Gaming for a smarter America

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Video games have the potential to improve learning in the United States and keep the nation at the fore of global competition, say hopeful education and technology experts.

Educators and cognitive scientists joined forces with software marketers and designers Tuesday to discuss the possibilities of merging digital gaming into the education of what some would describe as our increasingly attention-deficient society.

"Ultimately, we are competing for people's leisure time," Lorne Lanning, co-founder of the Oddworld game company, said about the "market realities" facing both educators and game producers. "That leisure time is decreasing, which means people are more critical of how they use that time. We need to grab their eyeballs and their attention."

Entertainment media currently consumes much of that leisure time. The average teenage male spends approximately 316 hours playing video games each year and more than 900 hours watching television. In contrast, a single academic class meets for only 120 hours in that same time.

The hope is that by encompassing learning in a medium already familiar to and welcomed by students, more of them will be able and willing to master basic knowledge and skills.

Mike Zyda, director of the University of Southern California's GamePipe Laboratory, even sees video games taking on a much more

active "teacher" role than they presently do.

"We need games that are as understanding of humans as teachers are now, games that can read (a player's) emotional state. If they did, they could understand if a student is learning and find the best way to teach that particular student," said Zyda.

GamePipe, an R&D laboratory for interactive games and their practical applications, is currently collaborating with a private company on a piece of technology that would do just that. The plan is for a non-invasive sensor that can monitor a player's brain activity in order to gauge the rate of learning, the modality of learning and the person's emotional state.

Once this information is processed, the software would tailor the game's activity to best fit the comprehension methods and speed to which the player seems to respond best.

When asked when consumers might expect to see this technology available, Zyda simply answere: "It's soon to come. We can pretty much demonstrate it now, but we're waiting on funding." He would not, however, disclose exactly how the sensor would read such information, citing a pending patent by GamePipe's partner company.

Some even see in games and gaming technology the key to keeping U.S. workers competitive in the world marketplace.

"Workforce globalization is here to stay," said Deborah Wince-Smith, president of the Council on Competitiveness. "The nature of work demands a new set of skills from more and more of our people, and the skill curve is moving more and more upscale. The promise of digital games is in their ability to develop higher-order thinking skills."

Jan Cannon-Bowers, previously senior scientist for training systems for

the U.S. Navy, also spoke to the skill-building capacity of games. Based on Navy studies of decision-making and teamwork simulations, her research suggests "simulation-based and game-based training can teach complex, higher-order skills."

She warned, however, "Don't try this at home. More research is needed to realize the potential of game-based training."

There is also hesitancy on the part of some education officials to throw games into the classroom with what is known today.

"There's a big gap between the outcomes in these (gaming) studies," commented Phoebe Cottingham of the Department of Education's National Center for Educational Evaluation. "We must prove games truly help kids learn the subject matter content. That hasn't been proved yet."

The fact that games' ability to enhance learning in the classroom has not been concretely proven makes educators wary about adopting them as a teaching tool, according to Midian Kurland, a vice president at Scholastic Education Group, a large school-textbook publisher. State curriculum mandates, now made more stringent by the testing requirements imposed by President Bush's No Child Left Behind initiative, leave little room for "innovative" tactics that have not been shown empirically to lift either test scores or graduation rates.

"The education market is not a good environment for innovation," said Kurland.

With slow demand in what would be the largest market for games, software producers have little interest in risking costly development -- costs of which have risen 300 percent since 1999 -- on a product with an unimpressive past sales record.

"'Creative' means 'risk,' which means no financing," Lanning said. "It's a Catch-22."

The conference, titled The Summit on Educational Gaming, was sponsored by the Federation of American Scientists.