

Impact of Prosocial Video Games on Violent and Prosocial Behaviour

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ABSTRACT

For long video games have been looked down upon by parents and guardians because of the common stereotype that they lead to aggression, apathy, violent behaviour in children and adolescents. Investigations conducted by social psychologists often agreed that children model the violent behaviour present in the game and behave in line with it, thus resulting in violent and apathetic behaviour. But with the launch of interactional and moral decision-based games, the recent research has yielded surprising results in relation to empathy and prosocial behaviour in the player. Numerous other researches have also suggested that video games can enhance emotional regulation, social interaction with others, it can influence one's emotional intelligence, promote positive youth development, increase cooperation and reduce in-group bias. Through the means of secondary research this paper aims to understand the impact of prosocial video games on prosocial behaviour. The objective of this paper is to contribute towards breaking down the common myths and stereotypes around video games and bring a new perspective to the audience regarding the benefits of this leisure activity. This paper hypothesises that playing prosocial video games will decrease aggression and increase helpful behaviour. The population in focus is mostly children, adolescents and young adults.

Keywords: *Spirituality, Gratitude, Demographic Variables, Students*

Every individual, at some point in their life, has played video games, be it on an arcade machine or a computer. Games like Temple run, Candy crush saga, Pac-man, Tetris, Contra etc., are not foreign to many. These games give the player a sense of power, control and take them on a journey that in real life would not have been possible. Video games can be simply defined as an operation in which the action must take place on-screen in real time. They use input from the player to tailor the course of the events in the game.

The journey of video game started in the 1950's when scientists developed simple game simulations like tic-tac-toe and moon landing, for research and recreation purposes. Later it was made accessible to the public in the form of arcade machines which were often found in commercial places. As the computers and the software upgraded, video games found a new

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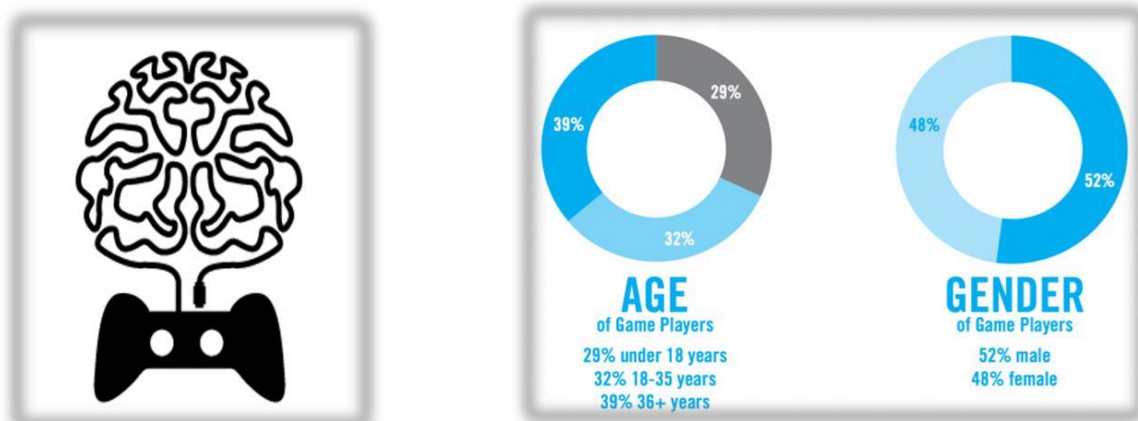
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place for themselves in the desktop, accessed by the owner, instead of being confined only



to the arcade machines which was previously accessible to all.

Source: Google images and dualdiagnosis.org

In 2018, the gaming industry as a whole brought in up to \$135 billion. When it is said and done, this number is far more startling than it seems. Today, billions of people have access to gaming consoles, PC and other electronic devices that facilitate gaming, enrich the experience, and place the player in challenging yet exciting situations that require strategising and finding an effective solution. The moral dilemma in the storyline further piques the interest of the player and keeps them engaged.

The gaming studios and creators have also brought new style of gameplay and story-telling into action, thus offering their customers variety of game and experiences. We can categorise these games into three categories- violent, neutral and prosocial (non-violent) games:

- **Violent games** have been defined as a game in which the range of options available to a player includes killing, maiming, dismembering, or assaulting an image of a human being. For example- Call of Duty, Mortal Kombat, God of War Ascension, Pub-G.
- **Neutral games** have been observed to have a neutral context, suggesting that they have little effect on social outcomes. For example- Tetris, Road Rush, Candy Crush.
- **Prosocial video games** usually contain prosocial or helping behaviours. For example- Lemmings, Super Mario Sunshine, and ChibiRobo are role-playing games and have less violent action than do other games.

However, the video game business did not have a smooth or quick journey ahead of it. The sector has been dealt what could have been fatal blows on many occasions. For a long time, parents have been terrified of the potential negative impact of video games on their children. Since the industry was so new at the time, many people fell prey to pseudo-science, relying on ambiguous studies to back up their convictions.

