

Czech University of Life Sciences Prague

Faculty of Economics and Management

Department of Economics



Bachelor Thesis

**The rise of E-sports during the COVID-19 pandemic along
with its Economic & Psychological effects**

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CZECH UNIVERSITY OF LIFE SCIENCES PRAGUE

Faculty of Economics and Management

BACHELOR THESIS ASSIGNMENT

Alex Saab

Economics and Management

Thesis title

The rise of e-sport during COVID-19 and its economic impact

Objectives of thesis

The main focus of this study will be checking the data analysis on how in the year 2020 – 2022 the covid pandemic had a big effect on the esports community and how the game developers had to adapt how to introduce new games into the field. How covid-19 introduced so many new people into esports, especially females.

Methodology

The methodology that is going to be used in this thesis will have a theoretical and practical part. The theoretical part will cover what is esports and the history of e-sports and what kind of tools people use to make a living using twitch, youtube, and many other streaming portals. The practical part will use interviews, questionnaires, and surveys to collect data to see how covid had an effect on esports by bringing the other gender (female) into the gaming industry and a big rise in the economy after covid 19.

The proposed extent of the thesis

35 – 50 stran

Keywords

E-sports, COVID19, Pandemic, Twitch, Streaming, Gaming.

Recommended information sources

- Borowy, M. & Jin, D. (2013). Pioneering eSport: The experience economy and the marketing of early 1980s arcade gaming contests. *International Journal of Communication*, 7, 2254–2274.
- Casselman, B. (2015). Resistance is futile: eSports is massive and growing. [Online] Available: http://espn.go.com/espn/story/_/id/13059210/esportsmassive-industry-growing
- Funk, D. C., Pizzo, A. D., & Baker, B. J. (2018). eSport management: Embracing eSport education and research opportunities. *Sport Management Review*, 21(1), 7-13.
- Lee, D., & Schoenstedt, L. J. (2011). Comparison of eSports and traditional sports consumption motives. *ICHPER-SD Journal Of Research*, 6(2), 39-44.
- Li, R. (2016). *Good luck have fun: The rise of esports*. New York, NY: Skyhorse Publishing, Inc.
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Declaration

I hereby declare that I have done this thesis entitled “The impact of the COVID-19 pandemic on video game players' mental health and well-being and how it affected video game industries ” Independently, all texts in this thesis are original, and all the sources have been quoted and acknowledged by means of complete references and according to APA Citation rules.

In Prague on 1st of March 2023

Alex Saab
.....

Alex Saab



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I would like to express our sincere gratitude to everyone who has contributed to this research project.

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The rise of E-sports during the COVID-19 pandemic along with its Economic & Psychological effects

Abstract

The COVID-19 pandemic has had a profound impact on people's mental health and well-being, including those who play video games. With many people forced to stay home due to lockdowns and social distancing measures, video games have provided a source of entertainment, social connection, and stress relief. However, the pandemic has also exacerbated existing mental health issues among video game players and created new ones, such as increased anxiety and depression.

It is also important to shed on the several advantages that gaming has overall well-being of the gamer, whether in a psychological manner or the economic and psychological aspects that will later be discussed in detail in this research paper.

Video game industries have also been affected by the pandemic. While the demand for video games has increased, the production and distribution of games have been disrupted due to the pandemic's impact on the workforce and supply chains.

Keywords: COVID-19, E-sports, mental health, Economics.

Vzestup E-sportů během pandemie COVID-19 spolu s jeho Ekonomickými a Psychologickými dopady

Abstraktní

Pandemie COVID-19 měla hluboký dopad na duševní zdraví a pohodu lidí, včetně těch, kteří hrají videohry. Vzhledem k tomu, že mnoho lidí bylo nuceno zůstat doma kvůli uzamčení a sociálnímu distancování, poskytly videohry zdroj zábavy, sociálního spojení a úlevy od stresu. Pandemie však také zhoršila stávající problémy s duševním zdravím hráčů videoher a vytvořila nové, jako je zvýšená úzkost a deprese.

Je také důležité upozornit na několik výhod, které má hraní na celkovou pohodu hráče, ať už psychologickým způsobem nebo psychologickými aspekty, které budou později podrobně diskutovány v tomto výzkumném článku.

Pandemie zasáhla i videoherní průmysl. Zatímco poptávka po videohrách vzrostla, výroba a distribuce her byla přerušena kvůli dopadu pandemie na pracovní sílu a dodavatelské řetězce.

Klíčová slova: COVID-19, E-sporty, duševní zdraví, Ekonomika.

Research question

What are the potential benefits and drawbacks of video games during the COVID-19 pandemic, how does that affect the economy, and how can these be addressed to promote mental health and well-being?

Objective

The objective of this thesis is to investigate the psychological impact of the COVID-19 pandemic on video game players and industries and to explore the potential implications for the future of the e-sports and video games industries. By using a combination of research methods, including surveys and analysis of existing data, we aim to gain a better understanding of the economic, psychological, and social implications of the pandemic on these industries. By examining these effects, we hope to contribute to the existing literature on the topic and provide insights that may be useful for stakeholders in the e-sports and video games industries.

A questionnaire with a sample size was created by the author. From there, we can analyze indicators such as age, gender, occupation, educational level, and their impact using the categorical analysis method.

Table of Contents

1	Introduction.....	1
2	Objectives and Methodology	2
2.1	Objectives.....	2
2.2	Methodology	2
3	Theoretical Part	2
3.1	Background of COVID-19 pandemic.....	2
3.2	Overview of the e-sports and video games industries.....	4
3.3	The psychological effects of video game play in general	5
3.3.1	The potential benefits of video gaming	5
3.3.2	The potential drawbacks of video gaming.....	7
3.4	The impact that the COVID-19 Pandemic had on Video Gamers	8
3.5	The Correlation between the Video Game Market and the COVID-19 Pandemic... 10	
4	Practical Part/Survey Questions and Results.....	13
4.1	What is your gender?.....	13
4.2	Please choose your age group	14
4.3	Which of the following Device(s) do you play video games on?	16
4.4	Which types of games do you mostly play?.....	18
4.5	How many hours do you consider is your weekly average ?	20
4.6	Which are the positive effect(s) you gained from gaming?	21
4.7	Which negative effect(s) did gaming had on your mental health?.....	22
4.8	During the COVID-19 pandemic how did your game time change?	23

5	Conclusion	26
6	References	28
7	Appendix	30

List of Figures

Figure 1	Gaming hours impact on mental health	8
Figure 3	why people play games.....	9
Figure 4	Time spent on activities during COVID-19.....	12
Figure 5	Gender Representation in the gaming community	14
Figure 6	Age group representation.....	15
Figure 7	Videogaming appliances selection percentages.....	17
Figure 8	Types of Video games being played.....	19
Figure 9	Average time of gaming in hrs./week.....	20
Figure 10	Positive effects gained from gaming	22
Figure 11	Negative Effects of gaming on mental health.....	23
Figure 12	Gaming time changes due to the COVID-19 Pandemic	24

1 Introduction

The COVID-19 pandemic has drastically changed the way we live our lives, and the world of video games and e-sports has been no exception. With lockdowns and social distancing measures in place, many people have turned to video games as a form of entertainment and a way to stay connected with friends and family. However, as the pandemic continues, there are growing concerns about the potential negative effects of excessive video game use on mental health, including issues such as addiction, depression, and anxiety.

In this thesis, I aim to explore the impact of the COVID-19 pandemic on gamers and the video game industry. In the first section, I will provide a detailed background on the pandemic, including its history, current state, and how it has affected various aspects of society. This will include information on how the pandemic has affected the mental health of individuals, as well as how it has impacted industries and economies.

The second section will provide an overview of the gaming industry, including its history, current state, and economic impact. This will include information on the growth of the industry, the different types of games and platforms that are popular, and the economic impact of the industry both before and during the pandemic.

The third and final section will focus on the economic and psychological impact of the pandemic on gamers, including the potential negative effects on mental health and well-being, as well as any potential positive effects. This will include information on how the pandemic has affected the way people play video games, as well as how it has impacted the mental health of gamers.

