

ORIGINAL RESEARCH

Investigation of factors contributing to university students' addiction to esports games

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Abstract

Background: Many young people spend a significant amount of time playing esports and video games during the day and meet their social and psychological needs on these platforms. This situation can lead to people developing an addiction to esports games over time. This situation brings about many problems, notably the gradual isolation of individuals from social life over time. Especially during university years, many individuals turn to esports games as a way to escape from various issues. There could be numerous reasons for this inclination. **Objective:** This study aimed to uncover the factors contributing to university students' addiction to esports games. **Methods:** The study utilized the Q Method, incorporating qualitative and quantitative research features. Twenty-six university students who play games for at least 21–24 hours a week were included in the study group. The study group was determined using the snowball sampling method. The principal component analysis method was used to analyze the data. **Results:** The factors that contribute towards university students' addiction to esports games are wanting to socialize and make new friends, wanting to be a professional-level esports player and earning money by sharing game videos on social media. **Conclusions:** The study's findings suggest that various factors, including psychological, economic, social, and professional aspirations, contribute to esports addiction. It was also shown that there are individual benefits that contribute to the formation of addiction to these games, as well as the potential harm that esports games can cause to individuals.

Keywords: addiction, esports, university student, Q Method

Introduction

The demand for online games is growing every day in the digital world. Esports are growing in popularity daily and are in an essential position to meet increasing demand. Online games or esports games can sometimes turn into events organized at very highly competitive standards by teams and individuals to compete for championships or prize money in tournaments or leagues (Newzoo, 2021). In addition, some esports games can turn into activities involving the use of mental and physical abilities for competition and entertainment in a realistic virtual environment (Lee et al., 2014). Over time, esports, have garnered significant attention from the event and entertainment industry (Cunningham et al., 2018). This interest has grown significantly each year in recent years (Palanichamy et al., 2020). The global audience for esports games exceeds 205 million, with 28 million fans in North America and Europe combined (Casselman, 2015). Factors such as competition in esports games, consumer demand, and widespread interest in sporting events and entertainment media have contributed to this growth (Funk et al., 2018).

According to statistical data, an esports player can spend an average of 3–4 hours per day playing esports games. This

represents up to 21–28 hours per week (Akel et al., 2023). Although primarily popular among adolescents, social media has also become a space where adult individuals, including university students, actively participate (Brand et al., 2017). It can be argued that the growing interest from the target audience contributes to the addiction to esports games. Online computer game addiction can be defined as an excessive and uncontrollable desire to participate in computer games (World Health Organization, 2019). The increasing popularity of esports can be considered an essential indicator of addiction to online and esports games (Xu et al., 2012). It can be argued that self-determination and social learning theory underlie these addictive behaviors. According to self-determination theory, it has been suggested that individuals have fundamental psychological needs that drive their behaviors. These needs include the need for attachment, the need for competence, and the need for autonomy. Individuals will feel good if they fulfill these social needs (Ryan & Deci, 2000). According to social learning theory, individuals' behaviors are based on the behaviors they learn from others (Bandura & Walters, 1977). The development of addictive behavior in esports can be analyzed through the lens of self-determination and

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social learning theory. Individuals engage in activities they enjoy and may develop addictive behaviors by observing and learning from others. Esports addiction, similar to online game addiction, is an antisocial learned behavior.

The demand for multiplayer games can be viewed as a social outlet for players because of their inherent nature (VanCott, 2008). Wood (2008) argued that the underlying cause of this behavioral disorder, which is assessed within the context of addiction, is that individuals engage in play as a means of avoiding real-life problems. There are numerous reasons behind individuals' addiction to esports games. These reasons include competition and social interaction, applying what they have learned, seeking excitement, helping others and establishing cooperation, realizing their life goals in the game environment, desire for leadership, rewards, and fame, and increasing self-esteem (Bányai et al., 2020; Seo, 2016). Apart from these reasons, one of the most critical factors contributing to individuals' esports addiction can be linked to their parents' depression and psychological well-being. The results obtained from various studies indicate that this factor is a significant determinant of online gaming addiction (K. Kim & Kim, 2015; Mun & Lee, 2021).