The early research on video games implied that it can lead to aggression, violent behaviour, social disconnection, anxiousness, bullying, escapism, poor performance in academics, low motivation, stress, and exposure to a hostile environment. A surplus of research focused on the negative aspects of video games, thus influencing the parents against it and setting the foundation for myths and negative stereotypes to build around this activity. While violent

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video games can very minimally increase aggression, it alone can't be held responsible for the deviant behaviour. Behind the curtains, environmental factors, risk factors and social factors play a major role in inducing the anger in the child.

With the introduction of affective video games that customise the storyline or gameplay according to the player's choices, gaming has effectively penetrated the emotional state of the player thus making them feel like they are living the story. Not only it provides a lively experience of the game but it has been observed that it reduces in-group bias, increases empathy, and is successful in questioning the existing stereotypes in the real world. Adolescents who liked gaming reasoned that they played to feel a sense of power, fulfil their fantasy of achieving glory, leading a team and curiosity related to the story ahead. In no way, did they feel violent or aggressive, rather they felt concerned about their teammates and worked as a team during the gameplay.

A group of researchers discovered that only one hour of gaming was enough to increase visual selective attention, which is the ability to stay focused through a variety of distractions or to single out the desired object and focus entirely on it. This discovery has been very convincing, as studies have consistently come to the same conclusion.

The University of California San Francisco found in a 2013 study that 3-D video games can help older adults boost their memory. In reality, it has the potential to alleviate much of the mental symptoms of ageing. Not just that, but the results were very dramatic, with people aged 60 to 85 having a greater memory than 20-year-olds. Their brains remained at this stage for 6 months after the trial, indicating that the results were not transient. Finally, the scientists discovered that continuous focus increased. In conclusion, video games can be very useful to the elderly.

Adding to the positive side of gaming, video games can help the gamer adapt more optimistic and persistent motivation style. It can influence the person to be flexible, open to new experiences, reappraise the experiences and adopt adaptive coping styles when facing fear, anger, frustration or loss. Gaming also brings together people with shared goals and desires, which may help people feel less alone and work together to reach a common purpose.

However, it is important for the audience to know about the demarcation between healthy or interest in gaming and addictive gaming. It is more about the situations underlying the time spent playing video games than about the number of hours spent on video games. Video game addiction may be described as the problematic, compulsive use of video games that significantly impairs an individual's ability to work in different life domains over time.

There has been extensive research on the negative effects of gaming which often portrays gaming as harmful, but recent literature has revealed the opposite. It is important to note that violent video games increase aggression but only temporarily. Studies focusing on long term effects of playing violent video games and aggression are now being questioned, because of their lack of clear evidence and failure of many researches to prove the hypothesis that implied that video game violence has long term impact.

Research related to positive effects should also be encouraged and brought to the attention of the audience so that there exists a balance in the literature available and the audience is aware of the actual facts. Since positive effects have only come into view in the past six-

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seven years, strategies could be tailored to integrate education and video games, effects of gaming on team work and team building, could be studied. Further, this arena could present several opportunities for social psychologists to study groups, diversity, and many other social aspects concerning video games and social behaviour.

This paper aims to highlight the impact of prosocial video games on prosocial behaviour. It is hypothesised that playing prosocial video games will increase prosocial behaviour. Based on secondary research, this paper will draw heavily from the literature available on the topic to assess the mentioned hypothesis, with the help of meta-analysis as the methodology.

Statement of the Hypothesis

This paper hypothesises that playing prosocial video games will increase prosocial behaviour.

LITERATURE REVIEW

Prosocial behaviour, according to Emsberg and Mussen, is described as voluntary acts taken to assist or support another person or group of people. One of the best examples of this term could be during the 9/11 terrorist attacks when citizens helped the survivors with regardless of knowing them or having any prior engagement with them. Another example could be, helping the elders cross the street, and communities coming together to help elders during COVID restrictions.

Empathy games continue to have a lot of promise for raising consciousness about a variety of real-life issues. People tend to rely on games for their unproductive escapism, but their intrinsic abstraction will help us feel another person's private sorrow. Nonetheless, playing a video game or watching a movie elicits feelings, and these forms of media can be used to elicit empathy. The findings of the research focused on the influence of video games on the empathy level, suggested that sufficient story-line of video games can positively impact aspects such as the 'perspective taking' of players. (Wulansari, Pirker, Kopf, Guetl, 2020)

With the coming of interactive, immersive and moral decision-based games, these games require the player to 'live like' or understand the perspective of virtual characters. In 2008, Hoffman proposed that perspective taking skills are essential for empathic reactions, and that a shift to other-oriented thought by perspective taking leads to compassion, which may contribute to prosocial behaviour. Thus, it could be said that empathy mediates prosocial behaviour and is a crucial factor in immersive gameplay and influencing the player to make decisions.

