

## The psychology of esports: A systematic literature review

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## **The psychology of esports: A systematic literature review**

### **Abstract**

Recently, the skill involved in playing and mastering video games has led to the professionalization of the activity in the form of 'esports' (electronic sports). The aim of the present paper was to review the main topics of psychological interest about esports and then to examine the similarities of esports to professional and problem gambling. As a result of a systematic literature search, eight studies were identified that had investigated three topics: (i) the process of becoming an esports player, (ii) the characteristics of esports players such as mental skills and motivations, and (iii) the motivations of esports spectators. These findings draw attention to the new research field of professional video game playing and provides some preliminary insight into the psychology of esports players. The paper also examines the similarities between esports players and professional gamblers (and more specifically poker players). It is suggested that future research should focus on esports players' psychological vulnerability because some studies have begun to investigate the difference between problematic and professional gambling and this might provide insights into whether the playing of esports could also be potentially problematic for some players.

**Keywords:** Esport; Professional video gaming; Competitive video gaming; Gambling; Poker; Video games; Gaming motivations

## Introduction

Playing video games has become one of the most popular recreational activities, not just among children and adolescents, but also among adults too (Entertainment Software Association 2017). Video games have changed throughout the past five decades, and have developed from early standalone games such as *Space Marines* (1962) and *Pong* (1972) into collaborative and competitive games played via massively multiplayer online environments, where millions of players can play simultaneously against the games' non-player enemies or against other players. More recently, video game playing has become professionalized and for a small minority of players has become a career option in the world of competitive gaming (Faust et al. 2013; Griffiths 2017). This new professional type of video gaming activity has been termed esports (electronic sports). Esport is a new area in the gaming culture, and is starting to become one of the most essential and popular part of video game communities, especially among adolescents and emerging adults.

Competitive video game communities started out in South Korea, and the popularity of FPS (First Person Shooter) games, RTS (Real Time Strategy) games and MMORPGs (Massively Multiplayer Online Role-Playing Games) provided a base for the emerging competitions, not only in Asia, but also in Western countries and regions (Taylor 2012; Wagner 2006). Globally, there are now thousands of video game players who define themselves as professional gamers (i.e., so-called esports players and pro-gamers). Although the FPS and the RTS genres have retained their popularity, the new MOBA (Multiplayer Online Battle Arena) games have become the most popular genre in esports. As a recent global esports market report (Newzoo 2017) noted, the esports economy grew 41.3% (up to \$696 million) in 2017, and esports brand investment is expected to double by 2020. It is estimated that the global esports audience has reached 385 million, and that 45% of them play esports games, 23% view esports streams, and 32% both play and view esports streams (Newzoo 2017).

There are different definitions of what esports comprise although there are some similar characteristics. Ma and his colleagues (2013) drew attention to the fact that esports players differ from casual gamers. An esports player is a professional gamer who plays for competition, rather than for fun and/or relaxation, and define gaming as their job. Casual gamers play for fun and recreation, and to entertain themselves (Ma et al. 2013). Wagner (2006) provided a detailed definition of esports as "*an area of sport activities in which people develop and train mental or physical abilities in the use of information and communication technologies*" (Wagner 2006). Hemphill (2005) adds that esports are "*alternative sport realities, that is, to electronically extended athletes in digitally represented sporting worlds*" (p.199). More pragmatically, esports have been defined as "*an umbrella term used to describe organized, sanctioned video game competitions, most often in the context of video game tournaments*" (Whalen 2013). In summary, according to these definitions and descriptions, esports are alternate sports, and a special way of using video games and engaging in gameplay (Adamus 2012).

A number of scholars have attempted to theoretically compare esports to other sports confirming the assumption that esports is similar to other sporting activities (Adamus 2012; Taylor 2012; Wagner 2006). According to Guttman's (2004) and Suits' (2007) characteristics that define an activity as sport, esports can be classed as a sport because it includes play (i.e., voluntary, intrinsically motivated activity), the events are organized and governed by rules,

includes competition with the outcome of a winner and a loser, and comprises skill. Esports also have a large following via online streaming platforms such as *Twitch* and *YouTube*. Furthermore, such activities can be played via a Local Area Network (LAN) connection between computer devices, the events are hosted by sponsors, and have esports play-by-play commentaries, jumbotrons (i.e., large televised screens), sizeable live audiences, and large cash prizes for the best gamers (Adamus 2012; Jenny et al. 2016; Jonasson and Thiborg 2010; Lopez-Gonzalez and Griffiths 2016).