Overall, I believe that this thesis will provide valuable insights into how the pandemic has affected one aspect of our lives and the potential consequences for both individuals and the industry. It will also provide a deeper understanding of the gaming industry, its history, and its current state

2 Objectives and Methodology

2.1 Objectives

This thesis's major focus portrays the effects that the COVID-19 pandemic caused on video game players' mental health and well-being, as well as the effects on the video game industry. It also analyzes the factors that affect consumption of gaming along with small details about how E-sports staggering numbers that showcase that rise.

2.2 Methodology

Observational and survey sampling methodologies were used in this thesis, focusing on gathering as much information as possible and scientific theories about the background of the time an individual spends on gaming to have the best possible objective outcome. Secondly, statical methods are applied to demonstrate that hypotheses were built. The purpose is to go from general to specific approaches when testing in all populations based then with a smaller sample size with a group of people who participated in surveying in other to have a subjective perspective about this study.

3 Theoretical Part

3.1 Background of the COVID-19 pandemic

The COVID-19 pandemic is an ongoing global health crisis caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The virus was first identified in Wuhan, China, in December 2019 and quickly spread to other countries around the world. The initial outbreak was traced to a seafood market in Wuhan, where it is believed the virus may have originated from an animal source, possibly a bat or a pangolin.

The World Health Organization (WHO) declared a global health emergency on January 30, 2020, as the number of cases and deaths continued to rise rapidly. By March 11, 2020, the

WHO declared the COVID-19 outbreak a global pandemic, as the virus had spread to every continent and was affecting millions of people worldwide.

The COVID-19 pandemic has had a significant impact on people's lives, both in terms of their physical and mental health, as well as their social and economic well-being. Some of the effects of the pandemic on people include:

- Health impact: COVID-19 is a highly infectious disease that has caused significant illness and death around the world. Many people have experienced severe symptoms, hospitalization, and long-term health effects from the virus.
- Mental health impact: The pandemic has led to increased levels of stress, anxiety, and depression among people, particularly those who have been directly affected by the virus or who have experienced significant social and economic disruptions.
- Social impact: The pandemic has forced people to limit their social interactions and activities, leading to feelings of isolation, loneliness, and disconnection from their communities. This has been particularly challenging for vulnerable populations, such as the elderly and those with pre-existing health conditions.
- Economic impact: The pandemic has led to widespread job losses, business closures, and financial insecurity for many people. The economic impact has been particularly significant for those in low-income and marginalized communities.
- Education impact: The pandemic has disrupted education systems around the world, leading to school closures, remote learning, and significant disruptions to the academic progress of the student

As of March 2023, the pandemic continues to affect countries around the world, with new variants of the virus emerging and vaccine distribution efforts ongoing. However, with the development of effective vaccines and treatments, there is hope that the pandemic can be brought under control in the coming years.

3.2 Overview of the e-sports and video games industries

The e-sports and video game industry is a rapidly growing sector that encompasses various forms of entertainment, competition, and community building. E-sports refers to competitive video gaming, often involving professional players, teams, and tournaments with substantial prize pools. Video games, on the other hand, encompass a broader range of interactive digital media, including casual games, mobile games, and console games. . (fortunebusinessinsights ,2020).

The industry has experienced explosive growth in recent years, with millions of players and viewers around the world. E-sports tournaments and events draw massive audiences, and the prize pools for top events can reach millions of dollars.

According to a report by Newzoo, the global video game market is expected to reach \$196 billion by 2022 (Newzoo, 2020). In addition to the financial growth of the industry, the literature also highlights the increasing mainstream acceptance of e-sports. The rise of organized e-sports leagues and tournaments, as well as the inclusion of e-sports in major sporting events such as the Asian Games and the 2022 Commonwealth Games, demonstrate the growing legitimacy of e-sports as a competitive sport (Chen & Cheng, 2020; Gao, Li, & Li, 2020).

One of the key drivers of the industry's growth has been the rise of online gaming and streaming platforms. Streaming platforms like Twitch, YouTube Gaming, and Facebook Gaming have become popular destinations for gamers to share their gameplay and engage with their audiences.

3.3 The economics and psychological effects of video game play in general

There is a strong link between psychology and video gaming. Video games can have a significant impact on a person's psychology, and understanding this link is essential to promote healthy gaming habits. Video gaming, just like any other hobby work possess several positive and negative effects on overall health, but in this research, we are specifically focused on the psychological effects, which are the following:

3.3.1 The potential benefits of video gaming

Video gaming surely has several positive effects, the contrary of what the general populations think of it. There have been several studies done on that topic, and the findings were spectacular in a quantitative fashion. Furthermore, many rumors about video gaming have been debunked. The first one is none other than the most famous “Screen makes your eyesight worse “. Scientists put that under the tests, and the results turned out that gamers had much better eyesight than the average human, and that is thanks to the endless hours spent by gamers focusing on the screen with the need to focus on every single edge of the screen and the need to perceive that kind of info and act upon it as quickly as possible. In fact, Dr. Daphne Bavelier, who is a Professor of Brain and Cognitive Sciences, studies how playing action video games affects several aspects of perception, attention, and cognition. In her study, a control group was tested on vision and spatial cognition that have a focus on the so-called "action" video game genre (Bavelier, D. (2011)).

In fact, playing this kind of game improves low-level vision, visual attention, processing speed, and statistical inference, among other positive behavioral impacts. Furthermore, properly planned training studies have repeatedly demonstrated a direct link between playing video games and enhanced skills. It follows that it is not just the case that individuals who enjoy playing video games have better perceptual skills. The ability to improve one's abilities via practice has clear applications in a variety of fields, including the training of surgeons and the restoration of visual abilities in amblyopic individuals. (commonly known as a "lazy eye") (Bavelier, D. (2011)).

Another positive effect that video gaming possesses is enhancing communication in several ways. Whether it's by teamwork and collaboration in a way to achieve success and secure a higher win rate percentage since online gaming can be highly competitive and players should communicate effectively with each other, share ideas, and collaborate effectively to achieve their goals. Other times, gamers can connect with new individuals, make friends, and create a social network centered on common interests, which typically occurs through intercultural conversation. Strengthening intercultural communication abilities and increasing awareness of and tolerance for various cultures.

In 2006, this was specifically examined by two researchers. They assessed whether the more than 5,800 messages sent while participating in an online multiplayer game were socioemotional or task-oriented. The use of socioemotional messaging allowed players to bond with one another, such as "Thanks for the help," "Yeah, I agree with you," and "Wow, that was funny." Task-oriented messages are focused on the game itself, such as "How do you open this door?" or "Just practice some more." Fishman, A. (2021)

They found that there were more than 3.2 times as many socio-emotional messages as task-oriented ones. Additionally, these emotion-based messages were over 2.6 times more likely to be positive than negative.

That means that, contrary to parents' fears, the clear majority of the messages people sent while playing this game were used to interact with others in a positive way.

For young people, it can be annoying to hear their parents encourage them to talk with others when, from their perspective, they already are. Although the method of communication is different (i.e., communicated in-game rather than via text, phone, or in-person), the messages sent and connections built are the same. Fishman, A. (2021)

Even if players were to only spend time talking about the game itself, games would *still* be a great way to bond with other people. Lots of families have weekly "game nights" in which they play board games to spend time with one another. I spent a few hours playing card games with my family last week, and even though most of the conversation was centered on

the games themselves, it was undeniably a bonding experience. (Bessiere K, Kiesler S and Kraut R (2021).

3.3.2 The potential drawbacks of video gaming

While video gaming can provide many benefits, there are also potential drawbacks that should be considered, some of which can be life-changing.

Many people find playing video games to be enjoyable, in large part due to the positive feedback that gamers get for the quick judgments they make while playing the games. Games give their players continuous and immediate feedback in all aspects of their gameplay, from pressing a mouse button or joystick to moving a character to defeat an adversary to leveling up.

Games also provide internet settings where players can interact with one another or join guilds. As a result, participants are given a social identity and may experience sentiments of worth. As there are always goals to reach or challenges to overcome, many players find a feeling of purpose in the games they play.

