

ENGL 4745

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## **Title:**

Video Games and Interactive Media – A Path to Better Future Education

## **Introduction**

On November 30<sup>th</sup>, 2022, an American artificial intelligence (AI) research laboratory *OpenAI* released its first version of ChatGPT, a new generation AI chatbot that supposedly answers any of your questions. It is like Siri, but much “smarter.” The tasks that it can fulfill range from making simple arithmetic calculations and spitting out basic internet facts to generating essays and fictional stories; ChatGPT can even write and debug your computer program code.

Not surprisingly, the world was shocked by the level of complexity modern AI has achieved. For one thing, previous chatbots were not able to spawn “original content” that only human writers can create. Moreover, alongside ChatGPT, AI-generated art also gained unprecedented popularity and attention. As a result, everyone started asking questions: Would AI replace humans? What does the future hold for the human-machine relationship?

These questions raise concerns and call for further investigation. However, we should keep in mind that humans have survived numerous technological revolutions to the present day. If several-thousand years of drastic environmental and societal changes have not yet caused homo sapiens’ extinction, I doubt that AI will any time soon. History has proven the

incredible adaptiveness of humans as a species. Not only do we survive, but we also creatively utilize all kinds of tools to make living more efficient and exciting. Among various media of communication and entertainment, video games and their influences are not to be neglected. I will further elaborate on video games' prevalence and their level of impact on societal culture, but to begin with, I introduce the idea that gaming will, and to some extent is already, altering the way we see and communicate with this world as part of the current new information revolution.

Essentially, AI, virtual realities (VR), or video games shift and alter society in similar fashions, turning our reality into an increasingly digitized one. Thus, I argue that it is unfeasible if not potentially unnecessary to completely shut down new technological advancements. A better solution is to understand and manipulate the tools humanity has so far cultivated to their fullest. One such example would be to incorporate interactive digital media, such as video games, virtual realities, and interactive films, into the current education system, both in and outside of classrooms.

In addition to explaining the importance and prevalence of video games in modern society, the following article will discuss different ways that interactive media can promote learning in three categories:

- 1) Skill training and basic knowledge learning
- 2) How Video Games Motivate and Engage with the Audience to Improve Learning
- 3) Self-Reflection, Ethics, and Metacognition: Can We Teach Ourselves to be Better Thinkers/Individuals?

Note that proceeding forward, I will mostly focus on video games and their applications in different fields. However, they represent a broader variety of interactive digital media such as interactive movies or interactive novels. Additionally, to clarify, I am

not suggesting abandoning traditional teaching and learning methods altogether. On the contrary, the former is indispensable to education. Studies have shown that paper print is overall better than digital print when it comes to increasing levels of comprehension and concentration (Pablo Delgado, Cristina Vargas, Rakefet Ackerman, Ladislao Salmerón, 2018). Nevertheless, video games can engage and inspire the target demographic through a different perspective that traditional, passive learning does not. Hence it is beneficial to incorporate gaming into education, creating comprehensive and substantial learning experiences.

## **Why Do We Care - The Dominating Popularity of Video Games**

By 2020, it is believed that there are 2.69 billion video game players worldwide (Nestor Gilbert, 2023) and this number continues to grow exponentially. In 2016 alone, “the Top 25 Public Companies by Game Revenue generated a combined \$70.4 billion with a year-on-year increase of 17%” (Newzoo, 2016). Some data suggests that until 2016, the global gaming industry was worth more than both film and music combined, standing at a whopping \$90+ billion (Sinclair, B. 2016). In 2022, the net worth of the gaming industry is estimated to have reached \$335 billion worldwide (Statista, 2022). Data released by different sources may vary, but the dominating trend of gaming is indisputable. Hence if people can learn some “useful knowledge” in subjects such as history, biology, or ethics while playing their already beloved games, the double-tasking of having fun while learning will be a dream come true. After all, we often say “work hard, play hard,” but I suggest combining the two and making learning an enjoyable experience as it ought to be.

## **Skill Training and Basic Knowledge Learning**

On a basic level, virtual simulators can offer occupational training. They act like a transition between theories and real-life practice, allowing beginners to cultivate experiences they desperately need without having to face possible dangerous consequences. Surgeon simulators, for instance, are great tools for medical students to practice their skills before operating on actual patients (Agha, Riaz A, and Alexander J Fowler, 2015). Pilot simulators illustrate how virtual software can help train professionals in a cheaper, controlled environment. Not only can pilots learn how to fly, but they can also be trained to face “unexpected events” in case of emergency. Although practicing in a simulation still differs from reality, having a more visual and “hands-on” experience even in a digital environment is proven to be beneficial (Landman, Annemarie, 2018).