During the university process, individuals encounter numerous physical, emotional, and social pressures and challenges, intensifying their life problems (Rodgers & Tennison, 2009). Many studies have found that university students, who are particularly psychologically and emotionally vulnerable, suffer from various types of addictions, such as internet, phone, gambling, and alcohol addiction (López-del-Hoyo et al., 2022; Verhoog et al., 2020). In addition to these types of addiction, the prevalence of addiction to esports games and gaming disorder, which is expected to emerge during the university years, poses numerous problems and can become a severe threat to public health (Chung et al., 2019). These threats may manifest as sleep disorders, excessive weight gain or loss, and neglect of social relationships (Marazziti et al., 2015). In addition, prolonged addictive gaming can result in mood disorders, obsessive thoughts, reduced sleep and appetite, neglect of school and work, and tension with close family members (Sioni et al., 2017).

Previous studies focused on adolescents' addiction to computer games (Najmai et al., 2023; Tso et al., 2022). However, the current study aims to identify the causes of esports addiction among university students.

Methods

Study design

The study utilized a methodology that incorporated both qualitative and quantitative research methods. Q methodology is a unique approach that combines semi-qualitative and semi-quantitative elements, distinguishing it from other research methods used to uncover people's perspectives on any subject. (Zabala et al., 2018). Q methodology is recognized as a mixed research design by its nature. It is known as the science of subjectivity because it encompasses the subjective perspectives of the participants (Lundberg et al., 2020). This research was designed using a combination of structural and non-structural approaches. The

structural design involved creating questionnaires based on data obtained from similar studies (Abbasi et al., 2023; Czako et al., 2023), while the non-structural approach applied to generate questions based on data collected from participants in advance (Demir & Kul, 2011). The research participants were interviewed in a non-structured format about the factors contributing to esports addiction. Question statements were formulated based on the results obtained from the interview and the data gathered from similar studies in the literature.

Participants

A total of 26 university students (20 men, 6 women, aged 18–25 years) participated in this study, which was carried out voluntarily to determine the factors contributing to addiction to esports video games. They all played the Valorant esports game on Windows and were located in different regions of Turkey. The snowball sampling method was used to determine the research study group. This sampling method allows increasing ongoing sampling by inviting participants who meet the research criteria to participate (Parker et al., 2019).

In order to evaluate the individuals who meet the research criteria within the scope of weekly addiction to esports games, individuals who spend at least 21–24 hours a week on esports games are defined as esports addicts (André et al., 2020). Accordingly, participants who play esports games for at least 21–24 hours per week were included in the study. The study was approved by the institutional review board and the participants signed an informed consent form. The study was conducted in accordance with the ethical principles of the 1964 Declaration of Helsinki.

Data collection

The research utilized a personal information form, a semi-structured interview form, and a Q grid as data collection tools. The personal information form includes descriptive details such as gender, the number of hours participants spend playing esports games daily, and the duration of their engagement with these games. The statements to be placed in the Q grid in order of importance are the results of the interviews with the participants regarding the factors influencing esports addiction and the data obtained from similar studies.

Qualitative dimension

In the qualitative phase of the study, the researchers developed a semi-structured interview questionnaire to collect data. They reviewed research on digital game addiction to determine the questions for the interview. The interviews with participants revealed various factors contributing to their addiction to esports, which shaped the questions for the Q grid.

Quantitative dimension

In the quantitative stage of the study, the Q Method was used for data collection. Based on the data obtained from the literature review and semi-structured interviews conducted during the research, 32 items were formulated

across eight dimensions (Table 1). These dimensions are believed to contribute to the development of esports game addiction among university students. The items within the Q Method were arranged according to the mandatory distribution approach, with items ordered from neutral to negative expressions in descending order.

Data analysis

The qualitative data from the study were analyzed using the content analysis method. The content analysis method grouped words expressing similar content into the same factor. The expressions within the themes were organized as question statements. The participants placed the question statements in the Q grid within the range of -4 to +4 based on their perceived order of importance (Figure 1). Quantitative analysis procedures for the expressions in the Q grid were analyzed using the free software package PQMethod (Version 2.35 for Windows; <http://schmolck.org/qmethod/index.htm>). The principal component analysis method was utilized to analyze the data. The statistical formula $(2.58 * (1/\sqrt{n}))$ was used to determine the significance level of the participants' opinions (Demir & Kul, 2011). The significance value obtained in this study was found to be .46. If

the factor loading values obtained according to the answers given by each participant to the questions are greater than .46, it is considered as a significant result.

Results

After thematically coding the data obtained from the research, eight themes related to university students' addiction to esports games were identified (Table 1).

