names predict the valence of social interactions in a massive online game.' *Computers in Human Behavior*, 55, pp. 605-613.

Kowert, R. and Oldmeadow, J. A. (2013) 'Social reputation: Exploring the relationship between online video game involvement and social competence.' *Computers in Human Behavior*, 29(4) pp. 1872-1878.

Kuss. D. J. and Griffiths (2012) 'Internet gaming addiction: A systematic review of empirical research.' *International Journal of Mental Health and Addiction*, 10(2) pp. 278-296.

Lafrenière, M. K., Verner-Filion, J. and Vellerand, R. J. (2012) 'Development and validation of the Gaming Motivation Scale (GAMS).' *Personality and Individual Differences*, 53(7) pp. 827-831.

Langdridge, D. and Hagger-Johnson, G. (2009) *Introduction to Research Methods and Data Analysis in Psychology.* 2nd ed., Harlow: Pearson Education.

Lemmens, J. S., Valkenburg, P. M. and Peter, J. (2009) 'Development and validation of a game addiction scale for adolescents.' *Media Psychology*, 12(1) pp. 77-95.

McGonigal, J. (2011) *Reality is broken: Why games make us better and how they can change the world.* London: Penguin Press.

Neys, J. L. D., Jansz, J. and Tan, E. S. H. (2014) 'Exploring persistence in gaming: The role of self-determination and social identity.' *Computers in Human Behavior*, 37, August, pp 196-209.

Ng, B. D. and Wiemer-Hastings, P. (2005) 'Addiction to the internet and online gaming.' *CyberPsychology and Behaviour,* 8(2) pp. 110-113.

O'Connor, E. L., Longman, H., White, K. M. and Obst, P. L. (2015) 'Sense of community, social identity and social support among players of Massively Multiplayer Online Games (MMOGs): A qualitative analysis.' *Journal of Community and Applied Social Psychology*, 25(6) pp. 459-473.

Riot Games (2009) *League of Legends.* PC. [Game] California: Riot Games.

Riot Games (2016) *Our Games*. 2016. [Online] [Accessed on 11th November 2016] http://www.riotgames.com/our-games

Shaw, A. (2012) 'Do you identify as a gamer? Gender, race, sexuality, and gamer identity.' *New Media & Society*, 14(1) pp. 28-44.

Williams, D., Yee, N. and Caplan, S. (2008) 'Who plays, how much, and why? Debunking the stereotypical gamer profile.' *Journal of Computer-mediated Communication*, 13(4) pp. 993-1018.

Yee, N. (2014) *The Proteus Paradox: How online games and virtual worlds change us – and how they don't.* New Haven: Yale University Press.

Young, K. (2009) 'Understanding online gaming addiction and treatment issues for adolescents.' *American Journal of Family Therapy*, 37(5) pp. 355-372.