9-2-2020

Why Playing Video Games is in Your Best Interest

Adan Salazar

Recommended Citation

Why Playing Video Games is in Your Best Interest

Adan Salazar

Professor Hendricks

ENGL 128

August 8, 2020

When I was young, like plenty of kids, my parents imposed a limit on how much "screen time" I had during the day. I was allotted 2 hours of precious time that I chose to spend playing video games. Like any sane child, I often asked why I had such a restriction on something I considered to be as fun as playing outside. As if they had it written down my parents would simply respond by saying "If you play too long it's not good for you". Lucky for me, as my parents noted how much I enjoyed video games these restrictions were loosened over the years and I could enjoy my favorite pastime as I pleased. However, I would often look back on those times wondering why they had such a bad image of video games. Since the early '70s video games have been a fast-growing phenomenon that has made a major impact on pop culture. Evolving from a few pixels on a screen to fully cinematic experiences with big-name actors to even billion-dollar competitions. The video game industry is constantly changing and refining itself cementing itself in mass media. Yet, their success has not gone without controversy. School shootings, addiction, desensitization to violence, and many other issues have been associated with gaming. Every form of media has had its controversies like songs having suggestive or intense lyrics and movies with offensive content. The difference is these instances have been isolated from the greater form of media. Video games however have been condemned as a whole and this bad reputation over the years has closed people off to the potential they hold.

Time after time, video games have been mislabeled over the years as a direct cause of many issues. The thing is, there is so much more evidence pointing towards video games providing positive side effects than negative ones. The stereotypical gamer that you see in the media is the minority in the world of gaming. As time has gone on and technology has become a part of our daily lives I think it's worthwhile to reanalyze how we see video games. Through my

research, I've been able to look into the wide range of benefits that video games hold. Within this presentation, I'd like to explore how video games can be good for you. By investigating the vast array of passive effects that video games have, we can reveal their major physical, social and psychological side effects as well as their current application outside of entertainment so that more people are aware of why playing them will improve their life. Indeed, there have also been dozens of claims that call out video games for their content and have led people to believe that video games cause violence amongst other things. Yet this often comes from people who do not know video games or how diverse they are and I'd like to dispel many of these outlandish claims. The reality is that video games are showing that they can not only help those who play them but also have applications outside that of entertainment. The reason this is so important is that most people only see video games as a pastime instead of a tool to improve their wellbeing. The more people are aware of the ways that video games can help us, the more we can integrate them into our society.

Video games also hold great diversity as a form of media. The important detail that many of those not familiar with video games often fail to see (whether that's intentional or not) is that video games much like music, tv, and movies, come in all different types of genres and have appropriately different types of content. As a gamer, I've always been irked by the thought that all video games are about killing and violence when that couldn't be further from the truth. Since the beginning video games have had content for people of all ages. Sure some may have large amounts of violence but others are an equal or greater amount of games that have little to no violence at all. The "Mario" franchise of video games is most likely the most well-known series of games and has been enjoyed by adults and children for decades. Video games can have

content like car racing, puzzles, simulators, and sports games all of which contain no violence. These are not always thought about though and many people assume that all games are about violence. For this paper, there are a few genres that are important to note as they are often the most talked-about types of games. Two of the more important genres to recognize are "Shooters" where players have to aim and shoot at enemies and "MMORPG" or "Massive Multiplayer Online Role-Playing Game" where players engage in many social activities, as these are often the ones discussed in the press.