Taylor (2012) also highlighted in her work, that the rules of esports tournaments, systems, play, judging, and broadcasting can be similar to traditional sports, and professional gamers can be compared to the requirements and practice of the athletes of professional sports (i.e., training, practice, and physical and mental states of athletes). According to Jenny and his colleagues (2016), two of Guttman's (2004) criteria need further elaboration before esports being classed as a professional sport. The first criterion concerns physical performance and the extent to which there is a skillful and strategic use of the player's body (because not all of it is used when playing). However, there are many sports in which only specific body parts are used when competing (e.g., darts, snooker, shooting) so this criterion on its own would not rule out esports being classed as a true sport. The second criterion concerns institutional stability, which means esports requires centralized rules for regulation and stabilization to be recognized as a sport, and not just viewed as a juvenile recreation activity (Jenny et al. 2016). The different types of esports games (e.g., first person shooters, MOBA games) with specific rules make it more difficult to achieve institutional stability. However, global esports organizations already exist, like the International e-Sports Federation (IeSF), supporting esports games to be recognized as professional sports, and providing institutional basis for regulation and stabilization (International e-Sports Federation 2017). Nevertheless, it remains a future task to come to a consensus about whether esports is a genuine sport or not.

To understand the background of the new gaming phenomenon of esports, the exploration of the motivational patterns of the video game use is arguably the most important topic. This is particularly relevant because Griffiths (2017) noted that when video gaming becomes an occupation and career where players make a financial living rather than engaging in the activity as a hobby, it potentially changes the motivations of gaming. Many researchers have examined the motivations of gamers, and even if the theoretical basis and the examined video game genres are different, some general and common motivational patterns have been found according to various empirical studies carried out. For instance, Vorderer and his colleagues (Vorderer 2000; Vorderer et al. 2003) found that the most essential elements underlying gaming motivations are interactivity and competition. Interactivity is the opportunity to communicate and cooperate with other gamers in the online environment, and competition is the mechanism by which gamers can compare themselves to each other. Sherry and colleagues (Greenberg et al. 2010; Sherry et al. 2006) outlined similar motivational patterns among grad school and high school students who played video games, including arousal, challenge, competition, distraction, fantasy, and social interactions. According to their findings, motivations were different depending upon the age of the gamer. The most important motivations for younger gamers were competition and challenge (those in the 5<sup>th</sup> grade), while older gamers were more motivated by challenge, social interactions, arousal and distraction (students in the 8<sup>th</sup> and 11<sup>th</sup> grades).

Yee (2006a, 2006b) explored the motivations of MMORPG players. Among the motivations for playing were achievement motivations (advancement, mechanics, competition), social motivations (socializing, relationship, teamwork), and immersion factors (discovery, role-playing, customization, escapism). The Motivation of Online Games Questionnaire developed by Demetrovics and his colleagues (2011) examined gamer motivations in a more general way. However, their results showed similar motivational patterns among gamers to other empirical studies (i.e., escapism, coping, fantasy, skill development, recreation, competition, and social). One of the common findings of these different studies is that competition is one of the most essential motivations in the playing of video games. Thus, players who identify themselves as a professional esports player should have higher levels of competitive motivation although other playing motivations are also likely to be different from non-professional and casual players. Despite the popularity of esports, few empirical studies appear to have investigated the psychological profile of professional gamers. Furthermore, there are no systematic reviews of the psychological literature to date. Consequently, the present literature review aimed to review recent empirical research that has focused specifically on esports (i.e., professional gaming) from a psychological perspective.

## **Methods**

The present study aimed to collate and review all the empirical studies concerning esports from a psychological perspective published between 2000 and 2017. Given that competitive gaming only started to occur after videogames could be played online and against other people, the year 2000 was chosen as a start date for the search because the playing of videogames competitively did not exist prior to this date. The data collection included all studies published between January 2000 to July 2017. The literature search comprised the following databases: *Google Scholar*, *Science Direct*, *PubMed*, and *Web of Knowledge*. The following keywords were used in the respective search engines: ‘esports video gam\*’; ‘professional gam\*’; ‘pro gam\*’; ‘competitive video gam\*’; ‘esports competitive video gam\*’; ‘sports video gam\*’ and ‘professional video gam\*’. Each search was performed not only in titles of the papers, but also in the abstracts (where this option was available) for the following reasons: (i) the title words in the paper can sometimes be limited and may not specifically mention esports; and (ii) the authors could use various synonyms or different terms that equated to the definitions of esports.