Seeing other people befalling a misfortune often leads to empathic reactions where one feels sorry for the suffering person, which may instigate helping behaviour (Batson, 1991). However, sympathy for another's misfortune does not necessarily elicit these feelings. People may even feel pleasure at another's misfortune; an emotional reaction described by the word "schadenfreude." The study proposed that playing a prosocial video game will raise empathic empathy for those who are hurting and reduce enjoyment from another's misery. The findings indicated that the exposure to prosocial video games enhanced interpersonal empathy and diminished reported schadenfreude toward a target befalling a misfortune. (Greitemeyer, Osswald, Brauer, 2010)

In 2010 Greitemeyer and Osswald, achieved a major breakthrough in proving their hypothesis which was to examine the possibility that playing video games with prosocial

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content (in which the predominant goal is to benefit another game character) may promote prosocial behaviour. This hypothesis was built upon two theoretical models- 'general aggression model (GAM)' and 'general learning model (GLM)'- which addresses the effects of video game on social behaviour. The research therefore, proved that exposure to prosocial video games increased helpful behaviour and willingness to volunteer. The GLM further provided a useful framework for explaining the effects of video games on interpersonal behaviour. It implied that Video Games teach whatever concepts are repeatedly rehearsed within them. (Greitemeyer, Osswald, 2010). The result of this research was unexpected by many authors and prompted some of them to conduct researches of their own to see whether the effects revealed here are actually true or not.

Since modern video games are more immersive with an engaging plotline, another research hypothesised that playing violent video game leads to decreased prosocial behaviour. The authors conducted three experiments similar to those done by Greitemeyer, Osswald in 2010. But some elements like the duration of the session, prosocial tasks and other factors were manipulated to prove the hypothesis. However, the hypothesis could not be proven even after the manipulations and keeping in mind the limitations of the study conducted by Greitemeyer and Osswald. The writers came to the conclusion that past fears about the effect of violent games on prosocial behaviour could be misplaced or exaggerated. (Tear M.J, Nielsen M, 2013)

The impact of prosocial video games on adults was already being largely documents by the researchers, but the same was yet to be seen in children. Research on children from 9-14 years was conducted to assess whether playing prosocial, neutral and violent video games will effect hurtful and helping behaviour or not. The main goal of the study was to test if short-term exposure to prosocial video games can increase helpful and decrease hurtful behaviours in children compared to neutral and violent games. In the study setting with adolescents, video games with prosocial content increased helpful and decreased harmful behaviours. In contrast, children's games with violent content increased hurtful and decreased helpful behaviour. (Saleem M, Anderson C.A, Gentile D.A, 2012)

In another study the focus was on prosocial video game use by children and adolescents from different socioeconomic groups. It was hypothesised that prosocial video game use will be associated with increased empathy and prosocial behaviour. The study had three objectives- to determine positive association of prosocial games use with empathy in children, to determine whether the relationship was effected by sociodemographic variables and weekly gameplay, to determine whether there was a negative correlation between violent video game use and prosocial behaviour in adolescents and children. The study found that playing prosocial video games was linked to the ability to sustain positive affective relationships, teamwork and collaboration, and empathy. After accounting for gender, age, school form, socioeconomic status, weekly game play, and violent video game usage, the connection remained important. The results showed that playing prosocial video games can increase empathy and enhance affective relationships in a diverse group of young people. (B. Harrington and M. Connell, 2016).

Another experiment was conducted to study the effects of violent, ultra-violent and non-violent gameplay. It was hypothesised that participants playing the ultra-violent games would show the least prosocial behaviour and those playing the non-violent game would show the most. However, the hypothesis was not supported as the participants responded in the similar way. The players who played ultra-violent video game were likely to set and easy

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tangram task for ostensible participant and almost all the participants donated similar amount to the charity which was a measure to observe the prosocial behaviour. (Morgan T.J, Nielsen M, 2014).

The literature so far focused on the psychological aspect of impact of video games on prosocial behaviour and aggression, however one study investigated the results through electrophysiological techniques like P300 and Competitive Reaction Time Task (abbreviated as CRTT). The P300 wave is an event-related potential component that is elicited during the decision-making phase. It's called an endogenous potential since its occurrence is linked to a person's response to a stimulus rather than the stimulus's physical characteristics. The findings of the study implied that prosocial video games inhibit individuals' aggressive cognition, resulting in decreased brain activity related to aggressive cognition and P300 amplitude, which in turn leads to the inhibition of individuals' aggressive behaviour. (Liu Y., Teng Z., Lan H, Zhang X., Yao D., 2015)

A meta-analysis research hypothesised that violent video games increase aggression and aggression- related variables and decrease prosocial outcome. The author focused on studying whether video games affect the social outcome. These analyses suggested that video game play can both negatively and positively affect the player. Playing violent video games increased aggressive behaviour, cognition, affect, and decreased prosocial behaviour. In contrast, playing prosocial video games decreased aggressive behaviour, cognition, and affect, and increased prosocial behaviour, cognition, and affect, thus proving the hypothesis. (Greitemeyer and Mügge D., 2013)

In a publication titled 'video games for prosocial learning' the author considered the capabilities video games have to offer to educators who seek to foster prosocial development using three popular frameworks: moral education, character education, and care ethics. It stressed that video games scaffold players' experiences not only via narrative and audio-visual content but by the rules, principles, and objectives governing what participants will do. The authors concluded on an optimistic note suggesting that video games indeed possess an enormous and largely untapped potential for fostering the prosocial development of people who play them. Since the gaming industry is still young, it is capable of change and adding prosocial elements into the game. (Koo G, Seider S., 2010)