Before talking about all the good that comes from video games, I'd like to discuss the history they've had in mass media. What's important in this talk is not the history of games themselves necessarily but how the public has viewed them. For the most part from the '70s to the late '90s, the most criticism video games received came in the form of complaints about content. The only game to attract a lot of attention was the arcade game "Death Race" in which the player controls a car that can come into contact with gremlins leaving behind a tombstone when running over. A reporter from the Associated Press in Seattle found the content of the game to be disturbing and wrote an article drawing negative attention. Ironically the negative press around the game boosted sales.[1] Despite this, complaints about video games were rather quiet until the 90s. Video game technology took a huge leap in the 90s as a better computer allowed for more realistic and detailed computer graphics. Once again video games would get a bad rap and like before violence was the main problem as the rising fidelity of graphics in the '90s allowed for a more realistic depiction of blood and gore. The biggest contributor to this debate on video game violence was the arcade fighting game Mortal Kombat. In a normal

---

[1] Keith Smith, The Ultimate (So Far) History of Exidy - Part 2, January 1, 1970.

fighting game, two people are set against each other inputting different attacks to knock the other player out. Mortal Kombat set itself apart in 1992 though as it allowed the player to do unique finisher moves called "Fatalities". Fatalities are a brutal way to finish an opponent that always results in the death of the receiver. The finishers range from removing a person's spine to burning the flesh off their skeleton. Looking back, the graphical depictions of these moves are extremely tame compared to modern Mortal Kombat games however they were very shocking for the time. Some found this feature awesome, others found it horrifying either way the game became an easy target for controversy.[2] As a result, the Entertainment Software Rating Board was created to categorize games in a similar way that movies are rated. This rating is included in the box art of all video games so parents can know what their children are playing. The label also details what type of content is in the video game such as violence, gore, and drug references amongst many other labels.

Things stayed the same until 1999 when the Columbine Massacre occurred. This horrible tragedy committed by two high schoolers cost the lives of 13 teens. Parents of victims as well as many others sought to pin video games as part of the reason this happened.[3] As the two assailants often played violent games including DOOM, many lawsuits were filed from families blaming video games for the tragedy. In DOOM players assume control of a space marine who tries to survive an onslaught of demonic enemies. DOOM had a large amount of blood and weapons some of which resemble very real weapons. Within the gaming community, DOOM was praised for it's fast and unique gameplay (being one of the first games to adopt a first-person perspective and have 3D environments) as well as it's multiplayer. Another important part of DOOM's

---

[2] Rob Crossley, "Mortal Kombat: Violent Game That Changed Video Games Industry." BBC News, BBC, June 1, 2014.
[3] Editors History.com. "Columbine Shooting." History.com. A&E Television Networks, November 9, 2009.

popularity was the high levels of distribution. Both the first few levels of the game as well as the source code of the game were given out to players for free. This shareware business model allowed the game to explode and opened the door for a community to create their own levels for DOOM. Herein lies the problem with DOOM and the Columbine Massacre. The two boys who committed the shooting were avid fans of the game and would create levels that mimicked the appearance of their school. This is obviously disturbing behavior and as an impulse, it's very easy to want to blame video games for the violent behaviors of the two boys. We should step back though and acknowledge that while they used video games as a vessel for their evil thoughts and action, it's just not reasonable to blame a form of media for violent actions. This is something that I'll address later as we talk about how video games affect you mentally. The Columbine Massacre created a serious discussion about what role video games play in violent behavior and how their content should be monitored.

Things would continue to get worse for the industry as more and more catered to mature audiences and had appropriately mature content. The franchise Grand Theft Auto, a game where users can do several violent acts, gained a lot of popularity in the 90s and as such drew more criticism. In Grand Theft Auto, players assume the role of an individual who often commits many criminal acts. Players can kill any person that they find and steal cars as they please. These actions however do not go without consequences as the police will pursue the player depending on what they have done. Other games arrived in the early 2000's such as World of Warcraft, an online game where users can explore a world with thousands of other players. World of Warcraft fell under criticism for being addicted and in turn, caused discussion about whether or not video games were more bad than good. What's unfortunate about both the World of Warcraft and

Grand Theft Auto cases is that the larger medium of video games was affected beyond just those two games. Another large criticism that comes towards video games is how easy it is for young children to access games with mature content. The problem with this argument is that it's just as easy for a child to view movies and shows with violence especially in today's digital age. I have found that in many cases where I have seen a parent complain about video games, they are the ones at fault for not paying attention to the content of the game. This is especially ridiculous considering how blatantly obvious it is that content might not be suitable for a child via the ESRB rating system. The common narrative thread about video games being inherently violent also conveniently leaves out that parents have a responsibility to control how their children interact with technology. This idea that parents hold responsibility for their children also extends to the idea of video game addiction.