Besides occupational simulators, other games can build great foundations for what I consider “basic knowledge” learning. This type of information is more fact-based, simpler, more structural, and can be memorized. Biology is one field where this approach is highly applicable. I remember reading the *Magic School Bus* series (Joanna Cole and Bruce Degen, 1985-2020) growing up. At that time, I always imagined traveling into plants, the human body, and many other “organic and exotic locations” with Ms. Frizzle and her magical school bus, seeing all the wonders of nature’s brilliant designs close from the inside. Today with the help of VR, taking such a “crazy” field trip is no longer bound to our imagination. One can simply put on a pair of goggles and even some sensors before being able to look around and study from inside an organism of your choice. Aside from reading textbooks, VR allows direct and magnified observations which enhances students’ overall understanding of natural sciences.

Similarly, gaming can also be helpful for studying subjects on the humanities side. Literature-wise, many games have high-quality writings as impressive and sophisticated as reputable novels. Take *Disco Elysium* (ZA/UM, 2019) as an example. The game is filled with

innovative descriptions and lively dialogues that are as fascinating as any famous novel. More importantly, *Disco Elysium* is also an exemplary think piece. Woven into the story are various political ideologies and complicated characters that trigger the player to ponder both the story world and the world we live in. As a matter of fact, *Disco Elysium* is only one among numerous games that have published book-quality writing and story plots. There are scholars who currently study games as an alternative form of literature. In general, students of any age would benefit from interacting and engaging in good writing within diverse contexts.

Another field where gaming can thrive is history. Consider *Civilization* (MicroProse, 1991-2021), a long-lasting, high-quality series of games known for its beautiful rendering of rich historical events. Though admittedly, as an entertainment-oriented product, not everything presented in the game is accurate, *Civilization* nevertheless provides players with a good base understanding of world history. Many players are deeply invested in the digitized historical world that they have spent hundreds of hours tirelessly exploring and expanding their territories in; meanwhile, subconsciously, players internalize plenty of historical knowledge without having to endure the pain and boredom of plain memorization. Despite the fact that games like *Civilization* are mainly designed for commercial purposes, they hold unique educational values, motivating their audience to cultivate interests in history. If more historically accurate and academically rigorous games resembling *Civilization* could be introduced into classrooms, students' passion for history can be expected to increase significantly.

The truth is, the same "inspire to further explore" strategy can be applied to the majority of school subjects. Video games easily serve as a solid foundation for conventional school knowledge that would be otherwise considered boring or tedious. Since prior knowledge can have great influences on later learning and engagement (Anmei Dong, Morris

Siu-Yung Jong, and Ronnel B. King, 2020), educators can take advantage of video games as a method to nourish students' long-term curiosity and excitement for future studies.

## **How Video Games Motivate and Engage with the Audience to Improve Learning**

The concept of employing gaming to increase motivation in learning is partially mentioned above. In this section, I will further discuss the reasons behind interactive media's "superpower" in capturing people's attention while growing their interests, in addition to examining how and why these characteristics can be used by educators to improve learning.

Since the creation of (possibly) the first video game in October 1958, a simple tennis game similar to Pong (Wikipedia, Early History of Video Games), games have improved tremendously to the extent that the original prototypes look nothing like their modern successors. After a few short decades, game development thrives along with technological advancements, leading to the ultimate immersion experiences.

Visually, the former flashing little pixels have transformed into three-dimensional, sophisticated game worlds filled with fantastical and dynamic elements open to player exploration. When the characters made from motion-capture technology laugh and cry, you can see the slightest twitches of their facial muscles as subtle emotions flow across their digitized eyes. Undeniably, video games and virtual realities provide the sensual stimulations that many traditional media such as printed text cannot equate to. Consequently, players are drawn to further invest and engage with the game world. For games that are designed specifically for educational purposes, immersive gaming experiences can encourage longer gameplay time which corresponds to an extended duration of learning.

