

## **Minecraft Education Edition for the Classroom**

The 2019 coronavirus pandemic in the United States has changed the way teachers teach and how students learn. Schools were forced into a new type of education system that no one could have been prepared for. Remote, online, distance, and elearning phrases all became interchangeable. Many lines were blurred when schools repeatedly exclaimed “pivot” to teachers as schools shut down time and time again due to the pandemic. It took weeks for many teachers to grasp the concept of how to make their classes online with zero in-person contact with students. Most teachers had little to no training to digitize their lessons and archaic worksheets.

Many companies who had a small establishment of an online presence attempted to offer free limited services to teachers in hopes that teachers would eventually pay for the online curriculum. This type of curriculum was not financially accessible to districts even after schools returned to in-person format of the classroom. One of the main issues during the pandemic was that teachers and students were constantly switching from an online platform when schools were closed to back into a normal classroom setting. One solution to a low-cost option that can be utilized year-round both in school and in remote options is Minecraft Education Edition (MEE).

### **Minecraft Solution**

MEE was released in 2016, two years after it was purchased by Microsoft in 2014. Microsoft used these two years to ramp up development so Minecraft could be used more effectively in the classroom. There were previous MinecraftEDU editions that were limited in capabilities and were primarily sourced by teachers making curriculums in their spare time. Now, there are hundreds of built-in lessons in ten different content areas. These lessons are all in the same format and help provide consistency for learning platforms.

MEE has been used in remote and in-person learning environments during the coronavirus pandemic. Specifically, Middle Park High School (MPHS) in Granby, Colorado used this platform for their Introduction to Programming class. The class had access to over 200 hours of computer science curriculum that was directly embedded in MEE. The teacher used this curriculum to focus on the programming language called Python. Some of the lessons were easier and more intuitive than others. Students definitely gave good feedback to which lessons they preferred and which were not effective.

Students at the high school were able to seamlessly continue the same lessons in-person as they did when the school pivoted to remote learning. This method even worked when students were quarantined separately from their peers. The teacher did have to be more adaptive when there were only a few students quarantined at a time. They ran a chat and Google Meet option to students who were at home completing the same lessons.

### **Potential Research Methods**

Potential research methods include conducting surveys and collecting data from at least two rural high schools (one would be MPHS) that use MEE as a part of their curriculum. This can easily be done in a quarter type system class of an eight week introduction to programming course. Python 101 from the MEE resources database has ten separate interactive lessons in their modules. Surveys would include asking students about their current knowledge base for Python and give specific examples of coding for students to analyze. This analysis would be done before and after each lesson with an overall final survey done at the end of the course. Surveys would be made from Google Forms as students are used to this method. Mixed-methods research of both quantitative and qualitative would work best since this includes experiential learning.

## **Direction of Future Research**

Access to one-to-one devices and internet availability are a concern outside the above mentioned school district. Students had Chromebooks that were compatible with MEE. Students without internet at home were given free hotspots to use and the school remained open for those needing to come in for special assistance. The software costs \$5 per student and the license is good for a year. MPHS used a \$3,000 grant from the local electric company to buy the licenses. They still have thousands of dollars left in the grant to continue this option for years to come to include additional research opportunities.

MEE can be accessed on a PC, tablet, Chromebook, or Mac. It can be done in the classroom or in the comfort of a student's home during remote learning. There is no additional equipment needed if the research is done in a similar setting as MPHS.

Additional research at MPHS would include incorporating other content areas that MEE has to offer such as math. The current geometry teacher uses an online learning platform that tracks progression in a module format for students. She uses class time to be able to work one on one with students who are struggling with the math concepts. Future research would be to incorporate MEE into this specific math curriculum to determine if the supplemental content would assist in increasing assessment scores.

## **Intended Contributions to the Field**

Potential contributions to the education field include documented research that can help improve the current resources and curriculum at MEE. There are few, if any, MEE peer-reviewed research-based articles about the modules used for computer programming. There are minor issues with the current modules that do not provide a contact person at MEE. Research and funding can provide a direct access help desk for teachers to contact an actual human to get

assistance. Right now, MEE is crowd-based with few responses from the developers. In addition, the data aren't there to support teachers requesting funding for the program in their classroom. This research could help fund grants and show how much MEE can provide teachers who need a low-cost but effective curriculum.

## **Conclusion**

MEE is a great low-cost option for school districts implementing a consistent curriculum on the same online platform. Teachers act as facilitators both online and in the classroom for students. The pandemic brought light, the limited options teachers have, without having a corporate influence in the classroom. The software started out as a video game and is used to enhance ten different content areas with hundreds of lessons. MEE was used primarily in a computer science class at MPHS but should be expanded to more content areas such as math. This is a successful option for teachers looking to engage their students at home and in the classroom.