A total of 30 papers were found as a result of the systematic search. However, based on the inclusion criteria (i.e., an empirical study containing new primary data and published in a peer reviewed journal in the English language), a total of 22 papers were excluded because they were either non-empirical (n=11), were published in conference proceedings or student theses (n=8), or were not specifically focused on esports (n=3). This left a total of eight empirical studies that met the inclusion requirements (see Table 1).

**Table 1. Summary table of esports focused psychological studies**

	Study	Country	Sample	Method and procedure	Statistical analysis	Main goals of study
1	Lee and Schoenstedt (2011)	USA	515 college students and athletic event attendees	Convenience sampling method. Data were collected in sport management related courses, and at athletic events on campuses	Multiple regression analysis	To compare esports game patterns with traditional sport involvements and to examine how the related motivations affect the time spent on esports gaming.
2	Weiss and Schiele (2013)	Germany	360 esports players	Self-report questionnaire. Completed at <i>World Cyber Games</i> (WCG) in Cologne in November 2008	Multiple regression analysis, group comparison (t- and F-test), and Variance Extracted (AVE)	To investigate which competitive and hedonic needs have influence on continuous use of esports according to uses and gratifications theory.
3	Lee, An, and Lee (2014)	South Korea	103 esports spectators	Self-report questionnaire. Completed at the 2013 <i>League of Legends</i> World Championship Finals at the Yongsan e-Sports Stadium on October 5, 2103.	Bivariate correlations, multiple regression analysis	To explore the motivational pattern for watching esports (more specifically, <i>League of Legends</i> ) broadcasts, and how these motives effect the satisfaction of viewers.
4	Martončík (2015)	Slovakia, Czech Republic	108 esports players, 54 casual players	Self-report questionnaire. Sent via e-mail or directly to in-game message systems	Group comparison (ANOVA, independent-samples t-test)	To investigate the difference between esports players (more specifically, solo vs. team players, team leaders vs. non-leaders) and casual players in gaming motivations, and how gaming satisfies their life goals.
5	Kim and Thomas (2015)	South Korea	Nine esports players, two team coaches, two team directors and one psychological counselor	Interviews with the participants ( <i>StarCraft</i> players, coaches and psychological counselor)	Interview analysis based on grounded theory methodology (Glaser and Strauss 1967)	To develop the stage theory model of professional esports players, where the motivations (extrinsic and intrinsic), goals and learning style change during the process to become an esports player.

6	Seo (2016)	South Korea, USA, Australia, New Zealand	10 esports players	(i) Field observations at real-world eSports tournaments (South Korea, USA, Australia, New Zealand) (ii) 10 semi-structured phenomenological interviews with esports players	Subsequent thematic analysis based on a hermeneutic interpretive framework (Thompson 1997)	To explore the elements of esports consumption which make attractive the professionalized esports career for players, to investigate the reasons why players pursue this career, and to follow the players' identity transformation into professionalized gamer identity.
7	Hamari and Sjöblom (2017)	Not specified	888 esports viewers	Self-reporting questionnaire, data was collected online on eSports related sub- <i>Reddits</i> , <i>Twitter</i> , <i>Facebook</i> , similar pages	Component-based PLS-SEM (Partial Least Squares Structural Equation Modeling)	To investigate the motivational background, why people watch esports on the internet.
8	Himmelstein et al. (2017)	USA	Five esports players	Semi-structured interviews with competitive <i>League of Legend</i> players	Interview analysis based on the inductive and deductive content analysis (Elo and Kyngäs 2008)	To identify the mental skills and possible obstacles of esports players to achieve better performance.

## Results

The eight studies comprised three main topics: (i) becoming an esports player (i.e., the identity and transformation of esports players), (ii) the characteristics of esports players (mental skills, motivational patterns, etc.), and (iii) the motivations of esports spectators (i.e., why individuals watch esports).

