

Impact of Online Games on Student Performance for Mathematics

Jessica Peralta-Sumoba

University of Hawai'i – West Oahu



UNIVERSITY
of HAWAII®
WEST O'AHU

Abstract

Traditionally, lessons are done face-to-face with technology used as a small supplement to lessons. Now that online or distance-learning has become our "new normal" due to COVID-19, it is important to use all resources that are available. There have been several interventions investigating how online games contribute to performance in mathematics. Games are forms of entertainment and fun but can also be used as educational tools. Adding online math games to support curriculum helps make a stressful subject like math into something fun and entertaining.

Introduction & Research Question

Most would assume that online games are a distraction and do not assist at all in a student's learning. The use of online games positively impact student performance in math. When students are engaged and care about what they are doing, the performance and ability increase. It is imperative that school and learning is not only about content and grades but about having fun as well.

If students were to play online math games, then what would their performance look like?

If students play online math games, their overall performance in mathematics would be positive.

Methods

Research for this topic was found using the University of West Oahu library online database. Additionally, the National Council of Teachers of Mathematics was also a resource used to seek information regarding this topic. The articles referenced below were chosen because they concluded that online games positively affect student performance in mathematics. Math game sites were also investigated and mentioned below.

Results

A six-week study was conducted with 236 sixth-grade students in the Netherlands. Prior to the study, the students were assessed on their mathematical abilities with two achievement tests – early-algebra performance and general ability in math. Students were given a computer game that focused on early algebra to play at home. Additionally, a monitoring software kept track of each student's individual progress online by logging how long the student played and what they did on the game. After the study, they were tested again. The study resulted in students benefitting from the online math game intervention. Given appropriate tasks, home computing may create a learning environment that can support and extend school learning (Kolovou, Heuvel-Panhuizen, & Köller, 2013).

In two classes of fifth and sixth grade classrooms, 50 students participated in a study that tested their problem-solving abilities. Prior to the study, the students studied for 120 minutes on the course unit. The students played an online board game for 150 minutes. After the online game, students were tested again on their learning attitude, learning reception, flow experience, and technology acceptance. The study resulted in students benefiting from the online game. The learning attitudes of the students also improved after the learning activity. The online game approach improved not only the students' learning achievements, but also their attitudes (Hwang, Wu, & Chen, 2012).

Online games allows students to learn in a different way when they do not learn effectively in a classroom setting. The games are helpful to all types of learners (auditory, kinesthetic, and visual). Playing games not only teaches standard school subjects but also positively impacts social and emotional development.

Discussion

Based on the findings researched on this topic, there is no downside to adding educational games to classrooms. With students more interested in video games and technology, it would be natural for the next step in schools to add in online games. Students are more self-motivated when they are given fun options to learning content. Online educational games would work as an alternative to paper homework. This addition of educational games does not stop at just mathematics; it can be worked into all subjects or even created for the sake of a lesson.

Conclusions

- ❖ Online math games are a great supplement to learning content outside of the classroom.
- ❖ Utilization of online math games positively impacts student performance.
- ❖ With the popularity of video games and technology on the rise, there is no downside to adding online educational games to the classroom!



References

- 1.) Kolovou, Angeliki, Marja van den Heuvel-Panhuizen, and Olaf Köller. "An Intervention Including an Online Game to Improve Grade 6 Students' Performance in Early Algebra". *Journal for Research in Mathematics Education* JRME 44.3: 510-549.
- 2.) Hwang, Gwo-Jen. "An Online Game Approach for Improving Students' Learning Performance in Web-Based Problem-Solving Activities." *Computers & Education* 59.4 (2012): 1246-1256. Web.
- 3.) Petsche, Jennifer, and Jennifer Petsche. "Engage and Excite Students with Educational Games." *Knowledge Quest* 40.1 (2011): 42-44. Web.
- 4.) <https://blog.reallygoodstuff.com/11-free-math-sites-for-kids/>

Contact

Jessica Peralta-Sumoba
Elementary Education
jps23@gmail.com