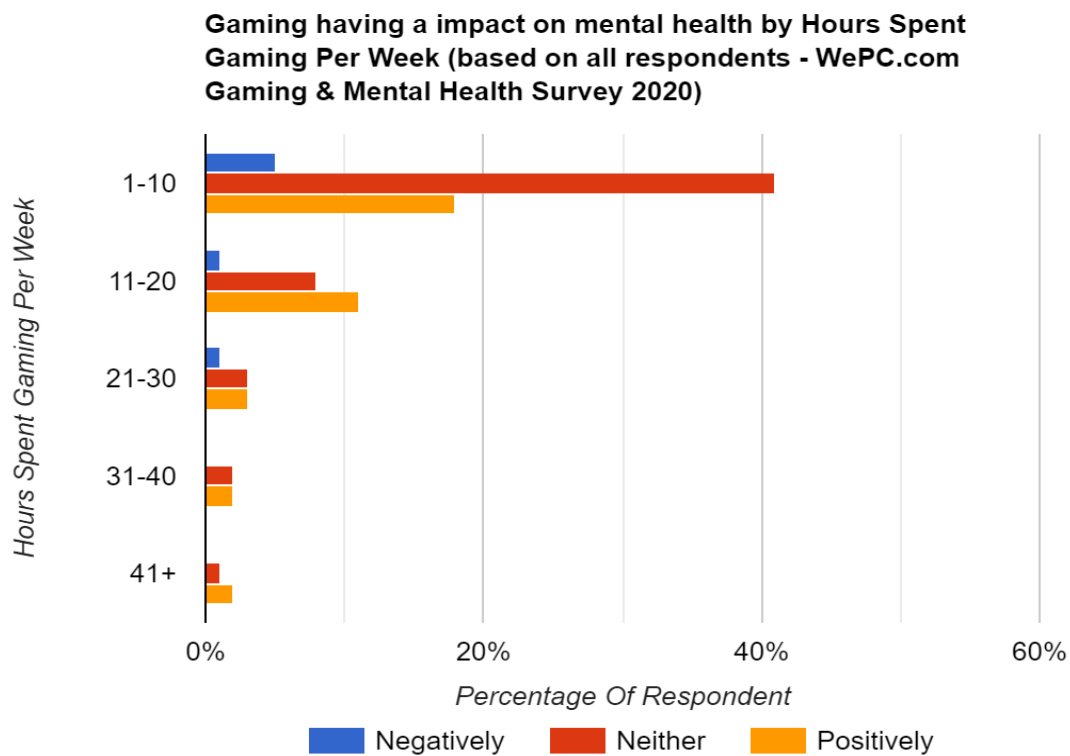
Gaming addiction is the first and the major negative effect of gaming that will lead to several other drawbacks. Gaming addiction, because of its “fun” nature and since it can be very competitive, and some games are never-ending, leaving the gamer in an endless spiral in trying to get better and level up his skills. This can lead to neglect of personal responsibilities and relationships and can have negative effects on mental and physical health, promoting a sedentary lifestyle. Excessive gaming can lead to social isolation and reduced face-to-face interactions with friends and family, which can affect overall well-being and social skills. In addition to that, spending too much time playing video games can lead to reduced academic performance as it can distract the student from studying or, in the same manner speaking, affect the person’s job performance. Also, due to this addiction, the person may suffer from lack of sleep, and this has endless consequences on the gamer’s life quality overall.

3.4 The impact that the COVID-19 Pandemic had on Video Gamers

It comes by no surprise that the COVID-19 pandemic has had a significant impact on the video gaming industry, as more people have turned to games as a form of entertainment and social interaction during periods of lockdowns and social distancing.

Research has shown that the pandemic has led to an increase in video game use as a form of coping mechanism and social connection during a time of isolation (Li, Li, Zhang, Li, & Wang, 2020). However, this increased use has also been associated with a higher risk of video game addiction, depression, and anxiety (Kuss & Griffiths, 2012; Li, Li, Zhang, Li, & Wang, 2020; King & Delfabbro, 2016). A study by the World Health Organization (WHO) found that 40% of the people who responded to their survey reported an increase in feelings of loneliness and depression since the onset of the pandemic.

Figure 1 Gaming hours impact on mental health

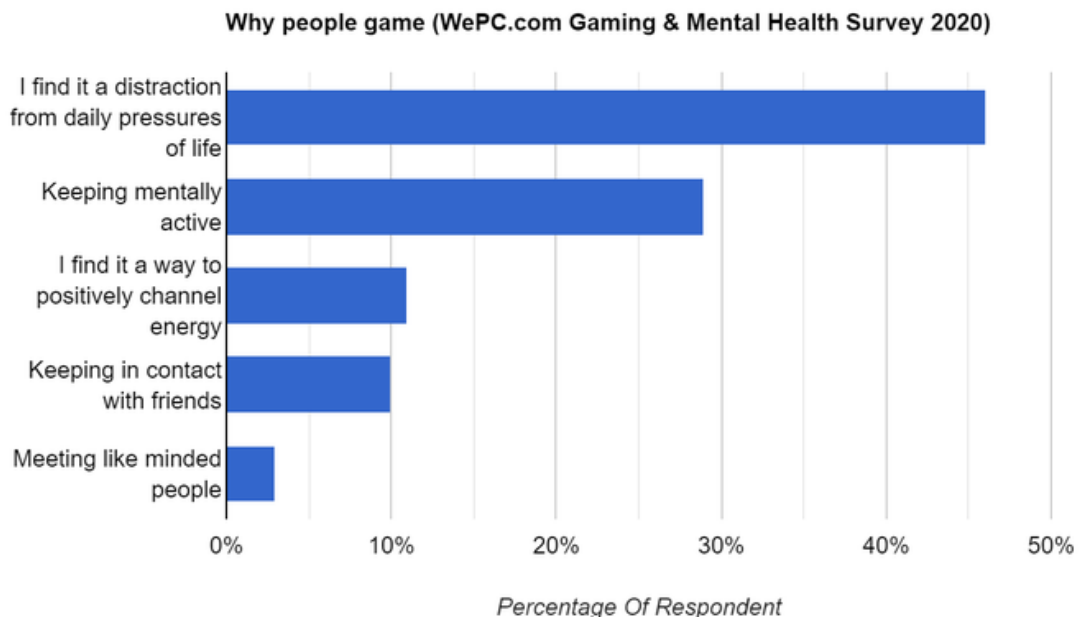


Source (WePC, 2020)

Additionally, the pandemic has also affected the e-sports industry, with many tournaments and competitions being canceled or held online. This has led to a disruption in the routine of professional e-sports players, who may have experienced increased stress and anxiety as a result (Gao, Li, & Li, 2020).

Furthermore, a study by the International Journal of Environmental Research and Public Health found that the pandemic has led to a significant increase in sedentary behavior and screen time, which can have negative effects on physical health as well as mental health (Barbosa et al., 2020).

