

# How Educational Institutions Benefit from Instructional Video Games Like Minecraft and Roblox

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Since the release of classic Pong, video games have been a significant source of entertainment for some and bewilderment for others. After the release of early video games in the 1970s, including pong, young audiences were eager to enjoy the futuristic entertainment media now in the palm of their hands.<sup>1</sup> Since then, the video game industry has grown exponentially to become a multibillion-dollar industry.<sup>2</sup> From a few white pixels floating on a black screen to hyper-realistic graphics depicting anything from soldiers to fantasy creatures, video games have undergone an incredible evolution in the last 50 years.<sup>3</sup> This evolution has not always produced positive reactions, and over the years, large debates have taken place regarding the potential negative impact of video games on young consumers.<sup>4</sup> As the debate rages on, sandbox games like Roblox and Minecraft have found their way into grade school classrooms, but this isn't necessarily a new phenomenon. Games like *The Oregon Trail* and even Math Blaster have been used for years prior to the introduction of Roblox or Minecraft.<sup>5</sup> So why are these two modern games significant? How are they being used, and are they even working to educate American youth?

Minecraft is an open-world platform available both on PC and console that allows users to create universes either uninhibited by availability of resources in creative mode or by the seeking and gathering of these resources while fending off various monsters in survival mode.<sup>6</sup> According to Minecraft creators, "there is no set goal and [Minecraft] can be played however you'd like!"<sup>7</sup> In other words, the sky is the limit in terms of creative potential, and as soon as you learn how to manipulate and create with the blocks in the world, you're off to the races! If you're new to Minecraft and think it's just some rinky-dink game for children, you'd be mistaken. It boasts a lofty status as one of the top-selling games of all time and had almost 131 million monthly players in 2020.<sup>8</sup>

Programs like Engineering for Kids are strong advocates of the platform and encourage parents and teachers alike to incorporate the software into their pedagogy because of the breadth of topics in the game and the possibility of encouraging more students to pursue STEM.<sup>9</sup> Minecraft Education Edition is free to download and topics to learn include sustainability, space exploration, math, art and design, language arts, coding, and history.<sup>10</sup> It is also a local and online

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<sup>1</sup> Genaro C. Armas, *A look back at the popularity of Pong and rise of video games*, UWM REPORT (Apr. 21, 2022), <https://uwm.edu/news/a-look-back-at-the-popularity-of-pong-and-rise-of-video-games/>.

<sup>2</sup> J. Clement, *Video game industry – Statistics & Facts*, STATISTA (Oct. 6, 2023), <https://www.statista.com/topics/868/video-games/#topicOverview>.

<sup>3</sup> See generally Bryan Wirtz, *Video Game Graphics Through the Years*, GAME DESIGN (Updated Sept. 9, 2023), <https://www.gamedesigning.org/gaming/video-game-graphics/>.

<sup>4</sup> *Understanding The Video Game Debate*, GAME AWARE (last visited Oct. 18, 2023), <https://www.gameaware.com.au/the-truth-about-the-video-game-debate/>.

<sup>5</sup> See Brittany Miller, *How Minecraft: Education Edition is Being Used in Schools*, CBR (Mar. 23, 2020), <https://www.cbr.com/minecraft-education-edition-schools/>.

<sup>6</sup> Per Landon, *What is Minecraft*, MINECRAFT (Jun. 5, 2023), <https://www.minecraft.net/en-us/article/what-minecraft>.

<sup>7</sup> *Id.*

<sup>8</sup> *How Can Minecraft Be Used as an Educational Tool*, ENGINEERING FOR KIDS (June 2, 2021), <https://www.engineeringforkids.com/about/news/2021/june/how-can-minecraft-be-used-as-an-educational-tool/>.

<sup>9</sup> *Id.*

<sup>10</sup> *Id.*

multiplayer server platform, meaning other classmates can work together in the virtual learning environment to problem solve, thus fostering teamwork and communication skills.<sup>11</sup> The inclusion of math and science topics may help reverse the concerning decline in students pursuing STEM degrees.<sup>12</sup> According to the Center for Strategic and International Studies (CSIS), only 11% of the U.S. population has a degree and STEM and this figure is declining.<sup>13</sup> CSIS recommends the U.S. “reinvigorate” its STEM education and perhaps video games like Minecraft are the answer.<sup>14</sup> Engineering for Kids seems to think they are at least. Their website states that 71% of teachers said they saw “improvement in student numeracy and computational thinking.”<sup>15</sup> However, is Minecraft really that effective? According to a study published in 2014 by Anton Petrov analyzing the benefits and challenges of the different ways Minecraft is incorporated in the classroom setting, Minecraft proved to address some needs of diverse students as well as encourage creativity, collaboration, and decentralization of instruction.<sup>16</sup> While there is a significant investment in technological hardware to provide this kind of instruction, the study demonstrates that it may be well worth it.<sup>17</sup> Throughout the study, teachers came forward to relay their successes with the platform in math instruction as it also stimulates cognitive curiosity.<sup>18</sup> In other words, students are learning and excited to learn. The use of Minecraft has become so prolific that the Department of Education has even released an informative guide for teachers and parents.<sup>19</sup>

Roblox is another sandbox game that has gained significant popularity for its immersive worlds and limitless creative possibilities.<sup>20</sup> Like Minecraft, it is available for play on both console and PC.<sup>21</sup> It is distinct from Minecraft because users can create multiple servers that have differing worlds in each server for players to enjoy.<sup>22</sup> In one server, players can race sports cars and, in another, play hide and seek with other online players.<sup>23</sup> This is a highly cooperative platform that enjoys 100 million active monthly players.