The principal components factor analysis shows that the participants can be categorized into two factors (Table 2). While significant results were obtained from 16 participants in the first factor, significant results were obtained from only 11 participants in the second factor. A moderately positive relationship was found between the two factors identified in the research ($r = .5237$).

The question statements in Factor 1 and Factor 2 were ranked in order of importance. Z scores above 1 point and the Z scores with a score less than -1 are presented in Table 3 and Table 4.

In Table 5, the ranking of the meaningful question statements with the highest and lowest discriminative scores in Factor 1 was carried out.

Table 1 Themes related to addiction factors for esports games

Factors/Statements
Pleasure
I spend time addicted to digital esports games because it gives more pleasure than many things in life. (1)
There are areas of interest in life that give me a lot of pleasure from playing esports games. (17)
Social
I have an addictive interest in esports games in order to meet new people and socialize. (2)
The way to meet new people and socialize is not to play esports. (18)
I play esports games because I have a good time with my friends. (3)
One of the ways to have a good time with my friends cannot be defined as playing esports games together. (19)
I play computer games because there are many people in my circle of friends who play esports. (12)
Playing an esports game to have a good time with my friends is an irrational choice. (28)
Since I am shy in social relations, I can express myself comfortably while playing e- sports. (16)
The main reason why I am shy in social relations is esports games. (32)
Psychological
I can fill the attention and psychological support that I cannot see from my family with esports games, so it is an indispensable field of interest for me. (4)
Playing esports is the last thought that comes to my mind when I do not receive psychological and social support from my family. (20)
I play esports because it has an anti-depressant effect on all my psychological problems. (7)
Playing esports makes me tense and increases my psychological problems. (23)
I play esports because it satisfies my competitive instinct. (15)
The competitive instinct is more easily satisfied outside of esports games. (31)
I identify with the characters in the game, so I play esports. (6)
esports is not a meaningful option for playing computer games. (22)
Economic
I play an esports game to develop the character in the game and sell it to other players for money. (8)
Making money by playing esports is a fantasy. (24)
I play esports game to make money and watch me live by opening a live broadcast. (11)
Trying to earn money by playing esports games and broadcasting live is a waste of time. (27)
Education
While playing the esports game, I play because I learned a foreign language and contributed to my foreign language knowledge. (9)
Esports game is just an entertainment, it has no educational aspect. (25)
Esports, I play games in order to increase my problem-solving skills and use them in real life. (14)
Esports are unrealistic and cannot help me in real life. (30)
Career
I am playing games to reach a certain level and become an esports athlete. (10)
Playing games to become an esports athlete is difficult and boring. (26)
Hobby
I play esports games to realize a collection for games and to gain player characteristics that other players do not have. (5)
Playing a computer game is not dependent on playing an esports game in order to be more privileged than other players. (21)
Time
I play esports game to make time pass faster. (13)
Esports game slows down time and wastes it. (29)

Figure 1 Q grid used in the study

[illegible]

Table 2 Factor distributions

Participant number	Factor 1	Factor 2
1	0.5286	0.3376
2	0.4681	0.7297
3	0.0244	0.7575
4	0.4800	0.5821
5	0.7150	0.5042
6	0.6816	0.4242
7	0.5696	0.2258
8	0.5191	0.4727
9	0.4913	0.5762
10	0.6859	0.3397
11	0.5835	0.0531
12	0.3137	0.5887
13	0.3382	0.6950
14	0.5393	0.0026
15	-0.5383	0.5042
16	-0.0649	0.2446
17	0.7064	0.2629
18	0.7513	-0.0321
19	0.3997	-0.3227
20	0.1859	0.2716
21	0.7513	-0.0321
22	0.2700	0.4221
23	0.7324	0.2605
24	0.4523	0.4048
25	0.4535	0.4647
26	0.7775	0.4650

Note. Significant results are in bold.

Views of university students on addiction factors themes

This section contains the interview data from the participants regarding their reasons for placing statements in the Q grid at +4, which should help factors that contribute the most to addiction to esports games.

Participant views on social Factor theme

Due to the high cost of living, the activities you can plan with your close circle are limited. Even when we plan an activity, it takes a long time to carry out similar activities and meet up because life is costly. Online games in esports provide an ideal platform for enjoying quality time at an affordable cost. My close friends and I have fun and socialize for at least 4 hours every day. (Participant 1)

The esports games I play have become addictive in every way. I am driven to participate in esports, where I can compete, socialize, prove myself, and become a sought-after player. (Participant 2)

I have always been shy and introverted in my social interactions. I don't know if this is due to computer games, but when I play esports games, I find it easier to communicate with people. I can showcase my skills and success, which helps me connect with others and make friends. (Participant 20).