While active ridicule of video games had subsided after the early 2000s. More recently newer easily accessible games have come under fire. Even as recent as 2019 president Donald Trump blamed several massacres that year on video games saying "We must stop the glorification of violence in our society. This includes the gruesome and grisly video games that are now commonplace."[4] Plenty of games as of late have taken up the "Free-to-Play" business model. "Free-to-Play" means that anybody can download and play the game without having to pay for it. The tradeoff is that there are often many items that people can purchase on the side usually sold in very tempting fashions. The accessibility of these games has drawn attention as many younger gamers don't need to pay to play these games. As long as they have the right system they won't have to even ask their parents to start playing. All a kid would need to do is

---

[4] Jane C. Timm, "Fact Check: Trump Suggests Video Games to Blame for Mass Shootings," NBCNews.com (NBCUniversal News Group, August 6, 2019),

ask their parents to download a game on their phone and they are good to go. While impressive on a technical scale it also means that video games can be in the hands of far more people than before. Video games on mobile devices have also drawn attention, the most notable of these being Fortnite. Fortnite is a shooter game that has blown up in the past and has a large player base of children. The controversy around the game revolves around addiction and greedy monetization in the form of "Loot Boxes". Loot boxes are essentially a form of gambling. Recent allegations against games like Fortnite have some validation in terms of the way they are monetized but that is an issue that lies beyond the actual content of the video game. When looking at whether or not video games have negative effects on users, we should make the distinction between the actual video game and the outer meta of video games.

Firstly, I'll address what is in my opinion the most overlooked facet of gaming which is the cognitive stimulation the activity provides. Many people, including gamers, see video games as a pastime, a serious hobby, or even a profession. What they don't acknowledge about video games is that they are an exercise in various cognitive skills. It's not necessarily an obvious benefit either. You wouldn't expect to be critically thinking while watching a movie or listening to music especially if you've experienced a specific song or film before. What separates video games from any other form of entertainment though is that they require active participation from its user to change the outcome of a given scenario. Reading a book multiple times will always follow the same path. Video games on the other hand will not progress without the user taking action. This constant use of cognitive skills has been shown to improve a user's spatial awareness. The increase in spatial awareness is particularly displayed in first-person games. In an article titled "The Benefits of Playing Video Games," a study is reviewed in which one group

of new gamers played shooters and a different group played a separate genre of game for the same amount of time. What the researchers found is that those who played the shooter had a faster allocation of attention as well as better mental rotation abilities and spatial awareness. For a more accessible example of this one can look at professional esports players whose aim and awareness of the game are extremely heightened. According to additional research, the article says that gamers who play shooters "allocate their attentional resources more efficiently and filter out irrelevant information more effectively"[5]. This is just one example of a mechanical benefit that video games can have on the body.

Video games are often seen as something that younger people typically engage in with children and teens being the average demographic. Like any form of media though, video games can be enjoyed by people of any age. This also extends to their benefits towards a person's cognitive abilities. It's well known that as we age, we tend to degrade in terms of our physical ability. Seniors are often told to keep their minds fresh with various activities that stimulate their minds. It's no surprise then that research has gone into finding new methods that provide cognitive benefits for older adults. An article entitled "Cognitive Benefits of Computer Games for Older Adults" explores creating a hypothesis around the idea that video games can provide cognitive benefits to older adults. What's most interesting about this article in particular is that it takes a step to recognize the great diversity that video games have. The way that video games can help older adults with cognitive tasks can be different based on what game they might play.[6] The article notes that shooter games and massively multiplayer games are of particular

