NSTA Reports

Federation of American Scientists Support "Edu-Gaming" in Schools

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Surgeons use them to learn how to cut; soldiers use them to learn how to shoot; can students use them to learn math and science?

"Yes!," says the Federation of American Scientists (FAS, www.fas.org) after a one-year study of whether video games might improve education in the nation's schools.

The federal government should invest in a strategy to foster this application, the FAS and the Entertainment Software Association (ESA, www.theesa.com) announced at an October 17 press conference in Washington, D.C.

The study originated at the 2005 National Summit on Educational Games sponsored by FAS, ESA, and the National Science Foundation (NSF, www.nsf.gov). More than 100 experts participated in the study, from policy makers, technology experts, and video game executives to practitioners, teachers, and military strategists.

The FAS Summit focused on four issues: video game features and aspects of learning that could be supported by video games; research needed to encourage the effective use of games for education and training; market barriers that might prevent dissemination; and changes in schools that might be needed to take advantage of educational games.

The FAS believes that games are attractive to today's students, the "digital natives", who favor lessons that can be repeated and therefore mastered at the student's pace. The games can repeat information with the "infinite patience" that a teacher might not have.

Compelling visual elements and complex plot structure engage the player in strategic thinking, multitasking, and problem-solving. These skills are desired not only by U.S. employers but also in the global market.

"Many recent reports warning about declining U.S. competitiveness point to an urgent need to improve workforce skills and our system of education," commented Henry Kelly, FAS President and former assistant director for technology in the White House Office of Science and Technology. "Video games are engaging and can teach higher order skills, and they are especially attractive to today's young digital natives who have grown up with digital technology. This plan outlines concrete actions we can take to put powerful tools for teaching and learning in the hands of educators and students at a time when the need for education improvement is great."

Doug Lowenstein, president of the ESA, pointed to extensive existing applications of video games as powerful teaching tools in the workforce.

"Games are now being used to teach surgeons how to perform surgery, train military personnel, help individuals understand and treat potentially life-threatening diseases more efficiently—all in a way that encourages continual engagement and rewards and motivates the player to learn," he said.

Reporters at the press conference were invited to sample the games "Discover Babylon", a virtual visit to ancient Mesopotamia; "Immune Attack", instruction on human immunology targeted to high school and college students; and "Multi-Casualty Incident Responder", a training simulation for firefighters in real time which could serve as a national model to train first-responders.

Because they agree that private industry is not capable of taking on the further research and development work required, ESA and FAS are calling for federal funding.

"The federal government has always acted in the past, to underwrite basic research that you need to drive an important movement forward," Kelly said.

Since more than 45 million U.S. homes have video game consoles, Lowenstein called it "common sense" to pick up on the skills and interests of today's digital natives and adapt them to the classroom. "We would be crazy not to seek ways to exploit interactive games to teach our children," he said.

As with many educational issues, advocates and critics debate the question of video games' place in the classroom. Critics see the games as a stupefying addiction and just another misguided attempt to make school more fun for undisciplined students.

But as Ben Sayer, co-founder of the Serious Games Initiative, told Canadian Broadcasting, "This is not an 'If you can't beat 'em, join 'em' message. It's, 'Hey, something's working here.'"