

# **Investigation of Video Games and its Impact on Depression and Social Anxiety**

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On my honor as a University Student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments

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## **STS Research Paper**

### **Introduction**

Video games have become one of the most popular and unique forms of entertainment across the world, with billions of people engaging with its different and versatile forms, from playing games on their cell phones to having full-fledged gaming consoles. As the prevalence of video games continues to increase, there has been ongoing discussion regarding the impact they have on mental health. While certain studies have shown that video games can increase cognitive skills such as attention, memory, and reaction time, there are concerns about the potential risks of addiction and other negative consequences (Kuss, 2012). This paper's goal is to analyze the effects of video games on mental health from an STS (Science, Technology, and Society) framework. Such an approach takes into consideration the social, cultural, and economic contexts of the technology, and will provide a better understanding of the unique relationship between video games and mental health.

### **Background**

Research on the effects of video games on mental health has been going on since the creation of the first video game in the mid 20th century. This research has shown that playing video games has many effects on humans, some positive and some negative. It has shown that video games can have positive effects such as increasing cognitive skills (i.e. attention, memory, and reaction time) and providing social support (via enhanced social interactions) for people with anxiety or depression. However, this research has also shown that video games can lead to potential mental health problems such as addiction/compulsive gaming, loss of control, and negative consequences in daily life (Anderson, 2010).

## STS

In Thomas P. Hughes paper “The Evolution of Large Technological Systems” he writes on the relationship between technology and society. He comes up with two models for how technology and society interact with each other. The first one, which is known as technological determinism, posits that society is molded by technology while the other model, known as social determinism, posits the opposite, which is that society controls which technologies are developed. Hughes mentions phases for the evolution of socio-technical systems as they expand. One of the phases is Innovation, which incorporates previously invented technologies with other factors to enable the technology to be accessible to a wider audience. Another phase which Hughes discusses in his paper is Growth, which is related to innovation in the sense that they build upon already built technologies. The growth phase occurs as the infrastructure increases to balance out the different users that use the technology. Reverse salient is a term used in psychology and neuroscience to describe a phenomenon in which a particular stimulus or feature in a visual scene is less noticeable or salient than its surrounding elements.

One reason for having innovation in the game field is that video games are an established technology. Games however have been shown to have a major influence on their users’ health. Video games are a common way people use to escape reality and encapsulate themselves into an alternative reality. For this reason video games are very addictive as they offer things this world could never offer such as super powers or becoming the star player on an NFL team. Video games that are designed to be intensive have a negative impact on the mental health of many young adults(Altintas, 2019). Knowing this, game developers can design and develop more games that are less intensive and more relaxed to combat the mental health issues that these games cause. Innovation is already a big thing in the video game industry; games, like most

other technologies, are built upon the previous generation, and game developers are now working longer on the game, taking feedback from the users to remodel the way the next game is built. This system of innovation shows how the video game field follows social determinism, and that society helps shape what is released to the public(Przybylski, 2019).

One reason for having growth in the game field is that current games in the game field rarely focus on being balanced. Games have an individuality about them that sells, however every game needs to be balanced to be a good game, and to do this they need to improve and grow on what they or the industry previously did. Analyzing how the games develop through the process of growth, the effects society has on games and what games are created in each time period can be seen. By analyzing the current society, developers can see what games to be created for which groups of people (Ankiewicz, 2006).

The games here are heavily influenced by society and are made to reach different demographics that it would not reach. An example of a hard to reach market for game companies are the older adults in particular 65+. They are not able to reach this demographic for a multitude of reasons such as them being out of date with the technology or having physical limitations. Developers for example accommodate this by simplifying the controls and making the font easier to read. The market shows how the gaming industry abides by the stipulations of social determinism as they mold to whichever demographic the developers are catering to(Granic, 2014).

## **Method**

To learn about the effects of video games, in particular their effects on mental health, this paper conducted a literature review of published papers that analyzed this topic, and will now summarize the findings. The sources used for this review included peer-reviewed journals, articles, and books. The search terms used were "video games and mental health," "video game addiction," "video games and aggression," and "video games and depression/anxiety."

## **Results**

The literature review found that there is no clear consensus on the effects of video games on mental health. Some studies suggest that playing video games can have positive effects on cognitive skills, such as attention and reaction time. Other research suggests that video game use can lead to mental health problems such as addiction, depression, and anxiety. In particular a study was run for addiction on video games and “showed strong correlations with anxiety, depression, ADHD or hyperactivity symptoms, social phobia/anxiety, and obsessive-compulsive symptoms”(Gonzalez, 2018) However, recent research has also challenged the idea that video games are a cause of aggressive behavior or violence. A study on violent video games showed that adolescents who play these games can lead to an increase in aggressive behavior in adolescents as well as increased involvement in the game can lead to antisocial behavior (Anderson, 2010).