---

[5] Isabela Granic, Adam Lobel, and Rutger C M E Engels, "The Benefits of Playing Video Games." American Psychologist 69 (2014): 66–78

[6] Elizabeth M Zelinski, and Ricardo Reyes, 2009, "Cognitive Benefits of Computer Games for Older Adults." Gerontechnology 8 (4) (10): 220-235.

importance. The specific gameplay details of shooters are detailed as the article introduces "twitch" gameplay saying "One of the principles underlying shooter games is known as twitch gameplay, defined as fast and precise responses (twitches) with immediate feedback while monitoring the display screen and moving through the environment."[6] This style of gameplay is a huge factor in why first-person shooters require so much cognitive interaction. This twitch gameplay can "encourage visual monitoring, rapid responding, and accuracy."[6] meaning it could be a great tool for people to improve their senses both old and young.

If that weren't enough, modern video games promote a large amount of social interaction. While it may be true that video games were largely a solo experience in the early days of gaming, the advent of the internet has expanded social gaming to great lengths. It is extremely common that gamers have several friends that they've never even seen in person before. I have a friend that I met through playing video games. While we've never met in person I've known him for at least six years. Gamers not only meet new people through video games but use them as a way to engage with friends they already have. "The Benefits of Playing Video Games" states that "over 70% of gamers play their games with a friend, either cooperatively or competitively"[1]. Many people have most likely played a video game at some point even if it were at a friend's house and have experienced what it is like to work with a friend to complete an objective. Gamers have been found to develop many key social skills the best when they play games that reward cooperation. Even the most violent games have been shown to have long-lasting social benefits when played cooperatively. Most cooperative games can be played locally on the same system, but many modern games also support online gameplay. These online games have an even wider breadth of social benefits. In addition to social skills, civic skills can even be fostered

through playing video games. The previously mentioned World of Warcraft is a perfect example of how social skills can be developed by gaming. World of Warcraft (or more commonly referred to as WoW by the community) has a great amount of large-scale social activities and notably the ability to form groups called "guilds". These guilds can range from only 20 players to hundreds. Each guild has a dedicated storage space where they can store currency and important resources used throughout the game. Guildies can donate their resources so that others who need them have easier access. In addition to this guilds will often conduct "raids" which are activities that in some cases require 40 players to defeat enemies and get rewards. Guilds are built on mutual trust and understanding that you will contribute what you can so that the group can succeed. As a result of these constant civic practices, gamers who participate in guilds were found to be more likely to carry these practices into real life. In today's smartphone-driven world, people often wonder whether social media has actually made us less social. If that were true it might be time that we all start playing video games a bit more.

The role video games play towards our social development is clear when most of us have already had social interaction throughout our life. It's easy for people to improve their social behaviors in games when they already have that experience. However for some, particularly those with autism, social interaction can be a difficult task. Amazingly, video games can help develop social interaction for those with autism. In an article entitled "The Virtual Environment Social Program for Youths With Autism Spectrum Disorder" authors Jefferey MacCormack and John Freeman detail a study about developing social competence by using the game Minecraft. Minecraft is an immensely popular game in which players can gather natural resources to create tools, machinery, and structures. People can also play the game with others in a cooperative

fashion. In this study, four boys with autism spectrum disorder (ASD) play Minecraft in several

structured and nonstructured sessions. After the sessions, the boys were found to be more

engaged when in the structured play. Along with this, the study notes that many things can be

learned about ASD based on this study saying "This study extends the evidence that intense

interests of individuals with ASD are not obstacles to socializing, as once believed, but can be

meaningfully incorporated into interventions to improve social skills".[7] What this means is that

by using video games, the researchers were able to make an insight about ASD that disproves

beliefs before that. Video games can affect us in very complex ways and by using them to study

behaviors, we can make discoveries he couldn't have before. This article provides a great look at

how people of all different backgrounds can benefit from playing video games in one way or

another.

