

Playing for Health: How Video Games Can Improve Mental Well-being

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ABSTRACT

This paper analyses how video games can be used to improve a player's mental health and be uniquely adapted to their circumstances. Video games have immense potential to be used as tools for all kinds of education, specifically building on the user's mental health awareness. To understand this topic in depth, this paper provides a thorough examination of some video game characters and also study games like Elude, Abzu, Flower, Depression Quest, and Actual Sunlight, specifically that might help serve this purpose. Previous research in this field does not arrive at a specific quantitative conclusion about how video games can positively impact mental health. They tend to focus on the negative aspect of video games on the player's health. This paper aims to highlight the positive features of video games by analysing the available research on this topic.

Keywords: *Video Games, Mental Health, Metaphorical Model, Depression, Stress Levels*

With the role of technology slowly becoming more crucial in our lives, new forms of entertainment media are emerging, one of which is video games. Their primary purpose being to entertain, each video game is different in terms of its story and controls, making some games more popular than others. The innovative video game industry, according to Procedia Computer Science- "The Impact of Video Games on the Player's behaviour, can generate hundreds of billions of dollars in revenue, with over 2 billion people already partaking in it (Rice & Galbraith, 2008). All teenagers play video games at some point of time in their life, 50% of teenagers having reportedly played video games 'yesterday'. As per Teens, Video Games, and Civics (ERIC, 2008), Video games are presently associated with social experiences for teenagers as they connect with known and unknown players online. Most teens play these games with people they have already known in their lives, but many opt to play games with virtual strangers. These video game players thus encounter both pro and antisocial behaviour coming from both parties. In multiplayer gaming, 63% teens reported 'aggressive and mean' behaviours and 49% reported 'racist, sexist or hurtful' comments. Around 85% of these players quietly observe generous and helpful players and 60% of these players witness another player asking the aggressor to stop. From these statistics, it is clearly evident that video games give a player an opportunity to be generous or unkind. Majority of people involved in the world of gaming; players often encounter both kinds of behaviours simultaneously. As per Cyber Bullying Research

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Centre, students playing video games for longer hours act like instigators and tend to verbally or emotionally abuse other players, (Patchin, 2018). It is important to note that while a gender gap and blatant disregard for societal norms are observed in these games, they can be used as a method for education rather than destruction (Genner, 2022), as stated by Sarah Genner in 'Violent Video Games and Cyberbullying: Why Education is better than regulation'. This leads us to the untapped potential of video games to serve as incredible tools to increase academic interest, civic education and engagement, and mental and physical well-being. They can also be used to raise important social issues in a unique method by offering unique experiences and captivating storylines and graphics. Their interactive nature can produce diverse learning mechanisms, customised to the individual's learning process to enhance it. As per American Psychologist's, 'The Benefit of Playing Video Games', it can be adequately stated that video games can positively benefit a player in four main spheres: social, emotional, cognitive and motivational. (APA, n.d.). People playing video games foster real-world psychosocial benefits, amongst numerous benefits to the mental health of the players, which remain largely unexplored. To understand the full impact of video games on the player, player behaviour is perhaps the most important concept in addition to (Rice & Galbraith, 2008), (Moura, n.d.), Kowert, 2019), providing a clear link between the game's impact and player dynamics. Player behaviour is a necessary term for defining a video game, giving account to both its market success and the impact of the game on the player. Due to the elements that constitute the game, the player can be left feeling extremely calm or aggressive since they primarily affect the player's psychological functioning including affectivity, self-esteem and coping mechanisms. The gamer's reasons for playing the game, and the decisions made during them, are differentially related to their psychological functioning. Players who play video games to provide a form of mental distraction were the most common players in this group. This further reinforces the idea of a positive distraction that is offered by video games. On the other hand, the gaming industry is dominated by violent video games, with shooter games proving to be the most popular game for years, as per Statista. (Clement, 2023) Violent video games can be defined as games which include the depiction or simulation of human-on-human violence, in which a player kills or causes harm to another human being. (RWJF, 2010), (Rice & Galbraith, 2008). Certain negative impacts of this particular form of games include aggression, non-compliant behaviours, delinquency, self-reported assault, criminal activities like robbery and hyperactivity. Students exposed to more than 6 hours of video games in a day are reported to be behaving 'violently' at educational institutions as well. In general, video games can also lead to insomnia and attention deficits, along with addiction (Anderson, 2003). The most popular of these games are 'Call of Duty', 'Grand Theft Auto', 'World of Warcraft' and 'God of War'. These games have several different parts and have amassed several hundred million dollars in their releases. 'Call of Duty: Modern Warfare 2022' passed less than 1 billion US dollars in sales in less than 2 weeks (Kain & Danise, 2022) and 'Grand Theft Auto V' (GTA V) crossed this mark in less than 3 days, giving 800 million US dollars in just the first 24 hours. Even as these games began to grow popular, the releases of these games' previous models have US dollars 550 (COD: Modern Warfare) and 500 (GTA IV) in the first five days of release respectively (Anderson, n.d.).