### *Becoming an esports player*

In a study by Seo (2016), the author focused on different perspectives of esports definition, and examined whether esports was fun or work (or neither) by attending esports tournaments in a number of countries and via in-depth interviews with 10 professional eSports players. Seo's (2016) research goals were threefold, to explore: (i) the elements of esports consumption that make the activity attractive to a career of a professional esports player, (ii) the reasons why esports players want to pursue such a career opportunity, and (iii) how players progress through the identity transformation to acquire a professional gamer identity. Seo (2016) characterized professional esports playing

as a serious leisure activity, following Stebbins' (1982) definition. Serious leisure can be defined as an intermediate activity between casual leisure and work with beneficial implications, such as gaining self-concept and identity development during the activity (e.g., amateur sport attendance). In Seo's study (2016), professional esports players claimed that the main elements that attracted players to pursue a career in esports were the celebration of the mastery of skills, the pursuit of self-improvement, and the importance of fairness, equity, and mutual respect (i.e., via online/LAN tournaments, formal institutional rules, and the norms and codes of esports government). However, esports players were determined to acquire a professional career, and that the 'journey' gave them opportunity to experience high self-esteem, accomplishment, and social recognition. Even though esports is a serious leisure activity, the professional players still valued the activity as fun and self-motivating. Examining how esports players acquire a professional gamer identity, Seo (2016) identified three stages mapping onto Campbell's (1965) hero's journey monomyth. According to the narratives of esports players, in the first stage ("*the call to adventure*") players viewed games as casual leisure activity (playing for fun, knowing the mainstream gamer community). However, they started to form initial perceptions and gain interpersonal relationships in the social world of esports. In the second phase ("*the road of trials*"), they begin the personal transformation to becoming an esports player. For example, they specialize their skills and knowledge about game and mechanics, and their attitudes also change towards gaming and they begin to engage more regularly in esports practices. In the final stage ("*the master of two worlds*"), professional players acquire a new esports gamer identity. They then find the opportunities to confirm this new identity with other important aspects of their daily lives and their global self-concept of being an esports player.

Similarly to Seo (2016), Kim and Thomas (2015) explored the process how a video game player becomes an esports player utilizing activity theory (Engeström 1993, 1999; Engeström et al. 1999). The authors developed a model explaining the gamers' motivational patterns, changing goals, and learning styles while becoming professional esports players from a more socio-cultural perspective. Kim and Thomas (2015) also highlighted that when trying to define esports, it is important to investigate the complex phenomenon more holistically, including not just the esports players, but also the sponsors, fans, and the whole esports society. From this standpoint, Kim and Thomas (2015) developed their stage theory model of professional video game players by interviewing South Korean professional esports players (n=9), coaches (n=2), team directors (n=2) and a psychological counselor of professional video game play. After all the interviews, five different stages were developed, where the players' performance and motivational patterns can differ. At the beginning, professional gamers are unexperienced and have to solve tasks they have never seen before (enjoying stage). Following this, they improve their skills, lose their intrinsic motivations, and the enjoyment of gaming (struggling stage). When players gain a more developed competency, they experience the enjoyment of the gaming itself again (achieving stage). Unfortunately, most of the players do not maintain the achieving stage, and no longer have the opportunity to play in an official (professional) capacity. They 'lose' the glory and satisfaction they experienced earlier (and enter the slumping stage) before having to recover (recovering stage). The authors drew attention to the motivational patterns that change during the development of an esports player, highlighting the fact that esports players use these particular video games differently from a casual gamer. This means that playing video games in the higher stages of this model are considered as work (extrinsic motivations) rather than leisure (intrinsic motivations).

### *The characteristics of esports players*

A recent study by (Himmelstein et al. 2017) interviewing five esports players identified the mental skills and techniques used by esports players in achieving optimal performance in a highly competitive gaming environment. The researchers not only aimed to pinpoint the mental elements of success in esports, but identified the barriers in executing a good performance. For successful performance, emphasized that esports players need to (i) have great knowledge about the video game, (ii) think strategically and make fast and smart decisions, (iii) be motivated to keep moving forward (i.e., not think about the past performances), (iv) be able to separate daily life from performance, (v) avoid being distracted and stay focused, (vi) cope adaptively with the harassment, (vii) maintain a growth mindset (i.e., positive attitude), and (viii) warm up before performance either physically and/or mentally. To achieve optimal performance, it was claimed that players should be able to adapt their opponents, communicate properly with their teammates, and trust their skills. Additionally, they should be capable of developing themselves and their team (i.e., engage in individual skill practice, analyze one's own performance), and set various types of goals (short-term, long-term, process). In addition to the mental elements of performing optimally, the possible barriers of performing were also identified. These barriers related to the elements of optimal performance, such as confidence issues, inadequate coping strategies with anxiety, past achievements and mistakes, harassment, lack of self- and team development (e.g., knowledge about the game, team dynamics, team communication, individual skills), and difficulty in separating life and gaming (Himmelstein et al. 2017).

