Consumer Demand for Digital Learning Games, Simulations Growing Worldwide

But level of interest in K-12 lags behind

By Michele Molnar and Sean Cavanagh

Consumer demand for digital learning games and simulations is steadily increasing and expected to rise, a recent report concludes. But that level of interest in using games and simulations does not appear to be as evident in K-12 schools, according to the lead researcher for the study.

The boom in the use of mobile technologies in recent years is a major reason the global market for learning games and simulations is expanding—and likely to continue to do so—during the next several years, according to the analysis by Ambient Insight. The Seattle-based research firm has reported extensively on global trends in education purchasing.

Worldwide revenues for game-based learning in 2012 totaled $1.5 billion, in U.S. dollars, and are expected to grow to $2.3 billion by 2017, an 8 percent increase based on the five-year compound annual growth rate, the report says. In North America, the expected growth rate over the next five years for all game-based learning is 10.1 percent, and for mobile "edugames," it is 15.3 percent.

"As a culture, we love game-based learning in the early grades," said Sam S. Adkins, the chief research officer at Ambient, but most of that preference shows up in the marketplace as parents purchasing products for their children.

Mr. Adkins described Amplify, a New York City-based education technology company, as "unique because they're developing content from 1st grade to 12th grade, and some of those games are designed for high school students."

"Amplify will be a contender for disrupting K-12," he said. "It's the first time I've seen a game-based..."
portfolio for all grades mapped to the [common] core curriculum.”

In May, Amplify signed its first major contract, to deploy 21,215 tablets loaded with digital games and other content for 24 middle schools in the 72,500-student Guilford County district in North Carolina, a deployment that was underway at press time.

(Larry Berger, the president of Amplify Learning, the company’s curriculum division, serves on the board of Editorial Projects in Education, the publisher of Education Week.)

**PD for Common Core?**

Ambient evaluated simulation-focused learning separately from games-based learning and found that the market for simulations is even bigger—nearly $2.4 billion last year, with growth projected to be 23 percent, to $6.6 billion, by 2017, also based on the compound annual growth rate, which is meant to calculate the growth of investment over time.

Using Ambient’s definitions, game-based learning products have specific pedagogical goals, and they involve the transfer of knowledge through “gameplay,” in which users compete to outperform others or challenge themselves.

The reward-and-penalty system in game-based learning works as a form of assessment, the Ambient report says. Simulation-based learning allows users to try out various physical and environmental conditions, processes, and situations virtually, through technology and other means, with the goal of teaching them to accomplish a task.

“One area where simulations could have a real impact is in professional development for teachers, around questions of implementing the common-core standards or on training how technology can be used in the classroom,” said Lee M. Banville, the editorial director of the Games and Learning Publishing Council, a project of the Joan Ganz Cooney Center at Sesame Workshop that convenes key investors in game-based learning and leaders in the field interested in promoting such learning.

(The center—a New York City-based independent, nonprofit research group working to improve children’s learning through digital media—receives support from the Bill & Melinda Gates Foundation, which also helps support coverage of business and K-12 innovation in Education Week.)

An area the Ambient research did not explore is how game-based learning could be used to build assessment tools, Mr. Banville said.

“When we’re looking at it from the school side, administration side, and the investment side, we see assessment as an area where there will be real growth,” especially with the ability to scale up across the country with assessments geared to the common-core standards, he said.

Educational game developers could advance their cause with teachers in classrooms by building in more assessments, and self-assessments for students, said Jessica Millstone, an education fellow at the Cooney Center.
“Teachers have identified this as something that would give gaming more traction, to help them understand what students are learning through the game play,” she said. While generating data is a natural part of the gaming process, she said, getting teachers comfortable with analyzing data, and giving developers feedback about what data are useful, will be part of the evolution of K-12 gaming.

**Biggest Barriers**

In a survey released by the Cooney Center last year, 70 percent of teachers who used digital gaming in the classroom said they found it particularly effective in working with the lowest-performing students, said Ms. Millstone. The “**Teacher Attitudes About Digital Games in the Classroom**” study of 505 mostly K-5 teachers indicated that the biggest barriers to digital game use in the classroom were cost (cited by 50 percent) and access to technology resources (46 percent.) Another 38 percent identified emphasis on standardized testing as a barrier.

“We’re seeing that teachers are still at the early stages of even considering bringing digital games into classrooms,” Ms. Millstone said. She has heard a few anecdotal reports of teachers’ being given virtual wallets—usually in conjunction with the acquisition of new technology—to make individual purchasing decisions about educational games.

“We recommend teachers go to **BrainPOP**, which curates a portal of great games that are carefully vetted,” she said. Educators have access to “light” versions of games for free at the site so they can see if they might be appropriate in a classroom.

Trying to harness the interests of teachers, developers, and investors, the Cooney Center is launching a website called **GamesAndLearning.org** this fall, as a source for scientific and market research to encourage investors and developers to create more research-based games and accompanying assessments.

Meanwhile, the market for education-based games beyond schools continues to be hot. Currently, the top-buying nations are the United States, Japan, South Korea, China, and India, in that order, the **Ambient report** says.

But by 2017, the market will shift. The biggest buyers will be China, the United States, India, Indonesia, and Brazil, the report predicts.

Mr. Adkins said what will happen in the game-based learning market in the United States, as it relates to schools, is still an open question.

“There are starting to be some serious studies in schools about the effects of this,” he said. “Who knows whether they will prove or disprove [the efficacy of pedagogical games] ... if they prove it, that might help.”