Furthermore, video games are not only sensually appealing, but are, by nature, also interactive which further motivates the players to continue playing. Games are known to

activate the human brain's reward system and increase the dopamine level (Kühn, S, et al, 2011). The instant feedback system creates timely positive reports back to the brain leading to a sense of achievement as the player completes tasks and goals. Students with lower confidence may particularly benefit from this feedback system because contrary to slowly raising grades over a long period of time, they may pass quick quizzes within the games and collect their rewards immediately. This is not to say that instant gratification is the ideal way to boost one's confidence, yet it is a good starting point for learners to begin believing in their self-potential which would motivate them to continue studying instead of giving up.

Interactive games can also enhance understanding of the designated content through multimodal learning, the idea of learning via multiple methods involving various senses and mediums such as visual, auditory, writing, reading, etc. Scholars generally believe that seeing the same content but on multiple occasions is helpful for internalizing the information. According to The Gordon Kelley Academic Success Center, "Students exposed to multiple learning styles (multimodal) can learn quicker, deeper, and also retain more of what they learned" (Marshall, 2022). Video games, not surprisingly fall under such category of multimodal learning as different interactions involving reading, visual, and auditory abilities are needed in gaming. It is expected that in addition to traditional learning, having to actively explore through educational games while utilizing different problem-solving skills will enhance students' learning.

Furthermore, playing video games has been proven to be beneficial for improving cognitive performance in various studies. For instance, in a more recent study titled *Association of Video Gaming With Cognitive Performance Among Children* (Chaarani B, Ortigara J, Yuan D, Loso H, Potter A, Garavan HP, 2022), researchers found a positive correlation between gaming and kids' cognitive performance. The skills children learn through video games "can be transferred to various cognitive tasks relevant for everyday

life.” Through playing video games, players are constantly responding to changing situations and making deliberate choices. Hence the brain adapts to staying alert to the surroundings while discerning what is important and necessary for task completion. As a result, one’s analytical skills are enhanced through puzzle-solving and quest analysis in an attempt to achieve in-game success.

Last but not least, gaming might help improve attention and working memory (Jyoti Mishra, Daphne Bavelier, and Adam Gazzaley, 2012), contrary to the common belief that they merely distract people from work and shorten their attention span. In the article, *How to Assess Gaming-Induced Benefits on Attention and Working Memory*, the authors quote from relevant studies that “regular action videogame play in young adults has emerged as an activity that has consistently been shown to be associated with superior attention capacities.” By improving attention via games, students can better concentrate on their daily studies, especially when the subjects fall within their passion. When done properly, a healthy learning cycle can be developed as students play and learn through mixed media studies, both interactive and traditional.

## **Self-Reflection, Ethics, and Metacognition: Can We Teach Ourselves to be Better Thinkers/Individuals?**

Besides gains in cognitive and analytical skills, video games can have other positive effects on the brain. Many games offer inspirational opportunities for self-reflection which is an important step to developing a well-rounded, healthy worldview.

Video games have a unique storytelling mode that places the players at the center of the plot, quite different from the common outsider perspective employed by films or novels. Games’ first-person, dynamic narrative mode creates an optimal environment for self-reflection in the following ways.



Consider multi-branching, role-playing game (RPG) as an example. The player controls one or multiple characters either self-created or pre-defined in the game world, immediately putting them into the perspective of someone other than their own. As players navigate through the plot, their choices and actions directly affect the state of their character, forcing them to internalize the consequences of their behaviors. Eventually, the line between characters and oneself becomes blurred as players develop a sense of emotional attachment to the virtual characters through a series of active choices the players make. In other words, players can find parts of themselves in the characters they impersonate, which is an important aspect of self-reflection, seeing oneself in numerous situations. Video games can serve as a good springboard for thought experiments, allowing players to better understand themselves, and leaving a long-lasting impression.

One classic example of this phenomenon can be seen in the interactive adventure game *Detroit: Become Human* (Sony Interactive Entertainment, Quantic Dream, 2018) in which the player controls three different Androids (bionic AI robots) in a near-future world. The plot revolves around a group of “deviant” Androids with awakening self-awareness and consciousness under the abusive oppression of their human owners. The game challenges the player with numerous difficult moral dilemmas. In one scene, one of the player-controlled Androids, Marcus, organizes a protest against their oppressors (humans). The player can make Marcus protest peacefully or violently. The former will lead to Android “casualties” as human soldiers shoot at them while the latter will result in a full war between the two parties. It is up to the player to decide whether they want to convey Androids’ humanity through a peaceful demonstration or to attack the humans with strong force, the way they were treated in the first place.