I don't feel as comfortable as I'd like because I believe that people I've just started talking to in my daily life see me as a "weird" person. Still, because my online communication is instantaneous and I may choose not to share in the future, their opinions about me become unimportant to me. In this case, I can be myself and reflect my personality (Participant 18).

Participant views on the psychological factor theme

Engaging in esports games has numerous psychological benefits for me. They help alleviate my stress, distress, and introverted mood, allowing me to revert to my usual self. Playing games helps me forget my stress, tension, and negative mood. (Participant 4)

As an esports athlete, I have to play games regularly. By practicing, I am contributing to the development of my game-related skills. Being an esports player with a federation will enable me to pursue a career I love. When we consider the transfer fees of esports professionals, it's evident that e-athletes can earn substantial income. The abundance of free time I have is another motivating factor for me to specialize in esports. (Participant 5).

Participant views on the pleasure factor theme

I can confidently say that I have an addictive passion for esports games. I have been playing computer games since a young age. My family and I have almost no social interaction, so I enjoy playing games and experiencing competition with different opponents. (Participant 6)

The most significant factor in the fast and enjoyable nature of esports competitions is that they sometimes last for up to an hour. I often lose track of time during competitions, and if I have nothing else to do, I can spend the entire day playing games. (Participant 7)

Participant views on the economic factor theme

The most significant aspect of esports is their popularity. During esports competitions, many people watch the events live and share videos of the games on the internet. Thanks to the skills I have developed over time, I host live broadcasts and create videos for esports events to generate income. (Participant 10)

Participant views on the education factor theme

It is no wonder that esports games are so popular, as people do not just see them as mere entertainment. Many people spend their time playing these games and find happiness. They can be played in any environment, offer easy access options, and provide people with new

Table 3 Ranking of the most positive and negative items of Factor 1

Statements	Z score
Top Rated	
I play esports games because I have a good time with my friends. (3)	2.050
I am playing games to reach a certain level and become an esports athlete. (10)	1.562
Esports because I learned a foreign language while playing the game and it contributed to my foreign language knowledge. (9)	1.335
I can fill the attention and psychological support that I cannot see from my family with esports games, so it is an indispensable field of interest for me. (4)	1.269
I play esports game to make time pass faster. (13)	1.204
I spend time addicted to digital esports games because it gives more pleasure than many things in life. (1)	1.134
Lowest rated	
Esports games and broadcasting live is a waste of time. (27)	-1.554
Esports game slows down time and wastes it. (29)	-1.590
Playing games to become an esports athlete is difficult and boring. (26)	-1.608
Esports game is just an entertainment, it has no educational aspect. (25)	-1.904

Table 4 Ranking of the most positive and negative items of Factor 2

Statements	Z score
Top rated	
I play esports games because I have a good time with my friends. (3)	1.914
I play esports games to realize a collection for games and to gain player characteristics that other players do not have. (5)	1.744
I identify with the characters in the game, so I play esports. (6)	1.596
I play an esports game to develop the character in the game and sell it to other players for money. (8)	1.476
I play esports because it has an anti-depressant effect on all my psychological problems. (7)	1.427
I play esports because it satisfies my competitive instinct. (15)	1.326
While playing the esports game, I play because I learned a foreign language and contributed to my foreign language knowledge. (9)	1.003
Lowest rated	
Playing esports makes me nervous and increases my psychological problems. (23)	-1.277
One of the ways to spend a pleasant time with my friends cannot be defined as playing esports games together. (19)	-1.667