Since video games are consumed mostly by adolescents and children, another research surfaced to assess the involvement of video game in positive youth development. Video game play can follow Larson's (2000) criterion for promoting initiative in youth, and thus be linked to positive outcomes such as flow, teamwork, problem solving, and reduced in-group bias, according to this study. It cited researches done in both negative and positive aspects of playing video game. A noticeable observation was that adolescents played video games to express their fantasies of glory and power, and because they are attracted to qualities of the main characters. In terms of social aspects of video games, they believed that video games are a common social activity, and a vehicle to cooperate and network with people from different cities or countries via online gaming. Many other studies cited that adolescents who played prosocial games were highly cooperative, helpful and had good relationships with their family and peers. (Adachi P.J.C and Willoughby T, 2012)

Another study aimed to examine the prosocial effects of playing a video game through three game conditions- violent, prosocial and neutral. The MANOVA (Multivariate analysis of variance) concluded that violent video game play can lead to a hostile attribution bias based

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on aggressive schemas and attitudes whereas prosocial video games may develop prosocial schemas and increase the likelihood of thinking, feeling, and behaving pro-socially, leading to a prosocial expectancy bias. It is not clear what prosocial mechanism increased prosocial responses in the helping condition. Perhaps identifying with the role adopted, subsequent self-views, or the continuously helping others, activated a network of prosocial concepts through spreading activation. (Narvaez D, Mattan B, MacMichael C, Squillace M, 2010).

Since players interact online with each other while gaming, another study aimed at understanding the reasons why players help others in the virtual space of online gaming and the gender difference in prosocial behaviour on online gaming platform. The results of the study revealed that participants in online games are simultaneously affected by altruism and reciprocity when helping others. According to the social exchange theory, people help others with an expectation of obtaining feedback or rewards. The feedback of reciprocity may come from the entire virtual community rather than the specific person helped. Individuals in an online game with reciprocity may expect benefits from people whom they helped. Additionally, male users are more likely to help female users than to help other male users, while female users help other male and female users equally. Moreover, in contrast to those previous studies, this study found no difference between male and female participants in prosocial behaviour. (Wang and Wang, 2003).

Another study tried to relate different self-reported measures of computer use to individuals' propensity to cooperate in the Prisoner's dilemma. The study concluded that participants who spent more time playing computer games displayed more prosocial behaviour. Though it is important to note that no claim can be made regarding causality. It is both possible, that more prosocial people self-select into playing more computer games, as it is possible that playing computer games "makes" people more prosocial. In terms of behaviour in the prisoner's dilemma, no relation was found between social media use and pro-sociality. However, this research concludes that intensive video game play is not always linked to increased antisocial behaviour. It also implies that, among a variety of variables defining computer usage, the amount of time spent playing computer games might be the most significant in determining the association between pro-sociality and computer usage. (Mengel F., 2014)

Another paper highlighted the motivational, emotional and social benefits of gaming. About the fact that gaming is frequently dismissed as a meaningless pastime, gaming experiences can potentially foster a constant, upbeat motivational style. Game play can improve players' ability to reappraise emotional experiences in a flexible and efficient manner, teaching them the benefits of coping with frustration and anxiety in adaptive ways. Civic participation, or the capacity to mobilise communities and direct like-minded individuals in social movements, is another example of social skills. One large-scale, representative U.S. study (Lenhart et al., 2008) showed that adolescents who played games with civic experiences) were more likely to be engaged in social and civic movements in their everyday lives. (Granic I, Lobel A., and Rutger C. M. E. Engels, 2014)

METHODOLOGY

Since this paper is secondary research, it will draw heavily from the past research papers, journal articles and books available on the topic. The literature was obtained from multiple websites such as Google Scholar, Jstor, PLOS One, APA website, Sage Publications, ResearchGate. The research papers selected to be used as literature for this paper, have been published in the timeline from 2002-2020.

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The population studied in this paper is mostly children, adolescents and young adults under the age of 30. For deriving conclusions from the paper, the method of meta-analysis will be employed. A subset of systematic reviews, meta-analysis is a technique for systematically integrating relevant qualitative and quantitative research data from many selected studies to develop a single conclusion with greater statistical strength.

RESULT

Correlation above 0.25 shows that the correlation is positive and in alignment with the hypothesis.

S.NO	NAME OF THE PAPER	CORRELATION COEFFICIENT	NUMBER OF PARTICIPANTS	AUTHORS
1	Violent video game engagement is not associated with adolescents' aggressive behaviour: evidence from a registered report.	0.49	1004	Przybylski A.K, Weinstein N., 2014.
2	Computer Games and Prosocial Behaviour.	0.33	120	Mengel F, 2014.
3	Playing Prosocial Video Games Increases Empathy and Decreases Schadenfreude.	0.29	56	Greitemeyer, Osswald, Bauyer, 2010.
4	Video games as virtual teachers: Prosocial video game use by children and adolescents from different socioeconomic groups is associated with increased empathy and prosocial behaviour.	0.75	538	Harrington B., Connell M.O, 2016.
5	Kill Bandits, Collect Gold or Save the Dying: The Effects of Playing a Prosocial Video Game.	0.39	125	Narvaez D., Mattan B., MacMichael C, Squillace M., 2008.
6	Helping Others in Online Games: Prosocial Behaviour in Cyberspace.	0.79	402	WANG C.C, WANG C.H, 2008.
7	Short-term effects of prosocial video games on aggression: an event-related potential study.	0.26	55	Liu Y., Teng Z., Lan H., Zhang X., Yao D., 2015.
8	Video Games Do Affect Social Outcomes: A Meta-Analytic Review of the Effects of Violent and Prosocial Video Game	0.86	98	Greitemeyer T., Mügge D.O, 2014.