Three studies focused on exploring the motivations of esports players, examining why such individuals play video games in a competitive way. However, these studies were based on different motivational models. Lee and Schoenstedt (2011) surveyed over 500 college students and athletic event attendees and compared esports to traditional sports by assessing the players' motivations and needs using the theoretical framework of uses and gratifications theory (Katz et al. 1973). Based on previous video game uses and gratifications studies (Kim & Ross, 2006; Lee, Cheon, Judge, Shin, & Kim, 2012; Sherry et al. 2006) the authors assessed the following esports related motivations: social interaction, fantasy, identification with sport, diversion, competition, entertainment, sport knowledge application, arousal, design/graphics, passing time, control, skill building, permanence, and peer pressure. The findings demonstrated that personal and social elements of playing video games influenced individuals' interest in esports. The stronger motivations of spending time on esports playing were competition, peer pressure, and skill building for actual playing of sport. Compared to traditional sport behavior involvement, the study explored similarities between esports and traditional sport consumption (i.e., game attendance, game participation, sports viewership, sports readership, sports listenership, online usage specific to sports, and purchase of team merchandise). The televised viewing and online usage showed the greatest involvement in both esports and sport behavior. In addition, the other three sport consumption elements showed similarity among esports and non-esports players. However in-game participation, radio listenership, and team merchandise purchase were less common among esports players than traditional sport players.

From another theoretical perspective, Weiss and Schiele (2013) surveyed 360 esports players and demonstrated which competitive and hedonic need gratifications drive continuous use of esports according to uses and gratifications theory (Katz et al. 1973). The study found that esports can offer services that fulfill players' needs, confirming previous studies focused on the global gaming motivations of online games and competitive offline games (Mäyrä 2008; Phillips et al. 1995; Sherry et al. 2006; Yee 2006a, 2006b). The competition, challenge, and escapism motivations were identified as the need gratifications obtained through esports. Escapism is a motivation of video game usage in general, and means the player uses a video game to avoid thinking about real-life problems, slipping into the character's role, and becoming a persona that the other players will like. This is one of the most critical motivations in problematic video game play and is one of the factors that predict problematic video game usage (Király et al. 2015; Yee 2006b). From this view, escapism can be considered as a motivation that may jeopardize esports players' video game usage and predict more problematic game-related behavior.

In the third study focused on esports players' motivations, Martončík (2015) investigated different aspects of gaming motivations among esports players (n=108) and casual gamers (n=54), and highlighted why professional gamers play video games, and how it satisfied their life goals. Martončík (2015) suggested that the life goals (i.e., intimacy, affiliation, altruism, power, achievement, diversion) of esports or casual players, solo or team players, clan/team-leaders or non-leaders can be different based on the GOALS questionnaire that assessed general long-term life goals (Pöhlmann and Brunstein 1997). Affiliation (i.e., the need to help others, and intense interaction with others) and diversion (i.e., the need for excitement, tension, and new experiences) motivations differentiated the esports players from the casual players, with esports players developing more friendly relationships through membership of a team, and participating in LAN championships. Furthermore, those esports players who were leaders in their teams, also satisfied their need for power by holding a game leader position compared to the non-leader players.

### ***Motivations of esports spectators***

As noted above, esports not only includes players, but also includes organizers and sponsors of esports championships, esports commentators, and the viewing esports audience (Adamus 2012; Jenny et al. 2016; Jonasson and Thiborg 2010). This approach deems it necessary to investigate esports viewers for a more rounded understanding of the phenomenon of professional gaming.

Lee, An, and Lee (2014) examined the characteristics of 103 esports spectators, who attended the 2013 *League of Legends* World Championship Finals. More specifically, they examined the motives of esports viewing and assessed how these motives affected viewing satisfaction. Findings demonstrated that esports viewers watched professional gaming because they enjoyed the drama that occurred during esports matches, as well as the recreation, game commentary, and skills displayed by the professional gamers. Furthermore, team attachment and game commentary strongly contributed to the satisfaction of esports viewing.