Going further into the more professional ways video games are being researched, we can

look into the therapeutic benefits video games can provide. Video games may have started with

very primitive controls but nowadays many innovations have completely changed the way we

can play them. The introduction of motion controls allows for games that make us move our

body to mimic motions in the game. Virtual reality has also been making its way into the

mainstream which both physically and mentally challenges you to adapt to a new environment.

These more physical ways of playing games as well as the great catalog of traditional games

have raised thoughts about how they can be used for both physical and mental therapy. In an

article titled "Commercial Video Games As Therapy: A New Research Agenda to Unlock the

Potential of a Global Pastime" a group of medical professionals seek to establish a discussion

---

[7] Jeffrey MacCormack, and John Freeman. 2019. "Part 2: The Virtual Environment Social Program for Youths with Autism Spectrum Disorder." International Journal of Play Therapy 28 (4)

about proper protocols for incorporating video games as a form of therapy. The article outlines

how different games can benefit different needs a person has. Those with physical therapy needs

might benefit more from a game like PokemonGO (a mobile game that has players walk around

the real world to progress) while those suffering from mental issues like PTSD or depression

might find shooters or role-playing games more helpful.[8] What's great about this article is that

they not only acknowledge the vast scope of games but that each different genre can provide

specific benefits to a specific audience. The article also brings to light that there is a lack of

research and standard terminology in the field. This is a common barrier across all research

projects about video games, The unexplored nature of video games is both a blessing and a curse.

While there is a great deal to be learned the resources to learn such insights are lacking. It's so

important to recognize that video game research is still very early and all the benefits that are

currently known are just the tip of the iceberg.

All that we've touched upon so far has focused on video games passively benefiting you

when played as a hobby. It's often not thought about but video games have uses far beyond just

entertainment. There are a large plethora of educational games meant to engage students and

help them learn while also having fun. There are many classrooms across the country that have

begun to implement some sort of video game in the classroom. Now, it's often said that video

games can be harmful to students' academic performance. The common fear is that the student

will become addicted to video games and their grades will start to drop. Like many other

negative assumptions, there is just not enough conclusive evidence to support video games being

a negative force on academics. Studies that have directly focused on trying to prove that this

---

[8] Elizabeth M Zelinski, and Ricardo Reyes, 2009, "Cognitive Benefits of Computer Games for Older Adults."
Gerontechnology 8 (4) (10): 220-235.

theory was true to have come up inconclusive. A study entitled "Do Computer Games Jeopardize Educational Outcomes? A Prospective Study on Gaming Times and Academic Achievement." analyzed a group of students in grade 9 and tried to compare grades of those who play video games to those who don't. The closest connection between video games and grades came in the result of slight grade drops in only two subjects. The study states "The time playing computer games each day resulted in slightly lower grades in mathematics and German two years later."[9] concluding that "overall, the detrimental effects of computer gaming on educational outcomes seem to be quite small."[9] While the study did find some grade drops the effects were so minimal that it's hard to make any solid connection towards video games being the cause of this. Additionally, this study did not account for other side activities like extracurricular activities, time spent browsing the internet, or watching television. Effectively, this study shows that even modern efforts to prove video games are harmful cannot show results. Looking at this from my point of view, as a hardcore gamer I can attest to video games having little to no effect on one's academic success. I have been able to get myself into a very nice university and have played video games for countless hours my entire life. What I have noticed about my friends who also play games is that their academic standing has nothing to do with the time that they spend playing video games but their time management skills. This is often the case with many arguments that go against video games. There are so many external factors that can affect people as individuals it's almost impossible to prove that video games alone can be responsible for a person's behavior.

---

[9] . Timo Gnambs, Lukasz Stasielowicz, Ilka Wolter, and Markus Appel, "Do Computer Games Jeopardize Educational Outcomes? A Prospective Study on Gaming Times and Academic Achievement." Psychology of Popular Media 9, no. 1 (January 2020): 69–82.