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S.NO	NAME OF THE PAPER	CORRELATION COEFFICIENT	NUMBER OF PARTICIPANTS	AUTHORS
	Play			
9	Video games and prosocial behaviour: A study of the effects of non-violent, violent and ultra- violent gameplay.	0.83	120	Tear M.J., Nielsen M., 2014.
10	Effects of Prosocial, Neutral, and Violent Video Games on Children's Helpful and Hurtful Behaviours.	0.906	191	Saleem M., Anderson C.A., Gentile D.A, 2012.
11	Effects of Prosocial Video Games on Prosocial Behaviour.	0.58	54	Greitemeyer T., Osswald S., 2010.
12	Video Games and Their Correlation to Empathy.	0.408	40	O. D. E. Wulansari et al. 2020.
13	Failure to Demonstrate That Playing Violent Video Games Diminishes Prosocial Behaviour.	0.716	64	Tear M.J, Nielsen M., 2013.
14	The Effect of Video Games on Prosocial Behaviour: The Interaction of Play Style and Social Context.	0.70	94	Jensen J.M.,2017
15	“Remain Calm. Be Kind.” Effects of Relaxing Video Games on Aggressive and Prosocial Behaviour	0.36	150	Whitaker J.L, Bushman B.J., 2011

DISCUSSION

The result above clearly confirms that playing prosocial video games can increase prosocial behaviour and decrease aggression or any other violent behaviour. The aggressive behaviour elicited by the players after playing the violent game, was only there for a short time and it did not affect their prosocial behaviour significantly. In one of the experiments, players who played violent video games also donated some amount to charity, as opposed to the researcher’s hypothesis.

Since the gaming industry is still in their developmental or reformation phase, many studios and writers have resorted to developing games that have immersive storyline that has the player in their grasp and occasionally challenge the views or attitudes that the player might hold towards a certain situation. Many games revolve their storyline around the problems in real world thus effectively challenging the standpoint of the player through their virtual characters, settings and well written stories. These games give the player the opportunity and power to make decisions for their virtual teammates, thus placing them in moral dilemma of either saving the characters or saving themselves.

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Immersion through compelling games produces greater empathy and intensely intimate memories, according to the authors of a research. Many studies have found a connection between absorption and narratives in immersive media that encourage player participation. Players' immersive experiences are aided by plot complexity, identification, and perceived realism, according to the researchers. In the form of video games, empathy has been investigated as a mediator for pro-social behaviour. The function of empathy as a moderator between actions and the subsequent various social situations of the participants has been explored in the field of psychology.

Empathy games continue to have a huge amount of potential for raising consciousness about a variety of real-world issues. Players gain knowledge with what life could be like in a different environment, school system, or when confronted with diseases and natural disasters, and they identify with and experience other countries as a result. The formation of global empathy perception may be influenced by cognitive interactions and development.

It may be tempting to draw the conclusion from this research that games with solely nonviolent, prosocial content promote prosocial conduct. However, new research is developing that seems to contradict this simplistic view, implying that violent games are only as apt to encourage prosocial activity as nonviolent games. Playing a violent game cooperatively or competitively could have an influence on prosocial or helping behaviour. Players that play violent games that promote teamwork and cooperation are more likely to engage in supportive gaming activities both real and virtual than those who play aggressive games (Ferguson & Garza, 2011), and playing violent video games together (in groups) decreases feelings of hostility as opposed to playing alone (Eastin, 2007).

