Digital Games Improve History Scores, Study Says

By Kate Stoltzfus on October 26, 2017, 9:53 AM

In recent years, the use of digital games in schools has skyrocketed. But what actually happens when teachers bring game-based learning into the classroom?

In some classrooms, student test scores in history improved by more than half a letter grade within just three weeks, according to a report by researchers at Vanderbilt University and the educational game platform Legends of Learning. The academic benefits, the researchers say, are leading many teachers to think about how to incorporate digital games more often.

About three-quarters of K-8 teachers already use online games in their lessons, according to a 2014 report by the Games and Learning Publishing Council. Teachers who were surveyed said they were most helpful for math (71 percent), followed by science (42 percent). Studies have shown that digital math games can both improve students' math scores as well as their enjoyment of the topic.

The use of games is growing in other subject areas as well: Teachers are using them to give a nonpartisan overview of civics, develop students' social-emotional skills, and help students learn to argue more effectively.

Douglas B. Clark, a professor in Vanderbilt's department of teaching and learning and a co-author of this latest study, says that the research provides some insight into what is currently possible for teachers who are implementing educational games without much external support. (Legends of Learning commissioned the study; research analysis was done by Vanderbilt researchers.)

The study, published earlier this year in the Journal of Learning Sciences (and which my colleague Madeline Will first wrote about in May before the final report was released), tested U.S. history games developed to enrich a unit on Jacksonian democracy. For three weeks, teachers used a set of 55 educational games, created by 16 different educational game developers, for at least half of the period with several of their classes. They continued instruction as normal in other classes. Students were then tested on what they had learned.

About 1,000 middle school students in 10 schools in Alabama, Kentucky, Maryland, Missouri, New Jersey, and Rhode Island, as well as Washington, D.C., took part.

The results showed:

- Game-players performed better than their peers, improving their test scores significantly. They tested especially well on multiple-choice questions and open responses.
- Special education students wrote longer responses to open-ended questions, had more confidence in the subject matter, and contributed more to in-class discussion than they had before they played the games.
- Teachers reported a boost in engagement and attention spans in classroom activities, especially for students who were generally off-task, and they said the games were easy to work into the classroom.

Of the 13 participating teachers, 92 percent said they would use online games in the future; two-thirds said games made traditional curricula more effective. Teachers also found differences in outcomes depending on the kind of games students played. Quiz games were important for reinforcing lessons; games with content aided in more in-depth learning and helped students develop critical-thinking and problem-solving skills. Overall, games worked best when they aligned to the curriculum and core learning objectives, prompting student-led discussions and collaboration and increasing confidence.
Andrew L. Hostetler, a social studies professor at Vanderbilt and one of the authors of the study, said that digital history games provide opportunities for students to do more than just recall the facts.

"I think it’s important for teachers to push away from practices that give students the impression that history is a sequence of facts (events, people) in a set chronology that come from a central authority (like a biography or a textbook)," he wrote in an email to Education Week. "Rather, teachers of history should position history as a narrative constructed through interpretation that explains ... a phenomena of study and has, as a result, perspective."

Researchers also measured participating students' reactions to the games and found some differences based on their academic performance. High-performing students rated their enjoyment of immersive games higher than low-performing students, who tended to prefer simpler games that used memory and multiple choice. Because of this, the researchers suggested providing a range of games to match students' learning paces.

Including Games With Care

Despite the increasing evidence that digital games can bolster students' academic scores and engagement, some educators still remain wary of too much play. According to reporting by my colleague Benjamin Herold, concerns include game quality, too much screen time, violent content, and data privacy. Screens may even cause students to think differently about the material. A group of researchers found in 2016 that students who played an app version of a board game were more likely than the board-game players to remember small, concrete details rather than the big picture and abstract information.

There are also equity issues: Certain teachers may not always have adequate training to incorporate such technology into the classroom. A 2017 Education Week Research Center analysis found that teachers in high-poverty schools are less likely than their counterparts to say they’ve been trained in technology integration.

Marcia Powell, a gifted educator in the Oelwein Community school district in Iowa, has thought long and hard about how to bring "edutainment" into her teaching. One important thing to consider, she wrote last month in an Education Week Teacher essay, is whether or not a game will get buy-in from students.

"It’s not the game itself, but the expertise of the teacher, that leads students to a joyous learning adventure," Powell wrote. "This means teachers should carefully consider the essential questions for the unit and how to assess each student's contributions in a game setting."

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