Figure 2 why people play games



Source (WePC, 2020)

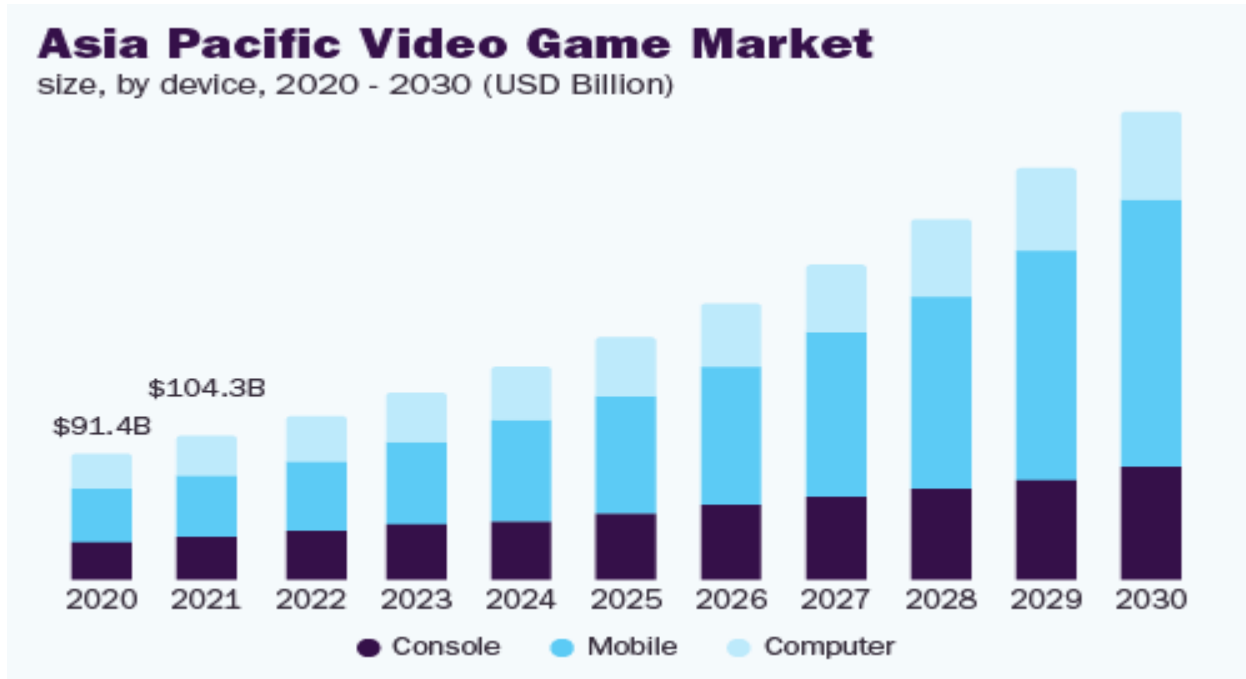
Overall, the literature suggests that the COVID-19 pandemic has had a significant impact on the psychological well-being of e-sports players and video game players. The increased use of video games as a coping mechanism during the pandemic has the potential to lead to negative effects on mental health, such as addiction.

3.5 The Correlation between the Video Game Market and the COVID-19 Pandemic

During the worldwide quarantine brought on by the Covid-19 epidemic, unforeseen changes in social, economic, and psychological features, such as isolation, the global market crisis, and behavioral abnormalities in people, have been imposed. Numerous sectors and industries that have widened their market niches to increase productivity and economic growth have internalized these changes. The video game industry has seen an increase in demand over the past two years and has become a domestic activity that can be done during a typical day at home thanks to these changes and its connection to the entertainment industry. (Ortiz, L., Tillerias, H. and Chimbo, C. (2020))

This situation has prompted the video game industry to concentrate on promoting online games, which, from the perspective of the user, offer an escape from reality to have fun safely, foster relationships with other people, and share experiences, occasionally fostering empathy and creating pro-social themes. The educational system, which is similarly impacted by social exclusion, has identified video games to keep its kids safe while simultaneously keeping them entertained. In recent years, educators have incorporated video games and virtual learning as a means of developing children's and adolescents' global empathy, or, more specifically, their interest and curiosity in learning about other nations and feeling a connection to their cultures, as well as their technical and skill sets. However, there are video games that provide violent and socially resentful content, which is why it is important that parents accompany them in choosing and controlling the type of video game their allowed to play, especially amongst younglings The possibility of using online multiplayer video games has become a tool for users of all ages and even in organizations in which these activities are of notable interest within the course of their working hours .The largest number of video game sales worldwide during the quarantine, consist of Grand Theft Auto V, Red Dead Redemption 2, FIFA 20 and in the RPG category, Tomb Rider has emerged. During this time, the in-crease in users has been substantial in the market due to the quarantine and the notable influence that these video games have had even when they were already well positioned commercially. (Ortiz, L., Tillerias, H. and Chimbo, C. (2020))

Figure 3 Asia Pacific Video Game Market

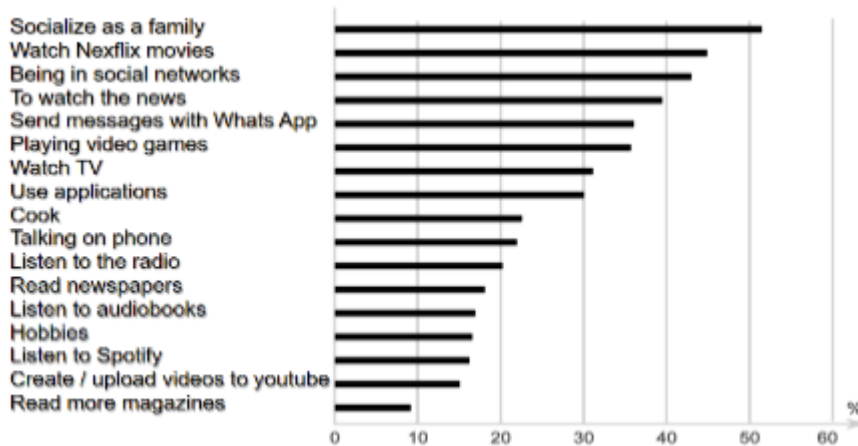


Source Grandviewresearch. (2020)

The quarantine represented a before and after in the video game industry because it inspired players from all over the world to pick up and enjoy a good game and, more importantly, because it presented a challenge for their designers to modify them to meet the new user expectations and requirements. In the midst of this pandemic, the benefits of playing video games have also played a significant role in the creation of new products. Hence, it should be taken into account that play reduces anxiety levels, boosts intelligence, ensures excellent judgment in decision-making, and emphasizes the value of playing in secure environments and with close family members. Other studies confirm that moderate use of video games can be a powerful pedagogical tool to enhance learning not only in traditional content but also in the formation of social and digital skills, which are essential to function in modern society and include: concentration and the capacity to multitask. This is important to note because excessive use of video games may also affect children's and young people's behavior. They can also speed up thought processes, improve reaction times, and lower stress levels. In order to assist and educate children, adolescents, and adults about the dangers of exposing themselves to the outer environment without protection, the video game industry has

introduced new thematic goods in its many genres or categories. (Ortiz, L., Tillerias, H. and Chimbo, C. (2020))

Figure 4 Time spent on activities during COVID-19



Source Ortiz, L., Tillerias, H. and Chimbo, C. (2020)

The video game industry is perhaps one of the greatest beneficiaries of the pandemic, According to a report posted on Reuters, the gaming industry has been expanding quickly and is currently the largest in the entertainment sector. Compared to television, which brings in \$105 billion, movie box offices, which brings in \$41 billion, and digital music, which brings in \$16 billion, it creates more revenue of over \$116 billion (Block & Haack, 2021). The popularity of eSports also increases as a result of the growth in gaming. According to The Business Research Company, eSports will be one of the main drivers of market growth for traditional sports. The worldwide sports market has been expanding by 4.3% yearly since 2014. The COVID-19 pandemic is predicted to cause the eSports market to expand only 2.16% in 2020. The market for eSports is predicted to expand at a compound annual growth rate of 23.82% after that. Along with making it simple to stream eSports content, Twitch has made it possible for organizations to quantify their value, which makes it simpler to close sponsorship deals. Twitch has emerged as the main website for live-streaming video game content, including eSports competitions and eSports players broadcasting their gameplay. Broadcasting agreements, as they are known in traditional sports, have also grown in popularity recently. Early on, Amazon recognized the potential of this platform and bought it in 2014 for \$970 million. (Amazon, 2014) Twitch, the top

platform for eSports-related content, transformed video games, especially the niche eSports, into spectator sports, spurring phenomenal growth for years.