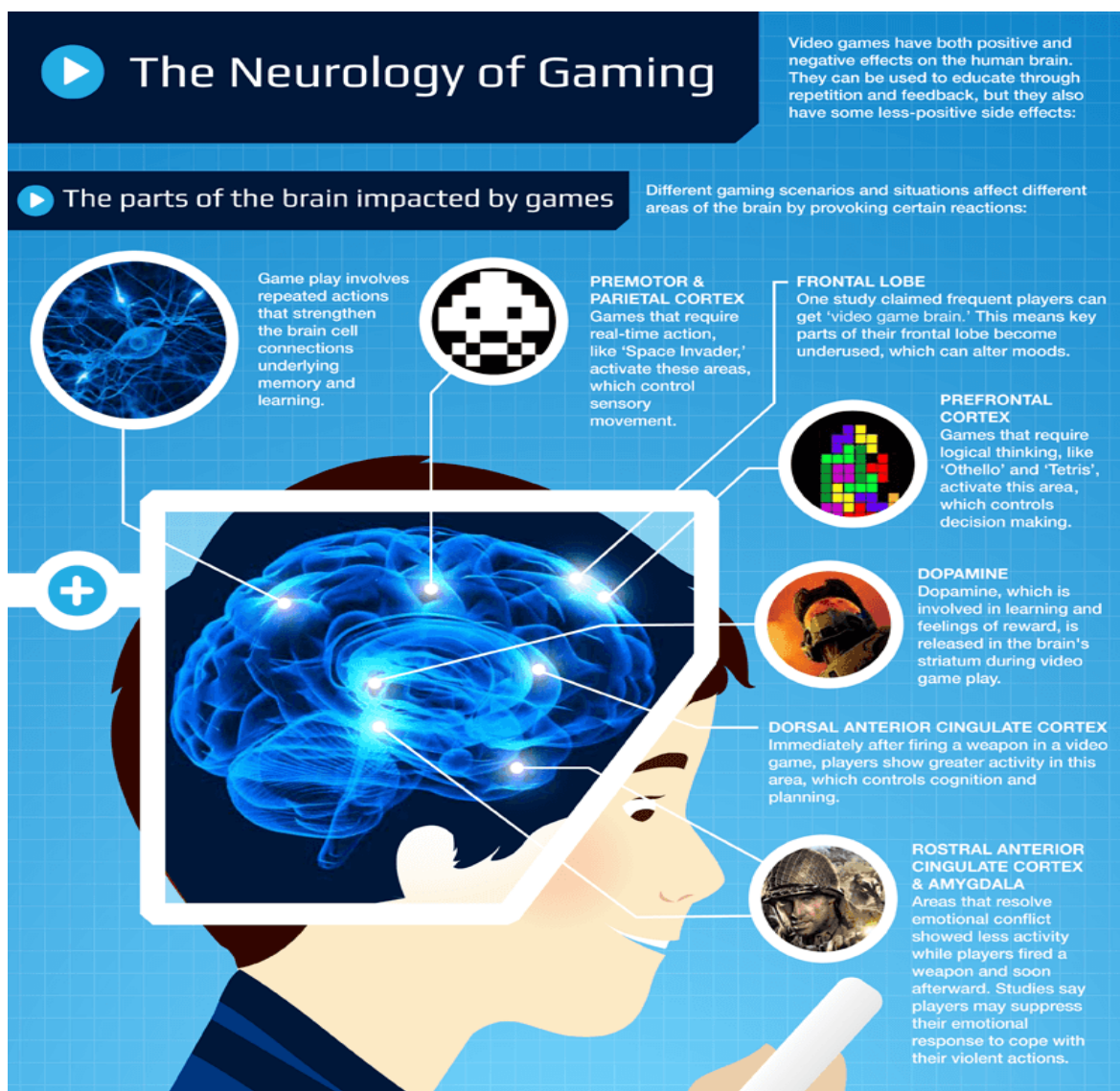
As discussed before, the nature of video games has evolved drastically in the last decade, as they are becoming increasingly dynamic, varied, realistic, and social in nature. In the last five years, a small but substantial body of study has started to appear, largely recording these benefits. These results indicate that video games offer immersive and engaging social, perceptual, and emotional environments for young people. Furthermore, these experiences could have the ability to improve children's and teenagers mental health and well-being. The optimistic role of play in developmental psychology has been a recurring trend for some of the field's most eminent researchers. Many people believe that play environments enable children to experiment with social situations and simulate different emotional outcomes, which can lead to feelings of resolution outside of the play environment.

Make-believe play, according to Piaget (1962), allows children to recreate real-life problems, hammer out perfect outcomes for their own enjoyment, and alleviate negative feelings. Many scholars agree that, video games explore the same emotional constructs that are discussed in children's play environments in general (e.g. supremacy, nurturing, insecurity, and development) allowing for the acquisition of significant cognitive, emotional, and social competencies. The following table shows how the gameplay benefits the player cognitively, motivationally, emotionally and socially:

1	Cognitive Benefits	<ul style="list-style-type: none">• Faster and more precise focus allocation, better spatial resolution of visual processing, and improved perceptual rotation skills.• Via in-game challenges, video games are an ideal way to
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		<p>learn problem-solving skills and use memory and logical skills.</p> <p>They have also been associated with enhanced creativity.</p>
2	Motivational Benefits	<ul style="list-style-type: none"> • Immediate and continuous feedback from the game supports the player while providing them room to enhance their skills and strategies. • Failure is seen as a motivator in video games, although there are only sporadic opportunities for large-scale achievement. <p>Players learn an important fundamental lesson in game environments: Perseverance in the face of setbacks pays off handsomely.</p>
3	Emotional Benefits	<ul style="list-style-type: none"> • Several studies have discovered a connection between favoured video game play and increased mood or positive emotion increases. • In the sense of playing video games, the most vivid positive emotional feelings are evoked. After overcoming great hardship, players often express a strong sense of pride. <p>Game play can improve players' ability to reappraise emotional experiences in a flexible and efficient manner, teaching them the benefits of coping with frustration and anxiety in adaptive ways.</p>
4	Social Benefits	<ul style="list-style-type: none"> • When players play games that are deliberately designed to reward good teamwork, encouragement, and supporting actions, they may learn valuable prosocial skills. • Cooperatively playing a violent video game promotes future prosocial, cooperative actions outside of the game and can also counteract the consequences of out-group membership status. <p>Civic participation, or the capacity to mobilise communities and direct like-minded individuals in social movements, is another example of social skills.</p>



Source: elearninginfographics.com

The picture above illustrates very well, the effects of gaming on the brain and its lobes. Scientists have compiled and synthesised research into how video games affect our brain and behaviour. According to current research, playing video games can alter and improve the brain regions accountable for concentration and visuospatial abilities. Palaus and his collaborators tried to see whether any patterns had arisen from previous studies into how video games influence our brain function and behaviour.