Table 5 Factor 1 distinguishing items highest and lowest values

Statements	Factor 1		Factor 2	
	Q	Z score	Q	Z score
Most positive distinctive statements				
I am playing games to reach a certain level and become an esports athlete. (10)	3	1.56*	-1	0.61
The attention and psychological support that I cannot see from my family with e-sports games, so it is an indispensable area of interest for me. (4)	3	1.27*	1	0.59
There are areas of interest in life that give me a lot of pleasure from playing eports games. (17)	2	0.98*	-1	-0.83
Esports, I play games in order to increase my problem-solving skills and use them in real life. (14)	2	0.64*	0	-0.41
I play esports game to make money and watch me live by opening a live broadcast. (11)	1	0.55*	0	-0.05
I have an addictive interest in esports games in order to meet new people and socialize. (2)	1	0.46*	-1	-0.49
Most negative distinctive statements				
The competitive instinct is more easily satisfied outside of esports games. (31)	-1	-0.63*	0	-0.05
One of the ways to have a good time with my friends cannot be defined as playing esports games together. (19)	-2	-0.66*	-4	-1.67
Esports games and broadcasting live is a waste of time. (27)	-3	-1.55*	-1	-0.81
Esports game slows down time and wastes it. (29)	-3	-1.59*	-2	-0.91
Playing games to become an esports athlete is difficult and boring. (26)	-3	-1.61*	-2	-0.86
Esports game is just an entertainment, it has no educational aspect, (25)	-4	-1.90*	-1	-0.57

Note. * $p < .05$.

information. Since I need to learn the meaning of many terms in the game, playing esports games contributes to my foreign language knowledge and motivates me to play more. (Participant 11)

Participant views on the time factor theme

Due to economic conditions and a busy work life, I typically prefer to spend time at home after work. At home, I immerse myself in the fluency of esports

games, and I enjoy how time flows like water while I play. (Participant 15)

Participant views on the hobby factor theme

I love collecting items, not only in games but also in real life. For example, I have weapon skins, player cards, and other items in my in-game inventory. In short, I want skins that are not currently in my inventory. Otherwise, my enthusiasm for the game decreases, or it is so crucial that it negatively affects my performance. (Participant 21)

Discussion

This study investigated the factors contributing to addiction to esports games among their players. These factors were evaluated regarding pleasure, social, psychological, economic, educational, career, hobby, and time considerations. As a result of the principal component analysis conducted as part of the Q Method, two distinct factors of significant value emerged.

According to the interview results, the high scores given to the question statements in the research and the reasons why the participants showed high scores to these statements indicated that one of the factors influencing the level of addiction to esports games was the theme of social factors. Consequently, the participants' inclination to have a good time with their friends, the tendency for individuals with shy personalities to interact more effectively, and the prevalence of esports gaming in the participants' social circles contribute to their involvement in intense behaviors that can be characterized as an addiction to esports games. (Cabeza-Ramírez et al., 2020; Cheah et al., 2022). Their findings identified social interaction as one factor motivating participation in digital games. This result is similar to the findings of the current study. This can be explained by people's desire to meet new people and gain popularity within their social circle.

Another factor believed to contribute to esports addiction was assessed as the psychological factor theme. The highest-scoring statements that the participants placed in the Q array and their opinions regarding the reasons for these statements generally indicated stress relief, satisfaction from the sense of competition, identification with the character in the game, and inadequate communication between the family and the individual. The results of this study are similar to those found in previous studies (Guo & Li, 2022; Wang et al., 2021). The psychological factors contributing to esports addiction can be explained by players' tendency to avoid facing problems in their daily lives and attempting to mask their psychological issues through gaming.

In the present study, the predominant reason for the participants' addiction to esports can be attributed to the economic factor theme, as indicated by the statements they provided in the Q grid. Accordingly, the interviews with individuals suggest that participants engage in esports games due to their addiction to gaming, the desire to develop and sell in-game characters, and the aspiration to increase their social media followers and earn money by live streaming esports competitions. Similarly, Seok et al. (2018) presented in their study results, that one of the recurring themes is the motivation or addiction to online games driven by the desire to achieve economic gains through gaming. Given the current economic conditions, the desire of individuals to play games and earn income from this activity can be seen as a crucial factor in the development of addictive behavior.

One of the factors contributing to addiction that emerged in the research is the theme related to education. One of the statements that received high scores from the individuals participating in the study is the one concerning the educational

aspect of esports games. According to the results of the interviews with the individuals participating in the research, it was determined that the participants were engaged in esports games at an addictive level due to the perceived educational benefits. The benefits of learning a foreign language and the practical application of information acquired through gaming are among the outcomes. (P. W. Kim et al., 2013) The results obtained in their studies are consistent with the findings of the current research. It can be argued that online games in the realm of esports not only encompass detrimental elements but also introduce a distinct addictive factor for individuals in terms of educational aspects.