4 Practical Part/Survey Questions and Results

I made an online poll with two open-ended questions, two closed questions about gameplay patterns, and some basic demographic data. Only if the responder indicated that the games they play have changed since the COVID-19 outbreak was discovered was the first of these open-ended questions asked. What has changed and why? Respondents were asked to elaborate as much as possible on how playing video games has affected their wellbeing. Likewise, if respondents said "yes" to the previous query, which was phrased as follows: "Do you feel that playing video games has had any impact on your well-being during the COVID-19 outbreak?" then this query was displayed. The purpose of the study, as stated at the beginning of the survey, was '*The impact of the COVID-19 pandemic on video game players' mental health and well-being, and particularly if playing games has had any effect on players' well-being*'. The survey ran for 5 days from March 3, 2023 and it went as the following:

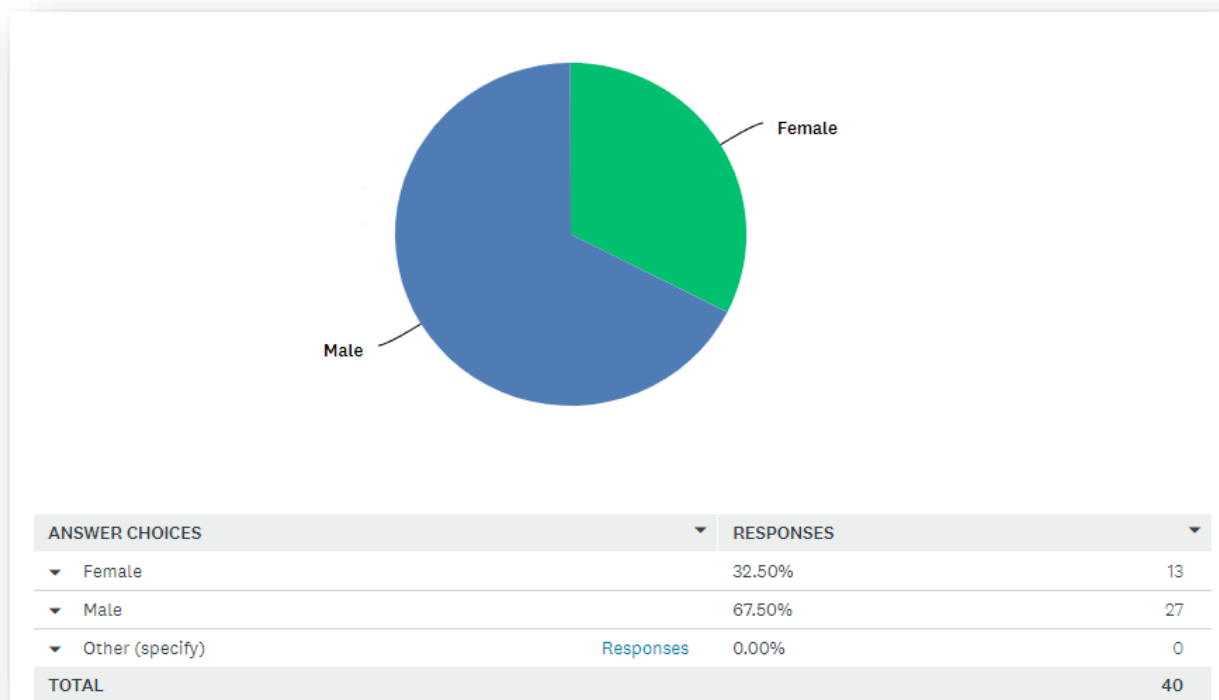
4.1 What is your gender?

There is a well-established gender gap in gaming, with males traditionally being more involved in gaming than females. However, the gap has been gradually closing in recent years.

According to a report by the Entertainment Software Association (ESA) in 2020, 41% of gamers in the US are female, which is an increase of 5% from the previous year. Furthermore, the same report found that women over 18 years old represent a greater portion of the gaming population (31%) than boys under 18 (18%). Samdo (2022)

Despite this, there are still some notable differences in gaming preferences and behavior between genders. For example, men tend to gravitate towards more competitive and action-oriented games, while women are more likely to play casual games and social games. It's important to note that these differences in gaming behavior and preferences do not necessarily reflect inherent biological differences between genders, but rather reflect cultural and societal factors that influence gender roles and norms.

Figure 5 Gender Representation in the gaming community



Source I own processing based on SurveyMonkey

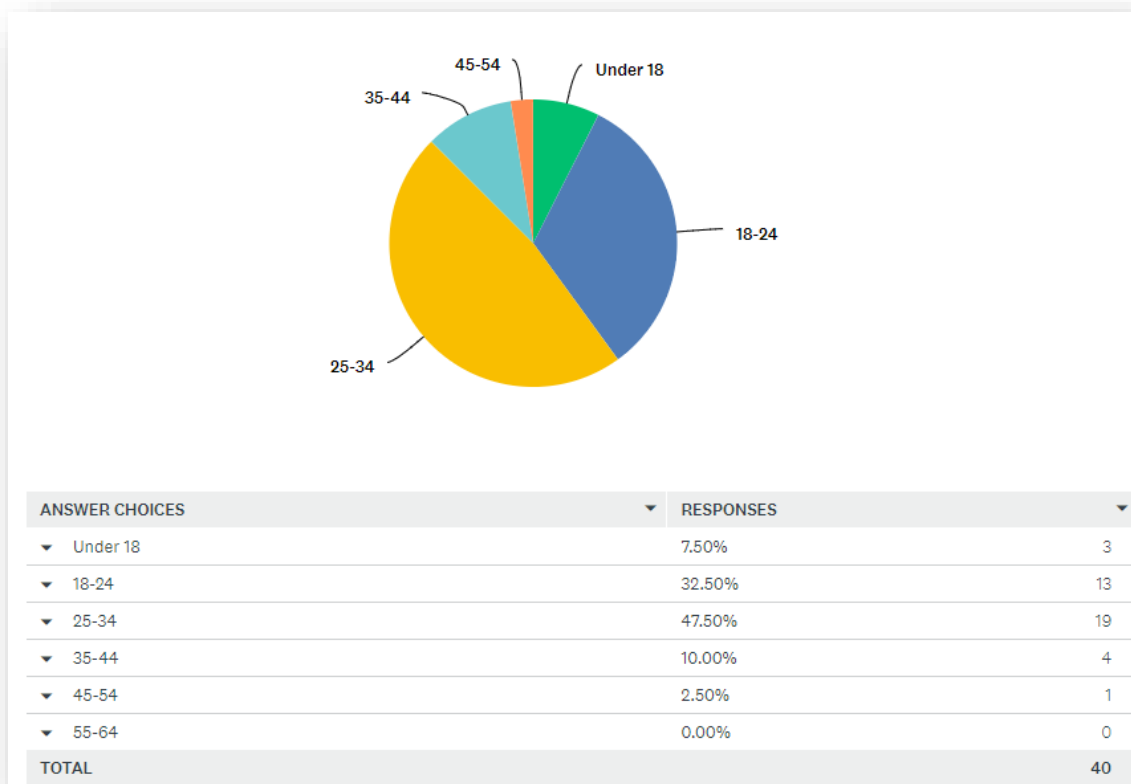
4.2 Please choose your age group

There is a correlation between age group and gaming, as different age groups tend to have different patterns of gaming behavior.

Younger age groups, such as children and teenagers, tend to be more avid gamers than older age groups. This is because gaming is often a popular form of entertainment and socialization among young people. Online multiplayer games and E-sports have gained popularity among younger age groups. However, older age groups are also increasingly becoming interested in gaming. This is partly since the video game industry has expanded its offerings to include a wider range of genres and platforms, making gaming more accessible to people of all ages. Additionally, older adults may turn to gaming to stay mentally active and socially connected.

Overall, while there is a correlation between age group and gaming, it is important to note that individual differences in gaming behavior can vary widely regardless of age.