According to research, playing video games changes our performance, and several experiments have shown that gamers gain in many forms of attention, including focused attention and selective attention. Gamers' attention-related brain regions are often more effective, requiring less stimulation to maintain attention on stressful tasks. Video games have also been shown to improve the size and productivity of brain regions associated with visuospatial abilities. All long-term players and volunteers who completed a computer game simulation programme have their right hippocampus enlarged.

The most direct way for video games to promote prosocial learning is to provide prosocial messages in their narrative, character, visuals, music, or a combination of these elements—

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in other words, the game's "content." According to social learning theory, children, mimic what they see. Players can not only perceive, but also perform actions in video games, at least virtually. Video games may be used to condition positive habits by character educators who depend heavily on this system of experienced and imitated behaviour.

Socialisation or interaction outside of video gameplay experience can also influence prosocial behaviour. Game players may be decoding and understanding the context of their game interactions even though the buttons are turned off and the screen is turned off. They may be browsing for walkthroughs, criticism, or explanation online, or conversing about the game with friends and family; others may also be changing aspects of a game that they believe are flawed or unfair. Those are both future opportunities for prosocial growth.

Vaughan et al. (2011) looked at the effectiveness of gaming in reducing bullying behaviour. Video games are used as bullying reduction strategies in this study because they involve individualised and collective learning of pro-social, behaviours, and social skills, which can help to reduce bullying and change social expectations in the classroom. Educational gaming is emerging as a promising field for enhancing the efficacy of an early bullying intervention initiative for elementary school children, according to the researchers.

Since video games follow Larson's (2000) requirements for promoting youth initiative, they may be linked to positive outcomes such as flow, teamwork, problem-solving skills, and reduced in-group bias. According to Larson, structured events like joining sports teams often evoke initiative because they require three elements: intrinsic motivation, focus and cognitive effort, and cumulative effort over time to accomplish a goal. Adolescents frequently invest more time playing games than engaging in organised activities, and they suggest that the fun and challenging nature of games, as well as the social benefits of gaming, motivate them to play.

Since video games contain properly specified rules, difficulty, and complexity, they meet Larson's criterion of demanding focus and mental effort. In addition, video games meet another requirement of initiative since they demand a cumulative effort over time in order to complete the game. Knowledge about new tactics or the ability to learn new skills in video games appears to appear "on demand" and "just in time" in order for players to complete the game, encouraging them to persevere in the face of adversity and challenge. Rather than trying to master every skill and technique at the start of the game, each skill appears to expand on the previous in a linear order, resulting in a collective attempt to complete the game over time.

Youth and children all over the world play video games as a leisure activity. In the United States alone, 97 percent of children and youth play video games for at least one hour per day. Some of the audiences have even resorted to making money out of this activity through online streaming and much more. With available literature on both the negatives and positives of playing video games, the audience and the future researchers can finally know both the perspectives and then think whether video games are more curse than a boon. And since research in this arena is young and under-explored, this could generate a plethora of opportunities for further studies in psychology and behavioural sciences.

CONCLUSION

According to researchers, video games have the ability to promote prosocial learning, whether by instilling new behaviours as anticipated by virtue theorists, strengthening moral

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thinking as envisioned by moral educators, or promoting thought and point of view as envisioned by reflection theorists. The hypothesis thus stands correct with the help of the coefficient result table provided in the result and the data collected through the literature available. However, it is only fair that the limitations of this paper is highlighted as well, for the audience to be aware and for the future researchers to consider before commencing their experiments:

1. The literature for this paper focuses largely on western population rather than the eastern population of players. Even though these researches shed a light on the prosocial behaviour after playing video games, they could hinder the generalisation of the result to the players who are from countries other than western countries. However, this provides an opportunity for the future researchers to focus on eastern population as well and take their perspective on gaming into consideration, so as to maintain the balance in the existing literature. This could be helpful in studying and drawing comparisons for both the population, in terms of gaming and prosocial behaviour.
2. The games used for testing e.g., Tetris, Lemmings, Call of Duty, Contra etc., are very basic in gameplay, that is, they don't involve much input from the player in terms of interaction with the virtual characters and making different moral based decisions for the progress of the story and the game. They seem to be only having one goal i.e., levelling up, which does not challenge the viewpoint that the player holds, thus making the game less immersive and often boring. For further researches, games that revolve around a storyline and incorporate gameplay as well (e.g., Last of us, Detroit become human, Bio-shock etc.) could be used to test the impact that the game left on the player and their views pre and post playing the game.
3. As noted in many research conducted, the gameplay time was less for deeply determining the impact of the game on prosocial behaviour. Players require time and concentration to develop a point of view on the game, identify themselves with a character and familiarise themselves with the game provided. If not given adequate time, the responses could be abstract or even appear socially desirable, thus affecting the authenticity of the results. Extending the gameplay hours or continuing the experiment for a month could yield some definitive and concrete results. This is another dimension which the future researchers could look into.
4. Since video games follow Larson's (2000) requirements for producing commitment in children, and since commitment is a crucial prerequisite for other aspects of positive youth growth, researchers should pay more attention to how video games are linked to it and how the seeds for this development can be sown. If there are positive effects of video games on adolescents, young adults and adults, then these should be tapped and used for building a strong and resilient youth, rather than limiting this activity to just 'time-pass'