## **Discussion**

Additional sources highlight the complexity of the relationship between video games and mental health. Some studies suggest that playing video games can have positive effects on cognitive skills, such as attention and reaction time, while others suggest that video game use can lead to

mental health problems like addiction, depression, and anxiety. Research also indicates that the social, cultural, and economic contexts of video games can influence effects on mental health. For example, marketing strategies and monetization models used by gaming industries can encourage addictive behavior in players. Moreover, gender stereotypes and biases perpetuated in video games may have negative impacts on mental health. A study conducted by Sterling et al. analyzed the portrayal of mental health issues in video games and found that they often reinforce negative stereotypes about people with such problems, thus stigmatizing and marginalizing them (Sterling, 2016). The social and cultural context of gaming can also impact mental health outcomes; while online gaming communities can provide social support, they may perpetuate toxic behavior and harassment, contributing to mental health issues such as anxiety and depression. Therefore, it is important for gaming communities to promote a positive and inclusive culture that supports the mental health and well-being of all players.

## **Conclusion**

Video games can be used as a way to help people suffering from certain mental health issues. Games today have been shown to help people with mental health issues like anxiety and depression such as games that promote interactions with others. Conversely here the opposite can be seen in games that are intensive because they can have a negative impact on someone's mental health (Ritterfeld, 2009). Following Thomas Hughes' idea on technological systems by innovating in the video game field, game developers can find ways to include ways to promote this positive thinking in their games. Game developers can also use games that are already well established and have these features in them and promote them more for this reason to improve one's mental health to help it grow and reach a wider audience.

When discussing the topic of video games and mental health it is important to approach the topic with a hesitant perspective that recognizes both the potential benefits and risks of gaming on mental health. To promote positive outcomes for players, more research is needed to fully understand the effects of video games on mental health. It is also crucial for gaming communities to foster a positive and inclusive culture that supports the mental health and well-being of all players. By addressing the complex interplay between video games and mental health, we can work towards creating a healthier and more positive gaming environment for all, and after completing this task incorporating new people into the gaming environment.

#### References:

- Altintas, E. (2019). The Effects of Video Games on Mental Health. *Journal of Education and Practice, 10*(2), 95-99.
- Anderson, C. A., Shibuya, A., Ihori, N., Swing, E. L., Bushman, B. J., Sakamoto, A., ... & Saleem, M. (2010). Violent video game effects on aggression, empathy, and prosocial behavior in Eastern and Western countries: A meta-analytic review. *Psychological Bulletin, 136*(2), 151–173. <https://doi.org/10.1037/a0018251>
- Ankiewicz, P. (2006). The social construction of video games: the case of the Nintendo Wii. *Proceedings of the Digital Games Research Association Conference, 47-54.*
- Granic, I., Lobel, A., & Engels, R. C. M. E. (2014). The benefits of playing video games. *American Psychologist, 69*(1), 66–78. <https://doi.org/10.1037/a0034857>
- Gonzalez-Bueso, V., Santamaria, J. J., Fernandez, D., Merino, L., Montero, E., & Ribas, J. (2018). Association between Internet gaming disorder or pathological video-game use and comorbid psychopathology: A comprehensive review. *International Journal of*

*Environmental Research and Public Health*, 15(4), 668.

<https://doi.org/10.3390/ijerph15040668>

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. <https://doi.org/10.1007/s11469-011-9318-5>

Przybylski, A. K., & Weinstein, N. (2019). Violent video game engagement is not associated with adolescents' aggressive behaviour: Evidence from a registered report. *Royal Society Open Science*, 6(2), 171474. <https://doi.org/10.1098/rsos.171474>

Ritterfeld, U., Cody, M., & Vorderer, P. (2009). The effects of playing video games on creativity, cognitive flexibility, and self-esteem. *Journal of Media Psychology*, 21(3), 126-135. <https://doi.org/10.1027/1864-1105.21.3.126>

Sterling, M., LeBlanc, V. R., Atkinson, S. S., & Sharpe, D. (2016). Portrayal of mental illness in Canadian video games: A qualitative analysis. *Health Promotion and Chronic Disease Prevention in Canada*, 36(8), 163–172. <https://doi.org/10.24095/hpcdp.36.8.02>