Figure 6 Age group representation



Source 2own processing based on SurveyMonkey

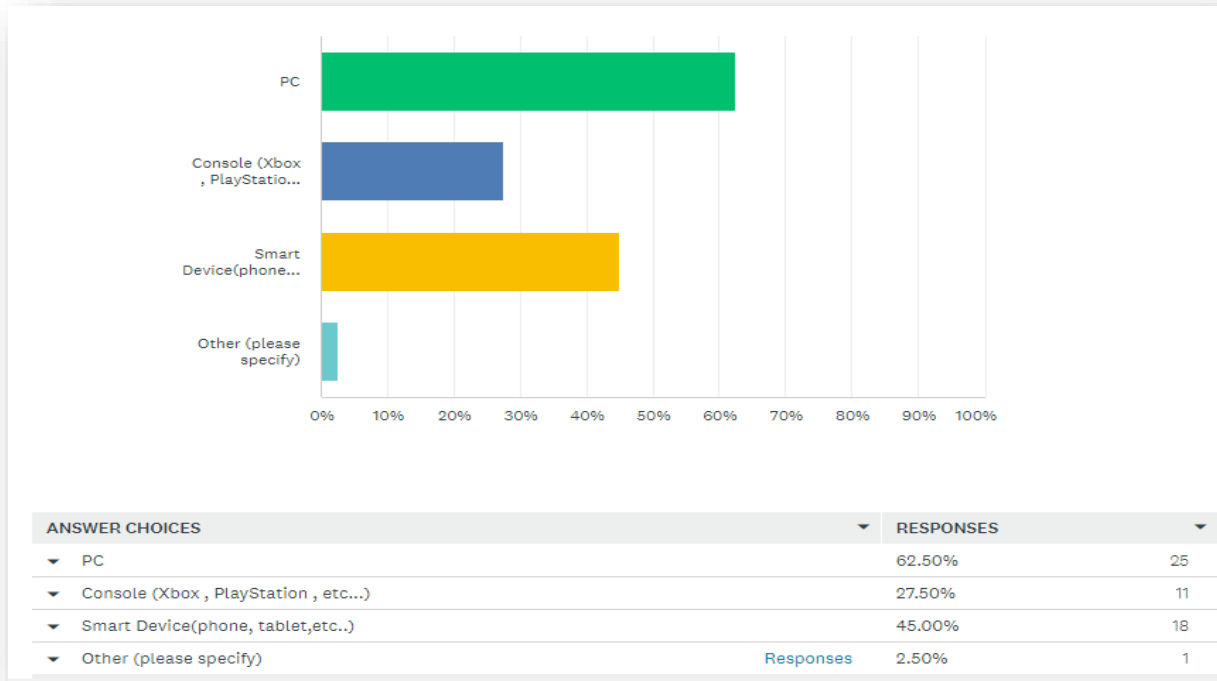
4.3 Which of the following Device(s) do you play video games on?

The video gaming appliances that are being used the most depend on various factors such as personal preference, gaming genre, and accessibility. However, some of the most popular video gaming appliances currently include:

- a) Personal computers (PCs) - PCs are a popular gaming platform due to their flexibility and high processing power, which allows for advanced graphics and gameplay.
- b) Gaming consoles - Consoles such as the Sony PlayStation and Microsoft Xbox are popular for their ease of use, consistent performance, and exclusive titles.
- c) Mobile devices/Tablets – Mobile/Tablet gaming has gained popularity due to the convenience of playing games on the go and the wide range of games available on app stores.
- d) Virtual reality (VR) devices - VR gaming has become increasingly popular due to its immersive experience, which allows players to feel like they are in the game world.
- e) Cloud gaming services - Cloud gaming services such as Google Stadia and Nvidia GeForce Now are becoming more popular as they allow gamers to stream games to their devices without needing high-end hardware.

It is worth noting that gaming appliances are constantly evolving, and new technologies are being introduced regularly

Figure 7 Videogaming appliances selection percentages



Source 3own processing based on SurveyMonkey

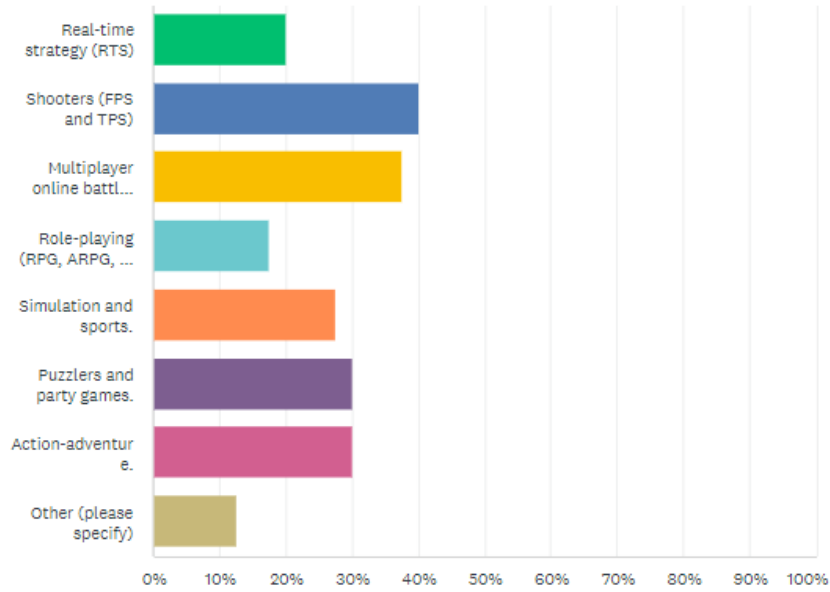
4.4 Which types of games do you mostly play?

The types of games that are mostly being played depend on various factors such as personal preference, gaming platform, and current trends. However, some of the most popular types of games currently being played include:

1. First-person shooters (FPS) - FPS games such as Call of Duty and Battlefield are popular for their fast-paced action and multiplayer modes.
2. Role-playing games (RPGs) - RPGs such as The Elder Scrolls and Final Fantasy are popular for their immersive worlds and character development.
3. Sports games - Sports games such as FIFA and NBA 2K are popular for their realistic simulations of various sports and multiplayer modes.
4. Battle royale games - Battle royale games such as Fortnite and Apex Legends are popular for their intense gameplay and multiplayer modes.
5. Strategy games - Strategy games such as Civilization and Total War are popular for their complex gameplay and long-term strategic planning.

Gaming trends are constantly changing, and new types of games are being introduced regularly. Additionally, some genres such as puzzle games, platformers, and simulation games remain popular with gamers of all ages.

Figure 8 Types of Video games being played



ANSWER CHOICES	RESPONSES
Real-time strategy (RTS)	20.00% 8
Shooters (FPS and TPS)	40.00% 16
Multiplayer online battle arena (MOBA)	37.50% 15
Role-playing (RPG, ARPG, and More)	17.50% 7
Simulation and sports.	27.50% 11
Puzzlers and party games.	30.00% 12
Action-adventure.	30.00% 12
Other (please specify)	Responses 12.50% 5

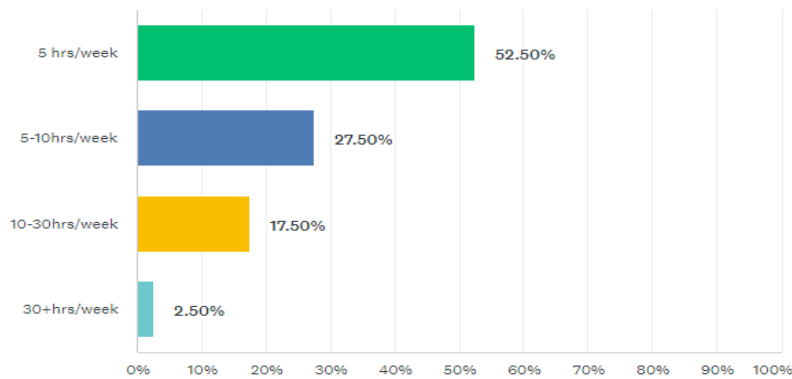
Source 4own processing based on SurveyMonkey

4.5 How many hours do you consider is your weekly average ?

The average game time being spent on video gaming varies widely depending on the individual, their gaming preferences, and other factors such as age and lifestyle. However, according to a 2021 report by Limelight Networks, the average global gamer spends around 7 hours and 6 minutes per week playing video games (Epstein, S. (2021).

This figure includes all types of gamers, from casual to hardcore gamers, across all gaming platforms including PCs, consoles, and mobile devices. It is worth noting that game time can vary widely depending on various factors such as game genre, multiplayer modes, and personal preference. Some gamers may spend only a few hours per week playing games, while others may spend several hours each day. Additionally, some games are designed to be played over long periods of time, while others can be completed in a matter of hours.