Another factor contributing to esports addiction, as identified in the research, is the pleasure derived from playing the games. In the study, one of the questionnaire statements that received the highest score from the participants is included in this factor. The interviews with the study participants revealed that individuals are able to enjoy life and demonstrate success in a different social environment through factors related to their engagement with the game (Cross, 2017; Griffiths, 2010b; Park et al., 2016). The interest and desire for esports games can be explained by the fact that individuals derive pleasure from the game environment that they may not experience in real life, as indicated in the studies.

Another factor contributing to individuals' addictive behavior towards esports games is the desire for a fast and enjoyable experience. As a result of the interviews with the participants, it can be explained that spending time faster and having more fun is another factor that leads individuals to esports. (Griffiths, 2010a; Liu & Chang, 2016) The findings of the current study were supported by previous research. Consequently, it can be argued that people's inclination to seek enjoyable and quick entertainment leads to an addiction to online gaming in the realm of esports.

This study has some limitations. Our sample consisted of university students from a single country, who play esports games between 21–24 hours weekly. The other limitations include just one specific (and team-oriented) video game; or the limitations stemming from snowball sampling (the participants being closely connected).

Conclusions

As a result, esports games, which are highly popular today and capture the interest of individuals across all age groups, are also sought after by university-age individuals. Several factors may contribute to the increase in demand and lead to addiction over time. The study's findings suggest that various factors, including psychological, economic, social, time commitments, and professional aspirations, contribute to esports addiction. The current study has determined that there may be benefits that contribute to the formation of addiction, as well as the potential harm this addiction can cause.

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Conflict of interest

The authors report no conflict of interest.