On the other side of the discussion, many others have acknowledged how promising video games are. The most exciting part about the field of video games is how much is still unlearned. With each new advancement in technology and innovation in game design, there is so much to question and learn about how they affect humans. In a dissertation about the use of computer games have in the classroom, Ruth Constansa Torres Castillo provides an extremely in-depth explanation of how to teach mathematics with video games. The video game industry is no stranger to the world of education. Since the early days of Atari, several companies have made an effort to create video games for young children to help them learn. Topics can include mathematics, science, geography, and spelling. This venture into the world of education is one that makes a lot of sense. Why fight against something that kids love when you can get them to learn while doing the thing they love. I for one recall being excited by many education computer games that were available at my school's book fair. The dissertation brings up an important point about video games research stating that studies about video games as a learning tool have shown to be very promising.[10] It's also very promising that credible individuals are beginning to acknowledge the good video games can bring.

Educational games aren't always the only ways video games can teach us either. Many would-be surprised by the amount of information you can learn from your average video game. While video games often take up fantastical settings there is a large set of video games that take a more realistic approach. Games like these include historical games and simulation games. In Animal Crossing (a game where players live in a virtual town and can build relations with animal neighbors) players can find different creatures and fossils that can be then donated to a museum.

---

[10] Torres Castillo, Ruth Constansa. "Teaching Mathematics through Game-Play: Elementary Teachers' Pedagogical Practices and Perceptions of Integrating Computer Games in the Classroom." Dissertation Abstracts International: Section B: The Sciences and Engineering.

Following the donation, players can get a short snippet of information about the animal and what makes it special. Another informative game is Civilization, where players control real-world leaders from history (Abraham Lincoln, Montezuma, and Cleopatra just to name a few) and aim to create a successful nation. While the scenarios of these different leaders from different times meeting are entirely fictional, there can be a lot learned about the culture of each nation. For example in the game, Japan is led by Oda Nobunaga, a prominent figure in Japanese history. This initial information could lead somebody to learn more about who Nobunaga is and why he is significant to Japan. The passive intercultural learning has caught the attention of Elena Shliakhovchuk and Adolfo Muñoz who wrote about how video games can help develop intercultural literacy.[11] Culture can be shared through a multitude of ways in video games either directly or indirectly. Some games wear their cultural inspirations proudly and others choose to be more subtle about their messages. Games like Raji: An Ancient Epic and God of War take from ancient mythological tales for the setting of their game. Shliakhovchuk and Muñoz also write that "video games teach us that which can be absorbed by the subconscious, as opposed to that which is designed to be taken in by the conscious, logical mind. Thus, intentionally or otherwise, video games are the developers' route into perpetuating their own existing stereotypes."[11]. The example they give of this subconscious learning is SimCity (a basic city simulation game) that encourages the building of public transportation, a system that the game design felt especially strong about. The different cultural views and biases of the game developers can be subconsciously learned by playing the game. This information is only a starting point for a broader discussion of how video games can teach us.

---

[11] Shliakhovchuk, Elena, and Adolfo Muñoz García. "Intercultural Perspective on Impact of Video Games on Players: Insights from a Systematic Review of Recent Literature." Educational Sciences: Theory & Practice 20, no. 1 (January 2020): 40–58.