Figure 9 Average time of gaming in hrs./week



ANSWER CHOICES	RESPONSES
5 hrs/week (1)	52.50% 21
5-10hrs/week (2)	27.50% 11
10-30hrs/week (3)	17.50% 7
30+hrs/week (4)	2.50% 1
TOTAL	40

Source 5own processing based on SurveyMonkey

4.6 Which are the positive effect(s) you gained from gaming?

As mentioned before there are several benefits that one can gain from gaming, but one very important benefit that we have yet to discuss is that nowadays a pro gamer can make a living out gaming in many ways. The main ways are streaming, competitive gaming, game designing/developing, and game journalism/content creation. Needless to say, that each one of these jobs requires a lot of effort and dedication. The amount of money you can make from competitive gaming can vary widely depending on several factors such as your skill level, the game you're playing, the tournaments you participate in, and your level of commitment.

However, from the mental state perspective this shows a huge incentive for the gamer to work more in developing him/herself and target that goal.

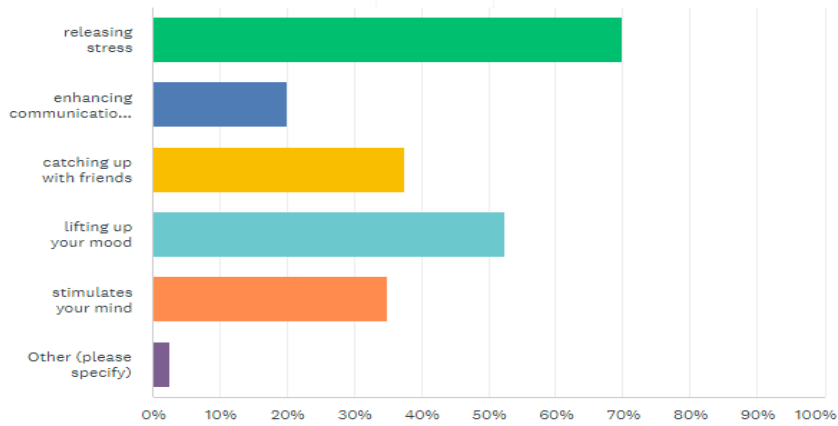
Some professional gamers earn millions of dollars each year from sponsorships, prize money, and streaming revenue. However, most gamers earn much less, with some only making a few hundred dollars per year.

To make a significant amount of money from competitive gaming, you need to be highly skilled and dedicated to the game. You also need to be willing to put in the time and effort required to compete at the highest level.

Additionally, competitive gaming industry is highly competitive, and only a small percentage of gamers can make a full-time living from it. So, while it's possible to make money from competitive gaming, it's important to have realistic expectations and be prepared to put in a lot of hard work and dedication to achieve success.

In the chart below its obvious and not surprising that releasing stress is one of the most dominant positive aspect of gaming.

Figure 10 Positive effects gained from gaming



ANSWER CHOICES	RESPONSES
releasing stress	70.00% 28
enhancing communication skills	20.00% 8
catching up with friends	37.50% 15
lifting up your mood	52.50% 21
stimulates your mind	35.00% 14
Other (please specify)	Responses 2.50% 1
Total Respondents: 40	

Source 6own processing based on SurveyMonkey

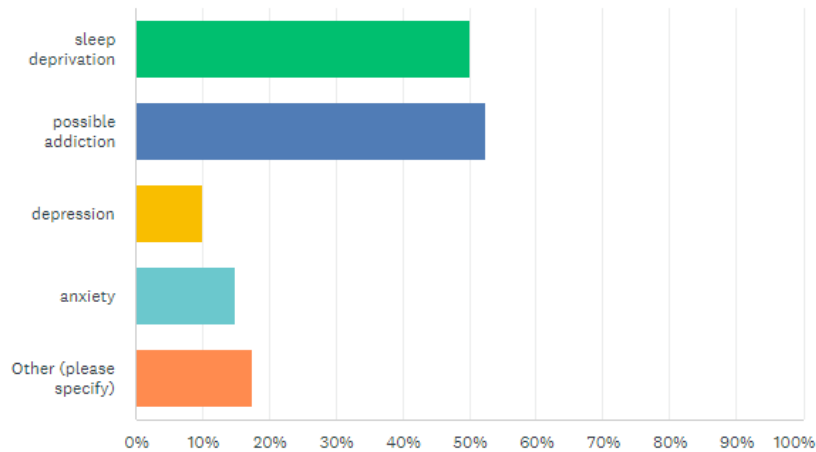
4.7 Which negative effect(s) did gaming had on your mental health?

As discussed before when not used in moderation negative effects arise but it's important to mention that these effects can vary between one person and another. Also, during the COVID-19 pandemic due to the stressful situation the whole world was living in, it was difficult to isolate every single factor affecting on our mental health, but to a certain limit these were the following results:

Figure 11 Negative Effects of gaming on mental health

Which negative effect(s) did gaming had on your mental health ?

Answered: 40 Skipped: 0



ANSWER CHOICES	RESPONSES
sleep deprivation	50.00% 20
possible addiction	52.50% 21
depression	10.00% 4
anxiety	15.00% 6
Other (please specify)	Responses 17.50% 7
Total Respondents: 40	

Source 7own processing based on SurveyMonkey

Here it's important to observe how "sleep deprivation" and "possible addiction" go hand in hand with an almost equal percentages (52.5% vs 50%) and that makes perfect sense since once the person is addicted he/she can never get enough is willing to sacrifice sleep in order to serve his/her satisfaction.

4.8 During the COVID-19 pandemic how did your game time change?

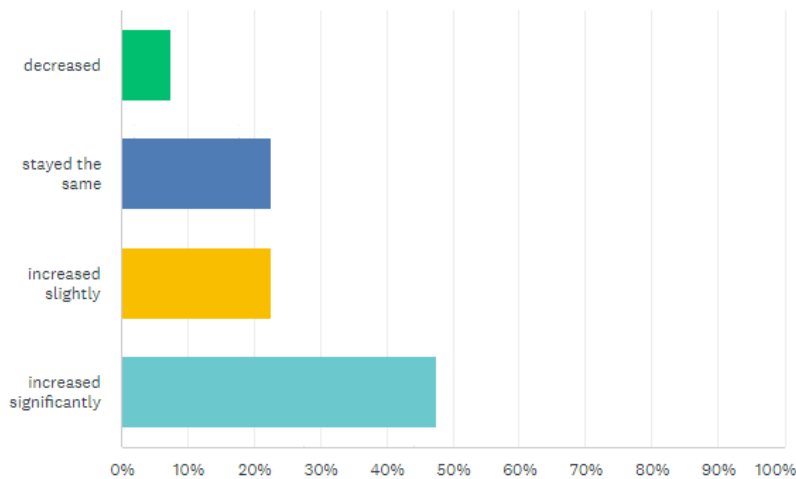
The COVID-19 pandemic has had a significant impact on video game usage and game time. With the increased need for social distancing and many people staying at home, there has

been a surge in gaming activity around the world. According to a report by Verizon, in the first quarter of 2020, online gaming traffic increased by 75% in the US alone, compared to the previous year. Schulz, K. (2020)

The pandemic has also led to changes in gaming behavior, with more individuals turning to gaming as a form of entertainment and social interaction during lockdowns and quarantines. Many people have reported spending more time playing games than before the pandemic, with some individuals spending several hours each day gaming.

The increase in game time during the pandemic has been attributed to several factors, including the need for entertainment and socialization during periods of isolation, the closure of many entertainment venues, and the increased availability of online gaming platforms.

Figure 12 Gaming time changes due to the COVID-19 Pandemic



ANSWER CHOICES	RESPONSES
decreased	7.50% 3
stayed the same	22.50% 9
increased slightly	22.50% 9
increased significantly	47.50% 19
TOTAL	40

Source 8 own processing based on SurveyMonkey

Lastly, as we can see in the figure above the COVID-19 pandemic has led to a significant increase in game time and gaming activity around the world, as more individuals turn to gaming as a form of entertainment and social interaction during a time of increased isolation and uncertainty.

