

THE INFLUENCE OF VIDEO GAMES ON CHILDREN

Madlen PLUGARU

*Department of Industrial and Product Design, group DJ-221, Faculty of Design,
Technical University of Moldova, Chisinau, Republic of Moldova*

Autorul corepondent: Madlen Plugaru, madlen.plugaru@dip.utm.md

Coordonator științific: **Liliana PROZOR BARBALAT**, University Assistant

Summary. *This article explores the impact of video games on children and their cognitive abilities. Due to technological advancements, children nowadays have access to a variety of gadgets that allow them to entertain themselves. The author presents the general description of a study which states the changes in the mental performances of kids who interact significantly with digital games, regardless of the type of the games played. According to this study, some scientists voiced their opinions with a positive perspective towards this matter. Each game genre can benefit kids in several ways. On the other hand, social media tend to emphasize only the negative outcome of such activities. It is the parents' responsibility to manage the time and result of their children's play. Further scientific research will determine a conclusion for the real influence of video games on young generations.*

Key words: *video games, cognitive performance, NVGs/VGs, genres, neurocognitive effects, time management, objectivity.*

Introduction

Over the past century, the video game industry has grown significantly. There are several reasons why, but the primary key factors are: technological advancement and people's accessibility to modern devices. Therefore, nowadays even kids have the possibility to entertain themselves with digital games. According to a report by the Entertainment Software Association (ESA) in the United States from 2021, we can estimate that approximately 20% of the total number of video game players are children and teenagers. If we were to summarize whether this is a positive or a negative fact, and if video games have any kind of impact on the youngsters, then it is hard to reach a final conclusion because few deep researches were made on this topic.

Description of the Study

A study titled "Association of Video Gaming With Cognitive Performance Among Children" examined data from the Adolescent Brain Cognitive Development (ABCD), which was funded by the National Institute on Drug Abuse (NIDA) and other entities of the National Institutes of Health. This analysis was conducted between October 2019 and October 2020, with further investigation analysis in 2023.

The study's objective was to inspect the connection between video gaming and cognitive performance in kids. For this, 2217 children completed a screen time survey, reporting daily engage in activities like watching TV, playing video games and texting. After several weeks, the number of hours were calculated and two groups were identified: non-video gamers (NVGs), with insignificant weekly gaming hours, and video gamers (VGs), playing at least 3 hours per day. While there were no significant differences in age between the participants, variations were in sex, race and ethnicity, combined parental income, body mass index, and IQ.

Later on, the investigators tasked all the members involved to take part in different exercises requiring their ingenuity to control the impetuous behavior and to learn information. The researchers evaluated children's brain activity while doing those actions and they concluded that video gamers were quicker and more precise on both cognitive tasks, although they had notably higher depression, attention problems, and attention-deficit/hyperactivity disorder (ADHD) scores.

Even if this study did not take into account the genres of the games played by the kids, the results suggested the potential that video gaming may provide a concentrative preparation participation with observable neurocognitive effects. No links between video gaming and escalations in violence or aggressive behavior were found by the study. The scores related to mental health and behavior did not reach clinical significance.

Opinions of Scientists

“While we cannot say whether playing video games regularly caused superior neurocognitive performance, it is an encouraging finding, and one that we must continue to investigate in these children, as they transform into adolescents and adults,”^[1] said Bader Chaarani, Ph.D., assistant professor of psychiatry at the University of Vermont and the lead author on the study. “Many parents today are concerned about the effects of video games on their children’s health and development, and as these games continue to proliferate among young people, it is crucial that we better understand both the positive and negative impacts that such games may have” [1].

“It’s not as simple as it’s good or it’s bad,”^[2] said child psychiatrist Dr. Sumru Bilge-Johnson of the Division of Pediatric Psychiatry and Psychology at Akron Children’s Hospital. “There are a lot of complexities, depending on the age of the child and the type of games. Both the content and how much they play is very important” [2].

We can notice that scientists stressed the idea that video games cannot be labeled as “bad” or “good” things. In this situation, objectivity is required in order to understand the reality of the world. Despite the general belief, video gaming has its own positive impacts. However, further research shall determine whether this is becoming the final conclusion.

Video Games and their Influence

All video games are different, but we can place them in categories according to similar gameplay characteristics. Such a category is known as a genre. It is not the setting/story of the game or its medium of play that defines a genre, but the way the player interacts with the game itself. The most famous genres are: Action/Adventure, Role-Playing Game (RPG), First-Person Shooter (FPS), Strategy, Sports/Racing, Fighting, Puzzle, Indie, Rhythm/Music, Open-World, Educational. Each type impacts the player differently. For instance, Dr. Bilge-Johnson said: “Games like Minecraft can benefit kids in several ways. Through these brain games they learn problem solving, strategizing, flexibility and also social skills” [2].