REFERENCES

- Adachi, P. J., & Willoughby, T. (2013). Do video games promote positive youth development? *Journal of Adolescent Research* 28(2), 155-165. DOI: 10.1177/0743558412464522.
- Failure to Demonstrate That Playing Violent Video Games Diminishes Prosocial Behaviour. DOI: 10.1371/journal.pone.0068382.
- Granic, I., Lobel, A., & Engels, R. C. (2014). The benefits of playing video games. *American psychologist*, 69(1), 66. DOI: 10.1037/a0034857.

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- Greitemeyer, T., & Mügge, D. O. (2014). Video games do affect social outcomes: A meta-analytic review of the effects of violent and prosocial video game play. *Personality and social psychology bulletin*, 40(5), 578-589. DOI: 10.1177/0146167213520459.
- Greitemeyer, T., & Osswald, S. (2010). Effects of prosocial video games on prosocial behaviour. *Journal of personality and social psychology*, 98(2), 211. DOI: 10.1037/a0016997.
- Greitemeyer, T., Osswald, S., & Brauer, M. (2010). Playing prosocial video games increases empathy decreases schadenfreude. *Emotion*, 10(6), 796. DOI: 10.1037/a0020194.
- Harrington, B., & O'Connell, M. (2016). Video games as virtual teachers: Prosocial video game use by children and adolescents from different socioeconomic groups is associated with increased empathy and prosocial behaviour. *Computers in Human Behaviour*, 63, 650-658. <http://dx.doi.org/10.1016/j.chb.2016.05.062>.
- Jensen, J. M. The Effect of Video Games on Prosocial Behaviour: The Interaction of Play Style and Social Context Jasmine Marie Jensen Rivier University.
- Koo, G., & Seider, S. Video Games for Prosocial Learning. 845-6.ch002.
- Liu, Y., Teng, Z., Lan, H., Zhang, X., & Yao, D. (2015). Short-term effects of prosocial video games on aggression: an event-related potential study. *Frontiers in behavioural neuroscience*, 9, 193. DOI: 10.3389/fnbeh.2015.00193.
- Mengel, F. (2014). Computer games and prosocial behaviour. *PloS One*, 9(4), e94099. DOI: 10.1371/journal.pone.0094099.
- Narvaez, D., Mattan, B., MacMichael, C., & Squillace, M. (2008). Kill bandits, collect gold or save the dying: The effects of playing a prosocial video game. *Media Psychology Review*, 1(1).<https://www.researchgate.net/publication/276935712>.
- 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>
- Saleem, M., Anderson, C. A., & Gentile, D. A. (2012). Effects of prosocial, neutral, and violent video games on children's helpful and hurtful behaviours. *Aggressive behaviour*, 38(4), 281-287. DOI: 10.1002/ab.21428.
- Tear, M. J., & Nielsen, M. (2014). Video games and prosocial behaviour: A study of the effects of non-violent, violent and ultra-violent gameplay. *Computers in Human Behaviour*, 41, 8-13. DOI: <http://dx.doi.org/10.1016/j.chb.2014.09.002>.
- Wang, C. C., & Wang, C. H. (2008). Helping others in online games: Prosocial behaviour in cyberspace. *CyberPsychology & Behavior*, 11(3), 344-346. DOI: 10.1089/cpb.2007.0045.
- Whitaker, J. L., & Bushman, B. J. (2012). "Remain calm. Be kind." Effects of relaxing video games on aggressive and prosocial behaviour. *Social Psychological and Personality Science*, 3(1), 88-92. DOI: 10.1177/1948550611409760.
- Wulansari, O. D. E., Pirker, J., Kopf, J., & Guetl, C. (2019, September). Video Games and Their Correlation to Empathy. In *International Conference on Interactive Collaborative Learning* (pp. 151-163). Springer, Cham. DOI: p.151–163, 2020.https://doi.org/10.1007/978-3-030-40274-7_16.

Web links:

- <https://www.sciencedaily.com/releases/2017/06/170622103824.htm>
- <https://neuroonline.sfn.org/scientific-research/the-neuroscience-of-gaming>
- <https://www.apa.org/monitor/2014/02/video-game>
- <https://www.theguardian.com/games/2020/nov/16/video-gaming-can-benefit-mental-health-find-oxford-aca>

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Conflict of Interest

The author(s) declared no conflict of interest.

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