Fact or Fiction?: Video Games Are the Future of Education

Some educators swear by them as valuable high-tech teaching tools but little is known about their impact on learning

By Elena Malykhina | September 12, 2014,
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As kids all across the U.S. head back to school, they're being forced to spend less time in front of their favorite digital distractions. Or are they?

Video games are playing an increasing role in school curricula as teachers seek to deliver core lessons such as math and reading—not to mention new skills such as computer programming—in a format that holds their students' interests. Some herald thisgamification of education as the way of the future and a tool that allows students to take amore active role in learning as they develop the technology skills they need to succeed throughout their academic and professional careers.

Few would argue that video games can do it all in terms of education, says Scot Osterweil, a research director in Massachusetts Institute of Technology's Comparative Media Studiesprogram and creative director of the school's Education Arcade initiative to explore how games can be used to promote learning. But games are a powerful learning tool when combined with other exploratory, hands-on activities and ongoing instruction from a teacher acting more as a coach than a lecturer, he adds.

Others, however, question whether a greater reliance on video games is in students' best interests, indicating there is little proof that skillful game play translates into better test scores or broader cognitive development.

In the past decade schools have become preoccupied with meeting national Common Core standards, which dictate what students should be able to accomplish in English and mathematics at the end of each grade and use standardized testing as a way of tracking a student's progress. Such demands are not conducive to creative teaching methods that incorporate video games, Osterweil acknowledges. He adds, however, that a growing backlashagainst the perceived overuse of standardized tests is starting to encourage creativity once again**.**

Gamestars

Testing fatigue, combined with more pervasive computer use in and out of the classroom and continued experimentation with games as learning tools, suggests that such video games will play a significant role in the future of education. The Quest to Learn public school in New York City offers a glimpse of how gaming is already transforming not just how students learn, but also what they learn. The teachers there have been using the principles of video game design to write their curriculum since the school opened its doors in 2009. This curriculum—organized into missions and quests—focuses on multifaceted challenges that may have more than one correct answer, letting students explore different solutions by making choices along the way, says Ross Flatt, assistant principal at the school.

More than simply playing video games, Quest to Learn students also study game design using

Gamestar Mechanic and other computer programs. After students successfully complete Gamestar missions, they are awarded avatars and other tools they can use to build their own games.

If educational video games are well executed, they can provide a strong framework for inquiry and project-based learning, says Alan Gershenfeld, co-founder and president of E-Line Media, a publisher of computer and video games and a Founding Industry Fellow at Arizona State University's Center for Games and Impact. "Games are also uniquely suited to fostering the skills necessary for navigating a complex, interconnected, rapidly changing 21st century," he adds.

Digital literacy and understanding how systems (computer and otherwise) work will become increasingly important in a world where many of today's students will pursue jobs that do not currently exist, says Gershenfeld, who wrote about video games' potential to transform education in the February *Scientific American*. Tomorrow's workers will also likely change jobs many times throughout their careers and "will almost certainly have jobs that require some level of mastery of digital media and technology," he adds.

Gaming the system

Parents of school-age children are likely familiar with Minecraft, a digital game that promotes imagination as players build various structures out of cubes. MinecraftEdu, a version of the game that teachers created for educational purposes, teaches students mathematical concepts including perimeter, area and probabilities as well as foreign languages. SimCityEDU, a version of the popular city-building game, is likewise a learning and assessment tool for middle school students that covers the English, math and other lessons they need to master to meet Common Core State and Next Generation Science standards.

Beyond teaching, video games can also offer useful information about how well a child is learning and can even provide helpful visual displays of that information**,** says Brian Waniewski, social entrepreneur and former managing director of the Institute of Play, a nonprofit that promotes the problem-solving nature of game play and game design as a model for learning in secondary schools. Video games can also provide instantaneous feedback—typically via scores—that teachers and students can use to determine how well students understand what the games are trying to teach them.

The extent to which video games are the future of education remains to be seen. But if the present is any indication, teachers are embracing the medium and are likely to continue to do so. In fact, of those teachers who use video games in the classroom, more than half have kids play them as part of the curriculum at least once a week, according to a national surveyreleased by education researchers at Joan Ganz Cooney Center in June.

Perhaps the biggest impact of video games will be on students who have not responded as well to traditional teaching methods. Nearly half of the teachers surveyed say it is the low-performing students who generally benefit from the use of games, and more than half believe games have the ability to motivate struggling and special education students.