Roblox, however, is being used more frequently to educate students in the complicated world of coding.<sup>24</sup> Programs like Code Ninjas, ID Tech, and Code Kingdoms are advertised on

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<sup>11</sup> *Id.*

<sup>12</sup> Gabrielle Athanasia, *The U.S. Should Strengthen STEM Education to Remain Globally Competitive*, CSIS (Apr. 1, 2022), <https://www.csis.org/blogs/perspectives-innovation/us-should-strengthen-stem-education-remain-globally-competitive#:~:text=Millions%20of%20Americans%20have%20lost,has%20a%20degree%20in%20STEM>.

<sup>13</sup> *Id.*

<sup>14</sup> *Id.*

<sup>15</sup> See Engineering for Kids.

<sup>16</sup> Anton Petrov, *Using Minecraft in Education: A Qualitative Study on Benefits and Challenges of Game-Based Education*, University of Toronto, Apr. 2014, at ii.

<sup>17</sup> *Id.* at 59.

<sup>18</sup> *Id.* at 35-36.

<sup>19</sup> Tisha Lewis Ellison and Jessica N. Evans with Jim Pike, *Minecraft, Teachers, Parents, and Learning: What They Need to Know and Understand*, Sch. Cmty. J., Vol. 26, No. 2 (2016).

<sup>20</sup> See generally Stuart Dredge, *All you need to know about Roblox*, THE GUARDIAN (Sept. 28, 2019), <https://www.theguardian.com/games/2019/sep/28/roblox-guide-children-gaming-platform-developer-minecraft-fortnite>.

<sup>21</sup> Thai, *Roblox available now on PlayStation!*, DEVELOPER ROBLOX (Oct. 10, 2023), <https://devforum.roblox.com/t/roblox-available-now-on-playstation/2641044>.

<sup>22</sup> *Id.*

<sup>23</sup> *Id.*

<sup>24</sup> *100M students engaged in high-quality learning in the metaverse by 2030*, ROBLOX (last accessed October 18, 2023).

Roblox's website as educational programs that use the platform to teach coding to students of various ages.<sup>25</sup> According to ID Tech, Roblox is a fun and engaging way to encourage students to pursue STEM.<sup>26</sup> Another key incentive to teaching coding through Roblox is the opportunity for monetization.<sup>27</sup> Young developers in Roblox can monetize their servers and see the fruits of their labors quite literally pay off using in-game currency, called Robux, that is obtained using real currency.<sup>28</sup> Developer creations can be monetized by charging in-game Robux currency for avatars, in-game perks, and special in-game passes.<sup>29</sup> In other words, if a player greatly enjoys a racing game and wants to upgrade their racing equipment, the creator of this game server can make these upgrades available for a certain amount of Robux.<sup>30</sup> While creators have to exercise their best judgment to determine prices for these kinds of paid content, there is a recommended range for each perk.<sup>31</sup> Typically in-game perks cost between 400-800 Robux or \$5-\$10.<sup>32</sup> Creators must consider this range of costs to make sure their content is reasonably priced and to increase the likelihood that players will purchase. This and integrated rating systems on Roblox's platform allow students to receive peer feedback on their creations so they learn to problem solve without the formal and sometimes restrictive institutional grading system.<sup>33</sup>

Education through Minecraft and Roblox is, frankly, an incredibly innovative and engaging way to educate students and persuade more to pursue degree programs that are in decline in the United States. There are certainly limitations that prevent some institutions from incorporating this form of instruction, such as financial constraints. However, video gaming in the classroom could solve the student insufficiency crisis in STEM fields and finally reverse the longstanding trend of educational institutions' suppression of creativity and enjoyment in the classroom.

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<https://corporate.roblox.com/education/#:~:text=Roblox%20Studio%20offers%20educators%20and,%2C%203D%20design%2C%20and%20development.>

<sup>25</sup> *Id.*

<sup>26</sup> Virginia, *Can Roblox be educational? Absolutely! Here's how...*, ID TECH (Mar. 24, 2021)

<https://www.idtech.com/blog/roblox-educational-benefits#:~:text=Fun%2C%20engaging%2C%20and%20rapidly%20growing,enriching%20learning%20benefits%20for%20kids.>

<sup>27</sup> *Id.*

<sup>28</sup> *Id.*

<sup>29</sup> Heath Haskins, *Roblox 101: How To Make Real Money From Your Video Games*, PC MAGAZINE (May 15, 2023),

<https://www.pcmag.com/how-to/roblox-101-how-to-make-real-money-from-your-video-games.>

<sup>30</sup> *Id.*

<sup>31</sup> *Id.*

<sup>32</sup> *Id.*

<sup>33</sup> *Id.*