As previously mentioned, the effects between mental health and video games are largely unexplored. For a long time, video games had been linked only to a negative impact on the player's behaviour and mental health. Newer research done by the likes of the American Association of Psychologists, Università Cattolica Del Sacro Cuore, University of Oxford and Rochester proves that there are several positive impacts of gaming as well. Oxford University (OX.AC.UK, 2022), (Rice & Galbraith, 2008), (IDTECH, 2023) states that there

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is no direct link between controlled gaming and damaging the player's mental health or causing negative emotions. Controlled gaming refers to the act of being able to control the quantity (the number of hours) and the quality of the game you play (from graphics to game type and gameplay). Moreover, the University of Rochester supports this claim by further stating that video games create emotions like empathy and sensitivity (University of Rochester, n.d.) in the player, some even boosting a child's intelligence level (URMC Rochester, 2022). Nic Flemming from BBC also says that video games help people see better, learn quicker, develop mental focus, become spatially aware, make accurate estimations and multitask effectively. In the EmotivaMente model, (Villani, n.d.) it's been proved that video games can be used to increase an adolescent's emotional intelligence and stability. It can also increase cognitive revaluation as a result of the emotional revaluation. They are also an incredible form of mental stimulation, being one of the activities that involve almost every part of your brain, and encouraging cognitive abilities and critical thinking skills (Rice & Galbraith, 2008) They are also used for mental health recovery, serving as distractions for patients diagnosed with mental health disorders like anxiety, depression, post-traumatic stress disorder, depression and attention-deficit hyperactivity disorder. (Rice & Galbraith, 2008) Game design is also playing a prominent role in mental health care, with the increase and interest in the use of gamification. Tetris, apart from being one of the most popular video games through several generations, has been used as a game to deal with PTSD amongst veterans, specifically male patients with PTSD. (PubMed Central, 2017), (PubMed Central, Journal of Psychiatry and Neuroscience, 2020) Word games also prove to be an effective medium to lead to fewer traumatic memories. Especially during the COVID-19 pandemic, many people used these video games to cope with depression, anxiety and loneliness. The video game, Elude, is one of the most well-developed games that is used as a psychoeducational tool to raise awareness about people undergoing depression. Actual Sunlight, Depression Quest, and Florence are games that deal with depression in a much more direct sense than elude, raising awareness about depression as well. Other games that help deal with anxiety and grief include the likes of Flower, which have similar motifs that help the player relax and unwind.

METHODOLOGY

The aim of this study is to examine how video games and their provided stimulation can be used as a source of positivity in the player's life and increase their mental well-being. The study also explores how video games are necessary tools in the mental health sphere to educate society about troubles faced by those suffering from any illness. The study talks about certain games in specific by focusing on how the characters are used, graphics, music added, and basic UI/UX in combination with the actual motivation behind making the game and the game's theme. This study uses a systematic literature review (SLR) and an online search was carried out among various databases to find evidence to substantiate this paper.