References

- Abbasi, A. Z., Khan, M. K., Naeem, F., Albashrawi, M., Ting, D. H., & Kumar, S. (2023). Gamers' subjective well-being: The role of peripheral and core elements of eSport videogame addiction. *Current Psychology*, 42, 32230–32243. <https://doi.org/10.1007/s12144-022-04222-4>
- Akel, S., Baysal Yiğit, A., Çorakçı Yazıcıoğlu, Z., Özkan, Ş., & Uğurlu, Ü. (2023). A perspective at the daily routines of esports players: Life balance. *International Journal of Sport Culture and Science*, 11(4), 302–314. <https://doi.org/10.14486/IntJSCS.2023.69>
- André, F., Broman, N., Håkansson, A., & Claesdotter-Knutsson, E. (2020). Gaming addiction, problematic gaming and engaged gaming – Prevalence and associated characteristics. *Addictive Behaviors Reports*, 12, Article 100324. <https://doi.org/10.1016/j.abrep.2020.100324>
- Bandura, A., & Walters, R. H. (1977). *Social learning theory* (Vol. 1). Prentice Hall.
- Bányai, F., Zsila, Á., Griffiths, M. D., Demetrovics, Z., & Király, O. (2020). Career as a professional gamer: Gaming motives as predictors of career plans to become a professional esports player. *Frontiers in Psychology*, 11, Article 1866. <https://doi.org/10.3389/fpsyg.2020.01866>
- Brand, J. E., Todhunter, S., & Jervis, J. (2017). *Digital Australia Report 2018*. <https://www.igea.net/wp-content/uploads/2017/07/Digital-Australia-2018-DA18-Final-1.pdf>
- Cabeza-Ramírez, L. J., Sánchez-Cañizares, S. M., & Fuentes-García, F. J. (2020). Motivations for the use of video game streaming platforms: The moderating effect of sex, age and self-perception of level as a player. *International Journal of Environmental Research and Public Health*, 17(19), Article 7019. <https://doi.org/10.3390/ijerph17197019>
- Casselmann, B. (2015). *Resistance is futile: eSports is massive... and growing*. http://www.espn.com/espn/story/_/id/13059210/esports-massive-industry-growing/
- Cheah, I., Shimul, A. S., & Phau, I. (2022). Motivations of playing digital games: A review and research agenda. *Psychology & Marketing*, 39(5), 937–950. <https://doi.org/10.1002/mar.21631>
- Chung, T., Sum, S., Chan, M., Lai, E., & Cheng, N. (2019). Will esports result in a higher prevalence of problematic gaming? A review of the global situation. *Journal of Behavioral Addictions*, 8(3), 384–394. <https://doi.org/10.1556/2006.8.2019.46>
- Cross, N. A. (2017). *The relationship of online gaming addiction with motivations to play and craving*. [Doctoral dissertation, Bowling Green State University]. https://rave.ohiolink.edu/etdc/view?acc_num=bgsu1435084396
- Cunningham, G. B., Fairley, S., Ferkins, L., Kerwin, S., Lock, D., Shaw, S., & Wicker, P. (2018). eSport: Construct specifications and implications for sport management. *Sport Management Review*, 21(1), 1–6. <https://doi.org/10.1016/j.smr.2017.11.002>
- Czakó, A., Király, O., Koncz, P., Yu, S. M., Mangat, H. S., Glynn, J. A., Romero, P., Griffiths, M. D., Rumpf, H.-J., & Demetrovics, Z. (2023). Safer esports for players, spectators, and bettors: Issues, challenges, and policy recommendations. *Journal of Behavioral Addictions*, 12(1), 1–8. <https://doi.org/10.1556/2006.2023.00012>
- Demir, F., & Kul, M. (2011). *A modern research method: Q method*. Adalet Publications.
- Funk, D. C., Pizzo, A. D., & Baker, B. J. (2018). eSport management: Embracing eSport education and research opportunities. *Sport Management Review*, 21(1), 7–3. <https://doi.org/10.1016/j.smr.2017.07.008>
- Griffiths, M. (2010a). Online video gaming: What should educational psychologists know? *Educational Psychology in Practice*, 26(1), 35–40. <https://doi.org/10.1080/02667360903522769>
- Griffiths, M. D. (2010b). The role of context in online gaming excess and addiction: Some case study evidence. *International Journal of Mental Health and Addiction*, 8, 119–125. <https://doi.org/10.1007/s11469-009-9229-x>
- Guo, Y., & Li, T. (2022). Dynamics and optimal control of an online game addiction model with considering family education. *AIMS Mathematics*, 7(3), 3745–3770. <https://doi.org/10.3934/math.2022208>
- Kim, K., & Kim, K. (2015). Internet game addiction, parental attachment, and parenting of adolescents in South Korea. *Journal of Child & Adolescent Substance Abuse*, 24(6), 366–371. <https://doi.org/10.1080/1067828X.2013.872063>
- Kim, P. W., Kim, S. Y., Shim, M., Im, C. H., & Shon, Y. M. (2013). The influence of an educational course on language expression and treatment of gaming addiction for massive multiplayer online role-playing game (MMORPG) players. *Computers & Education*, 63, 208–217. <https://doi.org/10.1016/j.compedu.2012.12.008>
- Lee, S. W., An, J. W., & Lee, J. Y. (2014). The relationship between e-sports viewing motives and satisfaction: The case of League of Legends. In J. Strouhal (Ed.), *Proceedings of the International Conference on Business, Management & Corporate Social Responsibility (ICBMCSR'14)* (pp. 33–36). Batam. <https://doi.org/10.15242/ICEHM.ED0214>
- Liu, C. C., & Chang, I. C. (2016). Model of online game addiction: The role of computer-mediated communication motives. *Telematics and Informatics*, 33(4), 904–915. <https://doi.org/10.1016/j.tele.2016.02.002>