From a different perspective, Hamari and Sjöblom (2017) surveyed 888 esports viewers and investigated esports consumers' motivations, to better understand how and why they used this type of media to satisfy their needs based

on uses and gratifications theory (Katz et al. 1973). The researchers approached esports as a new sport from the sports consumption and motivation perspective. To understand the game mechanics of any esports game it is indispensable to enjoy esports broadcasting, but the aesthetics motivation (visual elements, attractiveness of the sport/game) did not increase the frequency of esports stream viewing. However, novelty (i.e., enjoyment of seeing new players and teams on the sport scene) had a moderate association with esports consumption, but the enjoyment of aggression (i.e., witnessing aggressive/hostile behavior by the players), escapism (i.e., using media to forget/avoid everyday problems), and acquiring the knowledge (i.e., learning about players and teams, collect information, learn new skills) positively influenced the frequency of esports spectating.

## **Discussion**

The present review aimed to review all empirical studies examining the psychology of esports, and to draw attention to a new field of video game research. However, as demonstrated via a systematic literature search, few studies exist focusing on the psychological aspects of esports. Findings of the review demonstrated that three main topics have been investigated in the psychological literature: (i) the path of becoming a professional esports player, (ii) characteristics of esports players (i.e., mental skills, motivational patterns), and (iii) the motivational characteristics of watching esports. These studies not only provided data about why professional gamers act in such competitive ways, but also showed that becoming a professional esports player appears to be similar to the process of becoming a professional athlete in any given sport. According to Guttman's (2004) and Suits' (2007) characteristics that define an activity as a sport, many similarities can be found between players who play video games in professional way and players who identify as athletes (e.g., training, practice, skill acquisition, dedication to the 'job', etc.). Taylor (2012) also pointed out in her work that professional gamers and professional athletes of traditional sports can be compared along the same requirements and practices including the fixed rules of tournaments, players' preparation for contests (mentally and physically), broadcasting the events, and judging the events.

However, not all scholars support the concept of considering esports as sport. According to previous game studies, Caillois (2001) argues that competitive gaming in general has a negative impact on people and society when gaming engaged in as a free activity becomes a work activity. Caillois (2001) identified six characteristics of playing (i.e., free, separate, uncertain, unproductive, regulated, and fictive). Considering esports as sport, thus gaming as working activity, these playing characteristics are compromised. The playing activity becomes a part of working life, and can negatively affect the concept of playing as free activity. Building on the work of Caillois (2001), Brock (2017) argued that esports could lead to the pursuit of extrinsic rewards over intrinsic ones by playing video games (Ryan and Deci 2000; Ryan et al. 2006). However, the empirical research cited in the present review demonstrates that esports players can be motivated to become professionals via both extrinsic and intrinsic rewards (Kim & Thomas, 2015). Moreover, playing video games in a more competitive way does not help define it as a work or leisure activity. It would appear that esports is a serious leisure activity that players enjoy and that some players can develop themselves during the process of becoming professional gamers (Martončík 2015; Seo 2016). Consequently, research is also needed to examine the extent that adolescent gamers are now viewing their playing of videogames as a career

choice as opposed to a pure leisure activity. Given the increasing appeal of esports, it is likely that increasing numbers of adolescents will see gaming as an activity from which they can make a living.

From a different perspective, Griffiths (2017) raised interesting questions about the role of excessive gaming and potential addictions (Kuss et al. 2016, 2017). In his writings, he theoretically paralleled professional video gaming to professional gamblers (i.e., poker players), focusing on the similarities of the excessive time they can spend on playing which can be either practicing and/or competing. However, the similarities between gambling and playing videogames have been highlighted in papers going back over 25 years. For instance, Griffiths (1991) compared the psychology of playing videogames with the psychology of playing slot machines. He argued that on both a psychological and behavioral level, slot machine gambling and video game playing shared many similarities (e.g., similar demographic differences such as age and gender breakdown, similar reinforcement schedules, similar potential for 'near miss' opportunities, similar structural characteristics involving the use of light and sound effects, similarities in skill perception, and similarities in the effects of excessive play. In fact, Griffiths described gaming as a "non-financial form of gambling" (p.54) and that slot machine gamblers (particularly those with problems) used money as a way of keeping score (in much the same way that gamers do with the points won or lost while playing). Since then, a number of scholars have highlighted the psychological similarities between gambling and video gaming (e.g., Fisher & Griffiths, 1995; Griffiths, King & Delfabbro, 2014; Johansson & Götestam, 2004; Wood, Gupta, Derevensky & Griffiths, 2004), particularly in the area of structural characteristics and how such features can facilitate repetitive play (e.g., King, Delfabbro & Griffiths, 2010; Wood, Griffiths, Chappell & Davies, 2004).