DISCUSSION

Elude

The video game Elude was developed by Singapore-MIT Gambit Game Lab as a psychoeducational tool to help close peers of those undergoing depression to better understand the person's mental state. The game was made to foster feelings of understanding and tolerance for depression in 2010, thus drawing on players' feelings like anger, helplessness, sadness and guilt, especially as seen with caregivers (Rusch, 2023). The game's metaphorical model is used to create awareness and empathy for those who are diagnosed with depression (GAMBIT LAB, n.d.). In the book 'Making Deep Games', the author Doris C. Rusch explores the significance of the term 'metaphorical model'. It draws

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on the idea that games can be designed to give not only just pleasure to the player but also to gain knowledge or enlighten their views about a topic. Games designed with a specific purpose can instil change in the player. Rusch has presented three main models that can be applied to Elude— experiential metaphors (gameplay as an embodied experience), modelling the human experience, and allegorical games— which together constitute its metaphorical model (Rusch, n.d.). Metaphorical models are becoming increasingly common games, designed to support CBT (cognitive brain therapy), anxiety or low mood by therapists in young children, as per JMIR (JMIR, 2019). Surprisingly, it is believed that the gamification of metaphorical models can have much more vast and prominent changes as compared to depicting these same metaphorical models via film (or other media), purely because of the unique, customisable, playable experience each video game offers (JOE, 2018). Specifically, this game uses the metaphorical model to understand what is the experience of a person with depression, to raise awareness about the disease and create empathy for those affected by it. In the analysis write about how this is done and if there is any other example.

As a player, you are a boy exploring the forest, sky and underground, which are synonymous with the different stages in a person's mental health journey. The game models depression and other moods, such as happiness, sadness, aggression and 'normal' mood, to compare and contrast these to depression. The game's main theme is that only when a person is infused with passion can they truly reach happiness, but this passion can sometimes consume you and lead to negative stages in life as well. Research by the Society of General Psychology of the American Psychological Association supports this statement by stating that experientialism and materialism are now key terms in society's definition of success (Rice & Galbraith, 2008). In Terry Orrick's 'Pursuit of Excellence', a similar idea has been highlighted as the author claims that to truly achieve happiness in life, one has to follow excellence, and ultimately success. The game is also thus modelled on these beliefs to show that many people succumb to mental illnesses like depression during their journey to 'success', in spite of it being successful or not (Orlick, n.d.). The metaphorical model of the game is achieved by the use of a multitude of crucial symbols to depict the same like trees, branches, birds and more. The trees and their branches are the stepping stones to a positive mental state and happiness, which is represented by the sky. The sky further has flowers and leaves that act as propellers to a happier state. There are birds in the game, which light up once interacted with that are your 'beacons of hope' as they are your main guide from one branch and tree to the other. However, the player, when jumping from one state to the other, can also fall into severe depression. Upon reaching the bottom of the tree, vines are found that engulf you through a quicksand-type pit into obscure red caves. The vines and the quicksand are representatives of obstacles and situations that worsen your mental health while the red caves depict the most adverse mental state from which recovery is nearly impossible— thus giving two different endings to this game. In these red caves, there is sometimes a light at the end of the tunnel accompanied by a choir-like sound which is the 'saviour' of your mental health. The colours used are mainly shades of blue, black, and green, except for the cave which has shades of red and orange. The game also draws heavily on colour theory for meaningful designs. Research by the Psychology and Marketing Department of Wiley Online Library shows that blue colour typically shows calm, cool and positive environments. Yellow colour brings out joy, hope and happiness. The blue sky and the yellow flowers depict the happy state of the player as he literally 'jumps for joy' from one flower to another (Rice & Galbraith, 2008). Red colour, on the other hand, depicts anger and agitation and is therefore used for the caves. The instructions for this PC game are fairly simple, there are 5 main keys the player needs to use clearly explained at the beginning.