- López-del-Hoyo, Y., Monreal-Bartolomé, A., Aisa, P., Pérez-Aranda, A., Plana, C., Poblador, J. A., Casterad, J., García-Campayo, J., & Montero-Marín, J. (2022). The gambling habits of university students in Aragon, Spain: A cross-sectional study. *International Journal of Environmental Research and Public Health*, 19(8), Article 4553. <https://doi.org/10.3390/ijerph19084553>
- Lundberg, A., de Leeuw, R., & Aliani, R. (2020). Using Q methodology: Sorting out subjectivity in educational research. *Educational Research Review*, 31, Article 100361. <https://doi.org/10.1016/j.edurev.2020.100361>
- Marazziti, D., Presta, S., Picchetti, M., & Dell'Osso, L. (2015). Behavioral addiction: Clinical and therapeutic aspects. *Journal of Psychopathology*, 21, 72–84.
- Mun, I. B., & Lee, S. (2021). The influence of parents' depression on children's online gaming addiction: Testing the mediating effects of intrusive parenting and social motivation on children's online gaming behavior. *Current Psychology*, 42, 4991–5000. <https://doi.org/10.1007/s12144-021-01854-w>
- Najmi, A. H., Alhalafawy, W. S., & Zaki, M. Z. T. (2023). Developing a sustainable environment based on augmented reality to educate adolescents about the dangers of electronic gaming addiction. *Sustainability*, 15(4), Article 3185. <https://doi.org/10.3390/su15043185>
- Newzoo. (2021). *Global esports & live streaming market report*. <https://newzoo.com/resources/trend-reports/newzoos-global-esports-live-streaming-market-report-2021-free-version>
- Palanichamy, T., Sharma, M. K., Sahu, M., & Kanchana, D. M. (2020). Influence of Esports on stress: A systematic review. *Industrial Psychiatry Journal*, 29(2), 191–199. https://doi.org/10.4103/ipj.ipj_195_20
- Park, J. H., Han, D. H., Kim, B. N., Cheong, J. H., & Lee, Y. S. (2016). Correlations among social anxiety, self-esteem, impulsivity, and game genre in patients with problematic online game playing. *Psychiatry Investigation*, 13(3), 297–304. <https://doi.org/10.4306/pi.2016.13.3.297>
- Parker, C., Scott, S., & Geddes, A. (2019). *Snowball sampling*. SAGE. <https://doi.org/10.4135/9781526421036831710>
- Rodgers, L. S., & Tennison, L. R. (2009). A preliminary assessment of adjustment disorder among first-year college students. *Archives of Psychiatric Nursing*, 23(3), 220–230. <https://doi.org/10.1016/j.apnu.2008.05.007>
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68–78. <https://doi.org/10.1037/0003-066X.55.1.68>
- Seo, Y. (2016). Professionalized consumption and identity transformations in the field of eSports. *Journal of Business Research*, 69(1), 264–272. <https://doi.org/10.1016/j.jbusres.2015.07.039>
- Seok, H. J., Lee, J. M., Park, C. Y., & Park, J. Y. (2018). Understanding internet gaming addiction among South Korean adolescents through photovoice. *Children and Youth Services Review*, 94, 35–42. <https://doi.org/10.1016/j.childyouth.2018.09.009>
- Sioni, S. R., Burleson, M. H., & Bekerian, D. A. (2017). Internet gaming disorder: Social phobia and identifying with your virtual self. *Computers in Human Behavior*, 71, 11–15. <https://doi.org/10.1016/j.chb.2017.01.044>
- Tso, W. W. Y., Reichert, F., Law, N., Fu, K. W., de la Torre, J., Rao, N., Leung, L. K., Wang, Y.-L., Wong, W. H. S., & Ip, P. (2022). Digital competence as a protective factor against gaming addiction in children and adolescents: A cross-sectional study in Hong Kong. *Lancet Regional Health – Western Pacific*, 20, Article 100382. <https://doi.org/10.1016/j.lanwpc.2022.100382>
- VanCott, R. D. (2008). *Ghost at the machine: Internet addiction and compulsive computer use* [Master thesis]. Massachusetts Institute of Technology. <https://dspace.mit.edu/handle/1721.1/45341>
- Verhoog, S., Dopmeijer, J. M., De Jonge, J. M., Van Der Heijde, C. M., Vonk, P., Bovens, R. H., de Boer, M., Hoekstra, T., Kunst, A. E., Wiers, R. W., & Kuipers, M. A. (2020). The use of the alcohol use disorders identification test – Consumption as an indicator of hazardous alcohol use among university students. *European Addiction Research*, 26(1), 1–9. <https://doi.org/10.1159/000503342>
- Wang, X., Abdelhamid, M., & Sanders, G. L. (2021). Exploring the effects of psychological ownership, gaming motivations, and primary/secondary control on online game addiction. *Decision Support Systems*, 144, Article 113512. <https://doi.org/10.1016/j.dss.2021.113512>
- Wood, T. A. (2008). Problems with the concept of video game “addiction”: Some case study examples. *International Journal of Mental Health and Addiction*, 6(2), 169–178. <https://doi.org/10.1007/s11469-007-9118-0>
- World Health Organization. (2019). *International classification of diseases and related health problems* (11th ed.). <https://icd.who.int/en>
- Xu, Z., Turel, O., & Yuan, Y. (2012). Online game addiction among adolescents: Motivation and prevention factors. *European Journal of Information Systems*, 21(3), 321–340. <https://doi.org/10.1057/ejis.2011.56>
- Zabala, A., Sandbrook, C., & Mukherjee, N. (2018). When and how to use Q methodology to understand perspectives in conservation research. *Conservation Biology*, 32(5), 1185–1194. <https://doi.org/10.1111/cobi.13123>