As the player navigates through the story, they “live” in the game world through the eyes of Androids instead of humans. The Androids’ actions are entirely determined by the

player, hence they adhere to the player's personal moral code. This creates many opportunities for the player to envision themselves in various hypotheticals, questioning, for instance, the core of the human identity – what makes us human?

After the first gameplay of *Detroit: Become Human*, the home menu Android Chloe will tell the player that she has “changed” while watching the playthrough. The player is then given a choice to either “set her free” meaning that she will disappear from the startup screen permanently or require her to “wipe her memory” and keep her “confined” to the home interface. Players know that no matter what they pick, Chloe is merely a piece of program made of good animation and voice acting. However, this “fourth-wall-breaking” design in which the in-game character communicates directly with the audience once again offers the player the opportunity to self-reflect upon their personal moral choices.

*Detroit: Become Human* demonstrates how video games can be used as a platform for deep thought experiments, helping people gain new insights into the human condition during and after the gaming experience.

In an article titled *Can Ethics Be Learned? Video Games As An Ethical Sandbox* (Verrax, 2023), the author describes video games as “the expansion of moral imagination.” The power of experiences can be game-changing. In digitally bounded environments, players are safe to experience powers and weaknesses, to explore multiple identities that would be otherwise impossible or dangerous to engage with in reality. Verrax writes that some video games can “foster emotional involvement” and/or “allow for moral emotions.” Games give players unique opportunities to learn and discover moral lessons interactively, internalizing the messages embedded in the experience that would “foster a climate for benevolence.”

If *Detroit: Become Human* is a science-fiction-oriented piece, then a game like *This War of Mine* (11 Bit Studios, 2014) paints a much more realistic picture for those who are more interested in the representation of reality in the virtual realm. *This War of Mine* is a

single-player war survivor game inspired by the siege of Sarajevo among other conflicts. In this game, the playable characters are war refugees of different ages, genders, and backgrounds. The game's objective is to survive through a terrible war as vulnerable civilians by collecting and managing scarce resources. If managed poorly, the gamer's characters will die from sickness or even commit suicide out of depression. Players often face difficult moral decisions choosing, for instance, whether to kill and rob other NPCs (non-playable characters), snitch on the neighbors in exchange for resources, or risk their characters' lives to save a victim from war crimes.

The game is designed to have a severely depressing atmosphere. Everything ranging from the color, and the music, to the game mechanics all portrays nothing more but the complete chaos and brutality of a "real" modern war. The characters are constantly being robbed by other NPC bandits, getting wounded and sick while being freezing and starving to the brink of collapse. However, no matter how devastating the situation is, the game's well-designed feedback system and mechanics also remind players that their choices matter and that there is always hope if they keep trying. Overall, the audience can experience the devastating effects of war.

The above-mentioned games are perfect examples of Verrax's viewpoint that video games serve as a moral sandbox for their audience to safely explore within. In the meantime, the psychological influences players may receive from playing can be highly realistic. For that reason, the emotions can be much more impactful than in traditional writings in which the players' contributions to the plot are rather minimal. In gaming situations, particularly in well-developed RPG games, players can easily develop attachments to their characters or avatars, making education in ethics effective and long-lasting.

## **Conclusion**

I began this article with an introduction to the rise of Artificial Intelligence. I expect in the not-so-distant future, AI will be used in various creative realms among which are video games and virtual realities. I consider this a worrying but also an exciting moment in the current information revolution because high-quality and easy-to-make interactive digital products will inevitably alter the way people experience and communicate within this world.

In order to better adapt to the increasingly complex and digitized society, education should be improved accordingly. In fact, digital media is already playing a vital role in classrooms nowadays. In 2017, The University of Phoenix conducted a nationwide survey of K-12 teachers and shockingly discovered that up to 63% of educators used technology in class on a daily basis. Moreover, after the COVID-19 pandemic, this percentage is expected to further increase.

Educators, hence, should study and design more educational digital products to build a better learning environment for the younger generation given all the benefits mentioned above. Currently, not enough games on the market hold both educational and recreational properties. However, as progress is being made in technological and scholarly perspectives, it is likely that video games and digital media will improve future education in effective and engaging ways.

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