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Moreover, the game also contains phenomenological quotations while playing which add to the metaphorical model of the game. On further analysis, the quotes help the player truly think about the game's purpose and purposeful design, which is what best describes it. The player experiences several stages that are representative of their mental health journey. The game begins with the player being in a forest where the trees and their branches are used to progress towards a state of better mental health, that is the sky with upbeat music and beautiful flowers. This forest is trying to portray a normal mood which is full of the player's passions, i.e., the objects. Various quotations are also displayed along the screen which is incredibly philosophical. The player is guided by birds on its path to the sky, which are the 'beacons of hope' as they light up once the player (boy) touches them and helps the boy move upward. While doing so, the forest progressively gets darker and spiked, and thick vines begin to grow from the bottom which plans to engulf the boy. The boy needs to escape these and move to the sky. This symbolises the general genial mood of the boy being spoilt and how it's imperative for him to move onto a more positive state. It is also accompanied by a change to a more sinister, fast-paced background music. On the other hand, when the boy moves into the sky, he is propelled upwards by pretty flowers and leaves. The music played on this stage is upbeat and has a happy tone. The game also uses music to leverage the impact of the game. Music heavily influences the person's ability to perceive six basic emotions, also serving as the ultimate test for the same. The research, 'Perception of six basic emotions in music' by Sempre, sage journals, proves that despite the test group being unfamiliar with the pieces of music played, they could correctly identify the emotion conveyed in each piece and relate to it. The use of fast-paced and relaxed music in this video game also engages similar senses of the player. The player thus shifts into alert mode with the fast-paced music and stays calm with the relaxed tones (Journals, n.d.). Music has also emerged to play a key role in depression therapy. As shown by the Cochrane Library, music therapy has the power to alter the emotions of the affected and modulate moods (Rice & Galbraith, 2008). The findings of this research indicate that music therapy provides short-term beneficial effects for people with depression. Music therapy added to treatment as usual (TAU) seems to improve depressive symptoms compared with TAU alone. Additionally, music therapy plus TAU is not associated with more or fewer adverse events than TAU alone. Music therapy also shows efficacy in decreasing anxiety levels and improving the functioning of depressed individuals. The same logic is used in the game Elude. If the boy falls into this stage by not being able to land on any flower or leaf then he has to start from level 1 once more. The boy is then engulfed by the vines then he is pushed into the earth into an area similar to quicksand. These areas continually move the boy downwards despite his (the player's) attempts otherwise. Eventually, the boy reaches a point where he's placed in some red caves (Hell). The game has two endings at this point. These caves are the most dreadful or the lowest point in the player's mental health journey. One possible ending is when the player is moved off the cliff of these red caves/ platforms and is then killed. Another ending is when the boy manages to push past the forces pushing him to his downfall and moves to a ray of light at the end of the tunnel. As he gets closer to this light, a song like a choir's gets louder until the boy is completely in the light. This shows salvation, the boy is saved from this dangerous illness and the game ends. In both cases, two quotes are shown on the screen that adds to the game's end, each carrying a tone similar to the boy's fate.

Depression Quest and Actual Sunlight

Depression Quest and Actual Sunlight are two very different video games in this aspect. While Elude has selected an indirect style to talk about depression, these games chose to be strikingly direct and explicit, thus maturely rated. Both are independently created by

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developers and have received mixed reactions from players globally. *Depression Quest* was created by Zoe Quinn and *Actual Sunlight* by William O'Neil. Both of these creators themselves suffered mental illnesses and have tried to create a game inspired by their experience with depression. Created in the early 2010s, they tried their best to create support and awareness for this disease and those suffering from it, after seeing the limited support and acceptance they were offered. Both share a more or less predetermined format, the order of the progression of the story, and some minor events, which are unique to each player's experience. For example, in *Actual Sunlight*, the game progresses only when the player is interacting with objects. The player is Evan Winters, a lonely, depressed corporate job worker based in Toronto, Canada. The game's different levels are shown by the various rooms and settings Evan is placed in. These also reveal Evan's history, and foreshadow the future. Upon beginning the game, Evan is placed in his bedroom and is surrounded by numerous objects, all of which he can interact with that lead to a lot of text being displayed on the screen, warning us about future events or showing the past. Later on, as he is placed in other settings, as the player you are allowed to select Evan's response and feelings to each major event that occurs. Moreover, there is much narration and depiction of quotations in the game to probe the player to think about their own lives. Self-reflection, either intended or not, becomes pivotal in this game and hence creates a lasting, substantial impact on the player and their way of life. The end of this game is open-ended, the protagonist Evan is found to be standing on his roof, leaving the player to ponder whether he chose to end his life or continue with it. There are many theories about the game's end, but none have been confirmed by the creator—an attempt to let the user relate the game to their own lives and learn that there is much more to their life than they realize. The graphics of this game are distinct as the player's screen is filled with meticulously created pixel art that shows mundane objects in Evan's life. Apart from that, the text in the game also carries a very pixelated look and it is displayed on a plain black screen. *Depression Quest* is a very text-heavy game, with close to 50,000 words. There are several pages to it as the player is expected to read the story and then pick an appropriate response to each situation as per the options which determine your fate in the game. This non-traditional game offers each player a unique, individual experience. A player is a man with a limited friend circle, an unsatisfactory job, and a significant other Alex. He is also depressed and finds it incredibly difficult to deal with mundane situations. Gameplay, in a general sense, is exploring the life of this man through different aspects like work, love, family, etc, by making these mundane decisions for him. The game also provides five different endings a player can end up with, the two main endings being a positive one—the man takes medication and visits a therapist in an attempt to fix his relationships—and a negative one—the man has no relationships, medications, or therapist.