The bottom line is, there is so much uncharted territory when it comes to how video games change those who play them. Through the past few decades video games have been able to become a part of pop culture and yet, they have still found controversy even as recent as this year. The negative stigma associated with games causes the overwhelming amount of benefits to be drowned out in the bad press. I know that by doing research and making the positive side of video games more public the stigma will change. We've already seen how your cognitive and social skills can be greatly improved through playing video games as well as their uses beyond entertainment. Video games can help people young and old regardless of their background. They can also teach us things we might not have learned otherwise. It's important than going forward that we all think about video games as more than "a waste of time" Sure, not every single person should have to play video games to improve their life. But for a lot of us, it might just be the perfect thing to add to our lifestyles. The biggest takeaway I want everyone to have after this is to view video games as more than a childish activity. Instead, keep in mind all the ways that playing video games can enhance the way you go about life. Better yet, inform others you know about how helpful video games could be. Whether it's a friend looking for more social interaction or an older relative who needs to stay moving try to help others understand the benefits of gaming. So, next time you see a negative news article or hear somebody saying that video games will "rot your brain" I hope you think about how they're actually in your best interest.

Bibliography

1. Smith, Keith. The Ultimate (So Far) History of Exidy - Part 2, January 1, 1970.

http://allincolorforaquarter.blogspot.com/2013/05/the-ultimate-so-far-history-of-exidy_24.html.

2. Crossley, Rob. "Mortal Kombat: Violent Game That Changed Video Games Industry." BBC

News. BBC, June 1, 2014. https://www.bbc.com/news/technology-27620071.

3. History.com Editors. "Columbine Shooting." History.com. A&E Television Networks,

November 9, 2009. https://www.history.com/topics/1990s/columbine-high-school-shootings.

4. Timm, Jane C. "Fact Check: Trump Suggests Video Games to Blame for Mass Shootings."

NBCNews.com. NBCUniversal News Group, August 6, 2019.

https://www.nbcnews.com/politics/donald-trump/fact-check-trump-suggests-video-games-blame
-mass-shootings-n1039411.

5. Granic, Isabela, Adam Lobel, and Rutger C M E Engels. "The Benefits of Playing Video

Games." American Psychologist 69 (2014): 66–78. https://doi.org/10.1037/a0034857.

6. Zelinski, Elizabeth M. and Ricardo Reyes. 2009. "Cognitive Benefits of Computer Games for

Older Adults." Gerontechnology 8 (4) (10): 220-235.

doi:http://dx.doi.org.libproxy.scu.edu/10.4017/gt.2009.08.04.004.00.

https://login.libproxy.scu.edu/login?qurl=https%3A%2F%2Fsearch.proquest.com%2Fdocview%2F57353243%3Faccountid%3D13679.

7. MacCormack, Jeffrey, and John Freeman. 2019. "Part 2: The Virtual Environment Social Program for Youths with Autism Spectrum Disorder." International Journal of Play Therapy 28 (4): 218–37. doi:10.1037/pla0000093.

8. Zelinski, Elizabeth M. and Ricardo Reyes. 2009. "Cognitive Benefits of Computer Games for Older Adults." Gerontechnology 8 (4) (10): 220-235. doi:http://dx.doi.org.libproxy.scu.edu/10.4017/gt.2009.08.04.004.00. https://login.libproxy.scu.edu/login?qurl=https%3A%2F%2Fsearch.proquest.com%2Fdocview%2F57353243%3Faccountid%3D13679.

9. Gnambs, Timo, Lukasz Stasielowicz, Ilka Wolter, and Markus Appel. "Do Computer Games Jeopardize Educational Outcomes? A Prospective Study on Gaming Times and Academic Achievement." Psychology of Popular Media 9, no. 1 (January 2020): 69–82. doi:10.1037/ppm0000204.supp (Supplemental).

10. Torres Castillo, Ruth Constansa. "Teaching Mathematics through Game-Play: Elementary Teachers' Pedagogical Practices and Perceptions of Integrating Computer Games in the Classroom." Dissertation Abstracts International: Section B: The Sciences and Engineering. ProQuest Information & Learning, 2020.

11. Shliakhovchuk, Elena, and Adolfo Muñoz García. "Intercultural Perspective on Impact of Video Games on Players: Insights from a Systematic Review of Recent Literature." Educational Sciences: Theory & Practice 20, no. 1 (January 2020): 40–58. doi:10.12738/jestp.2020.1.004.