Gaming has had a substantial impact on mental health as a result of the COVID-19 epidemic, both positively and negatively. On the one hand, when social segregation policies were in force, gaming gave people a way to keep in touch with friends and family. To preserve social connections and lessen feelings of loneliness, multiplayer games in particular have made it possible for players to communicate and socialize with others in a virtual setting. Gamers have also used it as a means of escaping the pandemic's stress and anxiety. Video games have the potential to be engrossing and interesting, which can offer a welcome break from the nonstop news cycle and virus-related concerns. Yet excessive gaming can also be bad for your mental well-being. According to research, playing video games excessively might cause social isolation, anxiety, and sadness.

In Addition, the epidemic has increased screen time and online gaming, which can have a detrimental impact on sleep quality and aggravate depressive and anxiety symptoms. It's crucial to remember that depending on the person and their unique situation, the effect of gaming on mental health during the pandemic can differ. Although though some people find gaming to be a helpful coping method, it's crucial to balance it with other hobbies and give self-care priority. If you're exhibiting signs of sadness, anxiety, or other mental health problems, it's also imperative that you get expert mental health assistance.

5 Conclusion

Gaming has had a substantial impact on mental health as a result of the COVID-19 epidemic, both positively and negatively. On the one hand, when social segregation policies were in force, gaming gave people a way to keep in touch with friends and family. To preserve social connections and lessen feelings of loneliness, multiplayer games in particular have made it possible for players to communicate and socialize with others in a virtual setting. Gamers have also used it as a means of escaping the pandemic's stress and anxiety. Video games have the potential to be engrossing and interesting, which can offer a welcome break from the nonstop news cycle and virus-related concerns. Yet excessive gaming can also be bad for your mental well-being. According to research, playing video games excessively might cause social isolation, anxiety, and sadness.

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The industry has also seen significant investment from traditional sports organizations and media companies, who are recognizing the potential of e-sports and video games as a new form of entertainment. Many major sports franchises, such as the NBA and NFL, have launched their own e-sports leagues and events, and media companies like ESPN and Turner Broadcasting have started broadcasting e-sports competitions on their channels.

Despite its rapid growth, the industry faces several challenges, including concerns over the impact of gaming on mental health, addiction, and the potential for gambling with minimum focus on making the gaming industry more supervised to control gaming hours and very few

campaigns about mental health. There is also ongoing debate over the classification of e-sports as a sport and the appropriate regulation of the industry.

Overall, the e-sports and video game industry is an exciting and dynamic sector that is expected to continue its growth in the coming years. With the potential to reach a global audience and generate significant revenue, the industry is attracting investment and innovation from a range of stakeholders and is likely to become an increasingly important form of entertainment in the future.

As in for the mental health point of view there is no question about it that moderation is key. As we witnessed throughout this thesis that with so many positive effects, drawbacks also arose. Enjoying video games in a healthy activity and if taken seriously the video gamer can make a living out of it so a balanced way can provide many benefits without negatively affecting one's life.

6 References

Chen, Y., & Cheng, L. (2020). The development of e-sports industry and its economic impact. *Journal of Business Research*, 117, 264-271.

Gao, F., Li, D., & Li, X. (2020). The impact of the COVID-19 pandemic on the e-sports industry. *Entertainment Computing*, 33, 100611.

King, D. L., & Delfabbro, P. H. (2016). *The cognitive psychology of video games*. Routledge.

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

Li, D., Li, X., Zhang, Y., Li, J., & Wang, Q. (2020). The impact of the COVID-19 pandemic on mental health and psychological interventions. *Journal of affective disorders*, 275, 5

Barbosa, R., Oliveira, R., Silva, E., Silva, J., & Sardinha, L. (2020). Sedentary behavior and screen time during the COVID-19 pandemic: a systematic review. *International Journal of Environmental Research and Public Health*, 17(18), 6685.

Schulz, K. (2020) Verizon delivers network reliability during COVID-19 while accelerating 5G deployments, About Verizon. Available at:<https://www.verizon.com/about/news/how-americans-are-spending-their-time-temporary-new-normal>

Epstein, S. (2021) Limelight's State of Online Gaming Report shows online gaming spikes as consumers seek social connection and entertainment, BusinessWire. Available at:<https://www.businesswire.com/news/home/20210310005514/en/Limelight%E2%80%99s-State-of-Online-Gaming-Report-Shows-Online-Gaming-Spikes-as-Consumers-Seek-Social-Connection-and-Entertainment>

Samdo (2022) 2021 essential facts about the video game industry, Entertainment Software Association. Available at: <https://www.theesa.com/resource/2021-essential-facts-about-the-video-game-industry/>)

Ortiz, L., Tillerias, H. and Chimbo, C. (2020) Impact on the video game industry during the COVID-19 pandemic. Available at: https://www.researchgate.net/publication/346493861_Impact_on_the_video_game_industry_during_the_COVID-19_pandemic

Bessiere K, Kiesler S and Kraut R (no date) Apa PsycNet, American Psychological Association. American Psychological Association. Available at: <https://psycnet.apa.org/record/2008-03405-002>).

Coronavirus disease (covid-19) pandemic (no date) World Health Organization. World Health Organization. Available at: <https://www.who.int/europe/emergencies/situations/covid-19>

Fishman, A. (2021) Video games are social spaces: How video games help people connect, Video Games Are Social Spaces: How Video Games Help People Connect | ResponseCenter. Available at: <https://www.jcfs.org/response/blog/video-games-are-social-spaces-how-video-games-help-people-connect>

Block, S., & Haack, F. (2021). eSports: a new industry. SHS Web of Conferences, 92.

Amazon. (2014). Amazon.com to Acquire Twitch. Retrieved 2 15, 2023, from

<https://press.aboutamazon.com/2014/8/amazon-com-to-acquire-twitch>

Amazon, 2. A. (n.d.). Block, S. & Haack, F., 2021. eSports: a new industry. SHS Web of Conferences, Volume 92. Retrieved from

<https://press.aboutamazon.com/2014/8/amazon-com-to-acquire-twitch>

Amazon, 2. A. (n.d.). Block, S. & Haack, F., 2021. eSports: a new industry. SHS Web of Conferences, . 92.

WePC. (2020). <https://www.vendingtimes.com/>. Retrieved from

<https://www.vendingtimes.com/articles/gaming-a-bad-influence-research-says-no/>

7 Appendix

Questionnaire

1. How old are you ?
 - Under 18
 - 25-34
 - 35-44
 - 45-54
 - 55-64
2. What is your gender?
 - Male
 - Female
 - Other
3. Which of the following do you play video games on, even if just occasionally? Please select all that apply?
 - PC
 - Console (Xbox , PlayStation , etc...)
 - Smart Device(phone, tablet,etc..)
 - Other (please specify)
4. Which types of games do you mostly play ?
 - Real-time strategy (RTS)
 - Shooters (FPS and TPS)
 - Multiplayer online battle arena (MOBA)
 - Role-playing (RPG, ARPG, and More)
 - Simulation and sports.
 - Puzzlers and party games.
 - Action-adventure.
 - Other (please specify)

5. when it comes to game-time, how many hours do you consider is your weekly average?
 - 5 hrs/week
 - 5-10hrs/week
 - 10-30hrs/week
 - 30+hrs/week
6. Which are the positive effect(s) you gained from gaming?
 - Releasing Stress
 - Enhancing Communication Skills
 - catching up with friends
 - lifting up your mood
 - stimulates your mind
 - Other (please specify)
7. Which negative effect(s) did gaming had on your mental health ?
 - sleep deprivation
 - possible addiction
 - depression
 - anxiety
 - Other (please specify)
8. During the COVID-19 pandemic how would you describe your game time change ?
 - Decreased
 - stayed the same
 - increased slightly
 - increased significantly
9. How did gaming impact on your mental health during the COVID-19 pandemic?
 - very positively
 - positively
 - somewhat positively
 - neutral
 - somewhat negatively

- negatively
- very negatively

10. Finally, overall do you think gaming has had a positive or negative impact on your wellbeing?

- very positive
- positive
- somewhat positive
- neutral
- somewhat negative
- negative
- very negative