From a problem gambling perspective, future research should focus on esports players' psychological vulnerability, as some studies have begun to investigate the difference between problematic and professional gambling (Hing et al. 2016; Weinstock et al. 2013). According to research focused on the different ways of gambling on the same activity, McCormack and Griffiths (2012) noted, very little empirical research exists investigating professional gamblers who rely upon skill, knowledge, and playing in a more disciplined way than players who only seek entertainment. Further research has observed some identical characteristics which differentiate problematic gamblers and professional gamblers. Weinstock and his colleagues (2013) found both professional and problematic gamblers reported similar frequency and intensity of gambling. However, pathological gamblers showed poor psychosocial functioning, while professionals' rate of psychiatric distress was within a normal range. Further research should be carried out specifically comparing the psychological characteristics of esports players and problem gamers. While the behavior may be identical (i.e., excessive gaming every single day) the motivations are likely to be very different. Hing and her colleagues (2016) differentiated professional, semi-professional, and amateur gamblers from each other, highlighting that problematic use of gambling can appear at every level of this activity. Moreover, those who played at a professional/semiprofessional level, experienced higher psychological distress, and they were more likely report chasing losses and detrimental financial consequences of gambling. Other studies have also reported that professional poker players can suffer from both problematic and addictive play simultaneously (Recher & Griffiths 2012). Considering that some professional/semi-professional gamblers also appear to display problematic behavior (King et al. 2015) similar research could be carried out on professional esports players.

Borrowing from the perspective of problematic gambling, further esports research could focus on the fact that professional video game players can also be affected by problematic use due to the level of stress they have to face during practices and competitions. In addition, the lifestyle of esports players can be frenetic, and with the excessive use of games, it can have a negative influence not only on their performance, but on their psychological wellbeing and daily life. In fact, some papers examining excessive professional gaming has questioned whether professional gamers that spend 10 hours or more a day practicing and competing are addicted to gaming or work (Faust et al. 2013; Griffiths 2017).

## **Conclusion**

The present review systematically collated all the published peer-reviewed empirical studies concerning the psychology of esports players, to draw attention to the topic to academics and researchers in an emerging field of gaming activity, and to encourage future empirical studies in the field of sport psychology. In addition to the increasing popularity and attraction of esports, and the psychology of video gaming more generally, these phenomena are often framed as problematic, because of the lack of physical activity and its sedentary nature (van Hilvoorde 2016; van Hilvoorde and Pot 2016) or the intensive, excessive use (Griffiths 2017). However, there is a paucity of empirical data and further research is needed before any definitive conclusions can be made concerning the psychology of esports. To earn the 'sport-status,' esports need to be accepted as a sport worldwide (van Hilvoorde and Pot 2016; Witkowski 2012, 2009), and is already under consideration in about 40 countries (International e-Sports Federation 2017).

Regarding future research directions, further comparison and evaluation of sports and esports is needed, developing the similarities and the differences between such activities. Similarly to the previous theoretical studies highlighted (Adamus 2012; Jenny et al. 2016; Jonasson and Thiborg 2010), esports as video gaming consumption is not just a form of leisure activity or work (Ma et al. 2013; Seo 2016; Seo and Jung 2016). Accepting esports as a genuine sport and the emerging popularity of this activity could lead future empirical studies to applying the tools and methodologies of sport psychology in their design. It is also suggested that research carried out into the psychology of professional gambling (e.g., research into activities such as poker) could also provide frameworks and insights applicable to further studying esports. Examining the phenomenon of esports could reduce the stigma that some professional gamers may face (individuals, teams, and staff, including coaches, managers), and also identify and help overcome any potential difficulties (e.g., the process of becoming a professional player, coping with stress during training and/or matches, problematic video game use).

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