Generally, we can state the following impacts of each genre on kids:

- Action/Adventure: Promotes problem-solving, exploration, and strategic thinking. Example: "The Legend of Zelda" series.
- Role-Playing Game (RPG): Enhances storytelling skills and encourages character development. Examples: "Final Fantasy", "The Elder Scrolls" series.
- First-Person Shooter (FPS): Requires quick decision-making, hand-eye coordination, and spatial awareness. Examples: "Call of Duty", "Counter-Strike."
- Strategy: Fosters strategic thinking, resource management, and decision-making skills. Examples: "StarCraft", "Civilization."
- Sports/Racing: Enhances hand-eye coordination and strategic thinking, especially in racing games. Examples: "FIFA", "Need for Speed."
- Fighting: Improves reflexes, coordination, and strategic thinking during combat. Examples: "Street Fighter", "Super Smash Bros."
- Puzzle: Enhances logical thinking, pattern recognition, and problem-solving abilities. Examples: "Tetris", "Portal."
- Indie: Offers unique concepts and artistic styles, fostering creativity and diversity in gaming experiences. Examples: "Stardew Valley", "Hollow Knight."

- **Battle Royale:** Promotes competitive spirit, strategic planning, and the adaptability under pressure. Examples: "Fortnite", "Player Unknown's Battlegrounds (PUBG)."
- **Rhythm/Music:** Enhances rhythm and coordination, and may stimulate an appreciation for music. Examples: "Guitar Hero", "Beat Saber."
- **Open-World:** Encourages exploration, creativity, and problem-solving within a vast virtual environment. Examples: "The Witcher 3: Wild Hunt", "Red Dead Redemption 2."
- **Educational:** Facilitates learning and skill development in a variety of subjects through interactive game play. Examples: "Minecraft: Education Edition", "Oregon Trail."

Mental Health

Despite scientifically proving, within the study described previously, that video games provide positive impacts on children's cognitive perceptions, the majority is inclined to believe that only negative effects arise after playing. "Most of the attention on social media has been targeted toward negative consequences of video gaming,"^[6] said Dr. Nora Volkow, director of the National Institute on Drug Abuse. However, she is aware of both parts of the argument, so she added an example where we can use the matter to our advantage: "For children with ADHD, using video games as a form of exercise to train them to sustain attention, [...]"^[6]. With the correct approach we can get the best out of every activity.

Although certain games incorporate educational elements, a significant portion of the widely played games highlight detrimental themes. These games often depict acts of violence in war-like settings, criminal activities, defiance of laws and authority figures, sexual exploitation or violence against women, perpetuation of sexual, racial, and gender stereotypes, as well as the use of profanity and offensive gestures. Examples of video games unsuitable for children due to these themes include Grand Theft Auto, Call of Duty, and Mortal Kombat.

Research on children exposed to violence indicates that they may develop desensitization or indifference towards violence, mimic the violent behaviors they witness, and demonstrate increased aggression with prolonged exposure to violent content. Furthermore, studies have revealed that the level of impact on children escalates with the realism and frequency of exposure to violence.

Therefore, it has to be taken into account the amount of time dedicated for such entertainment. A concept applicable here is: "Anything in excess is a poison." - Theodore Levitt. Video games are addictive if not controlled with precaution. Sometimes, these could be placed as being as dangerous as alcohol and drugs. When it comes to this, the parents must be the ones responsible for their offspring. If the child starts ignoring school, outdoors activities, socializing time and so on, then no matter how we look at video games, these will impact the behavior unfavorably.

Conclusion

Considering all of the above, it can be surely affirmed that video games do have an impact on children. However, further research will specify the real connection between each genre and the results. At the present day, only speculations deducted from superficial observations are known among people, especially parents. Until a scientific verdict is proposed, we shall embrace video games with objectivity and control.

At the end of the day, children are children, so it is up to their guardian what the influence will be. If they play moderately, or if they play excessively, it is all decided by parents, so the results are directly connected to the adult's responsibility.

References

- [1] Study, BADER CHAARANI, PHD; JOSEPH ORTIGARA, MS; DEKANG YUAN, MS. “Association of Video Gaming With Cognitive Performance Among Children”, October 24, 2022. Available: <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2797596>
- [2] KATHY JOHNSON, “Kids and video games: the good and the bad”, February 13, 2023. Available: <https://www.akronchildrens.org/inside/2023/02/13/kids-and-video-games-the-good-and-the-bad/>
- [3] Podcast, Dr. CINDY L. E. GELLNER, pediatrician: “The video games your child plays has an effect on their behavior”, updated: August 9, 2021, originally published: April 6, 2016. Available: <https://healthcare.utah.edu/the-scope/kids-zone/all/2021/08/video-games-your-child-plays-has-effect-their-behavior>
- [4] Blog, IEA Staff, “The good and the bad effects of video games on children”, May 21, 2022. Available: <https://educationaladvancement.org/blog-the-good-and-the-bad-effects-of-video-games-on-children/>
- [5] DR. ALOK KANOJIA, MD MPH, “The Impact of Video Games on Your Child's Brain and Behavior”, August 10, 2023 Available: <https://www.healthygamer.gg/blog/the-impact-of-video-games-on-your-childs-brain-and-behavior>
- [6] “Video gaming may be “exercise” and helpful to your child's brain, study concludes”, October 27, 2022. Available: <https://eu.cincinnati.com/story/news/2022/10/27/video-gaming-helpful-to-your-childs-brain-new-study-says-yes/69589592007/>