Abzu and Flower

Lastly, games like *Abzu* and *Flower* are much newer, with graphics being astonishingly detailed. These games use 3D animation and draw the same concept of the healing effect of nature. Primarily made to create an emotional shelter for the player to reduce stress and anxiety levels and provide temporary relief by engaging in calm sceneries, these games try to promote the ideology that nature is a powerful healer/ the best medicine. They want to evoke positive emotions in the player and make them relaxed. They also aim to talk about the relationship between humans and nature from an environmental standpoint as well, along with the imperative relation of mental health. In the game *Flower*, as the player, you are the flower petals that explore a multitude of sceneries which are the different stages. There are in total 5 levels to this game, a flower's daydreams, talking about the flower's escape from the busy citizens to the calm and beautiful forests. This game features upbeat music and has

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no dialogue. In *Abzu*, as the player, you are a diver exploring the underwater ocean, surrounding environment, plant and animal life and ancient technology, and submerged ruins. You also encounter a great white shark and help it to restore life to the ocean. This game especially draws on the direct relationship shared by humans and nature, and how humans need to restore it. Both of these games carry powerful natural elements that have a calming effect on the player and thus lower their stress and anxiety levels. They act as a general mood booster and a positive distraction from their troubles. Research undertaken by members of Radboud University and Arizona State University shows that commercial games like *Flower* can go as far as to ‘prevent’ depression [SOURCE 30]. Video games offer the youth, which has highly prevalent depression rates, an engaging vehicle to practice emotional and social skills for their mental well-being. In their study, it is suggested that these video games, specifically *Journey* and *Flower*, helped youths aged 15-20 decrease their degree of depression over time, become less sensitive to rejection and experience more hope and optimism. It is suggested that video games became a welcoming distraction for these players and caused these findings. *Flower* and *Abzu* were designed particularly keeping these concepts in mind. They aim to lower the anxiety levels of the player by offering them a distraction and cogitating on the healing effect of nature (and its subsequent relationship with humans) simultaneously. Another paper by JMIR publications also talks about the effect of commercial video games on mental health. Commercial video games apart from just providing cognitive benefits (attention control, information processing, cognitive flexibility) also try to become a cost-effective and accessible solution, while also addressing the stigma yet prevalent in society (JMIR, 2021). A study by Springer Link (Rice & Galbraith, 2008) and by Joshua Bertile (Proquest, n.d.) shows that the games *Flower* and *Abzu* respectively, are shown to lower stress levels in players, creating a relaxing effect, especially as seen in undergraduate students. There are still limitations, however, on how to quantify these findings, apart from showing a change in the test groups’ self-reported moods.

CONCLUSION

Metaphorical video games have gained popularity recently as a means of examining mental health concerns and creating compassion for those who experience them. Games like *Celeste*, *Hellblade: Senua's Sacrifice*, and *Elude* all employ metaphorical models to give players engaging and instructive experiences. They provide a distinct, customised, and playable experience that makes them an effective tool for assisting with cognitive behavioural therapy and paediatric anxiety treatment.

Similar to this, *Actual Sunlight* and *Depression Quest* are two video games that deal with depression in various ways, giving players a chance to consider their own life and the effects of mental illness. Even though each game has unique graphics and gameplay, they both support depression awareness and can be viewed as significant contributions to the conversation about mental health in video games.

In addition to this, games like *Abzu* and *Flower* use great graphics and serene settings to elicit positive emotions from the player while also emphasising the healing power of nature. Playing these games can improve mental health by lowering stress and anxiety levels and even preventing depression in young people.

Video games will become an important tool in promoting mental health as research into their potential advantages for mental health support continues.

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Conflict of Interest

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