

# Interaction and opportunities to make choices among virtues of new generation of educational games, experts say

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Credit: AI-generated image ([disclaimer](#))

We may think we're pretty smart, but in fact we have very little notion of how humans learn. Kids know: They play games. Until, that is, they go to school. That's when the games stop. And often, so does the learning.

That was the sad panorama painted by a panel of distinguished experts on education and "gamification" who nonetheless were optimistic about the promise of using games in pedagogy.

The panel discussion, held at the Graduate School of Education (GSE) on Feb. 26, was part of the yearlong public course, *Education's Digital Future* (Educ 403x). Roy Pea, co-convenor of the class and a professor in the GSE, introduced the speakers by noting that what he called "gaming to learn" has been around Stanford for close to a decade. (One of the speakers later noted that [Wikipedia](#) claims that Stanford students in 1971 invented the first known instance of a coin-operated video game.) But it is only recently that gamification's possibilities in the realm of education truly have been appreciated.

Bringing games to bear in education is not a matter of dumbing down. Constance Steinkuehler, an associate professor of digital media at the University of Wisconsin-Madison and co-director of the Games+Learning+Society (GLS) center there, noted that "it turns out games are hard." If indeed humans think immeasurably better as part of a network than on their own, then games are an obvious terrain in which to set minds free and let them wander around, interacting with whatever or whomever they encounter. The system of points, badges, rewards and leaderboards featured in most massively multiplayer online (MMO) games can be replicated in an educational context, experts say, to account for people's different motivations and needs for interaction or self-expression.

## **Freedom and choice**

Tuesday's panelists, among the field's leading figures in academia, design and policy, zeroed in on freedom and choice as crucial factors in explaining why and how children learn.

"I think we're all impressed by how stupid humans are," remarked James Gee, a professor of literacy studies at Arizona State University, who holds degrees in philosophy and linguistics from Stanford. "It reaches almost epic proportions. We're stupid in dozens and dozens of ways.

"But human minds are plug-and-play devices; they're not meant to be used alone. They're meant to be used in networks." Games allow us to do that – they allow us to use what Gee calls "collective intelligence." Collectively, we're not so stupid.

Further, games help us develop non-cognitive skills that the panelists agreed are as fundamental as cognitive skills in explaining how we learn and if we succeed. According to Gee, skills such as patience and discipline, which one should acquire as a child but often does not, correlate with success better than IQ scores do. And those non-cognitive skills – that is, not what you know but how you behave – are far better suited to a game context than to a traditional classroom and textbook context.

Steinkuehler, who just finished a two-year stint as senior policy analyst at the White House Office of Science and Technology Policy, described her research at the University of Wisconsin. Her GLS group found that choice was critical for ultimate performance. Research shows that boys typically read a couple of grades below level in school, but these same boys, it turns out, read texts way above their grade level if the texts are part of online games. This was a puzzle, and Steinkuehler wanted to figure it out. A series of tests, accompanied by pizza, showed that if the boys could choose what they read, which they could do with online games, they pushed themselves harder. That result held for boys who were struggling to begin with and for those who already were on track.

"Games are architectures for engagement," Steinkuehler said, and her work with the boys showed why engagement matters. It was another

example of Gee's "collective intelligence."

Similarly, Malcolm Bauer, formerly a professor at Carnegie-Mellon University and current director of assessment at GlassLab, situated at Redwood City-based Electronic Arts and part of the Institute of Play nonprofit design studio, recounted his youth in New York City playing arcade games. There, he and his brother had a community that collaborated, took risks, built stuff and had fun. But when time ran out, this future computer scientist would trudge back home to do his homework.

"People play everywhere except in school," he said. At GlassLab, his group tries to find digital analogs for teachers' assessment practices. He also pointed out that rewards go way beyond simple stars. Variation can also be a reward for good work. Better questions, in other words, and more difficult tasks.

Dan Schwartz, professor of education at the GSE, was the final speaker. He runs the AAA Lab at Stanford – a technology and learning lab where he and his collaborators have confirmed that current learning measures do not match up with games. This is a problem; either you change the games, "making them more schoolish," or you change the measurement terms.

"Games allow us to measure learning in ways we couldn't do before," he said. And, he added, echoing Gee's discussion of non-cognitive learning, "knowledge is not the outcome we want; we want students to learn how to make choices." In studying how kids played games, his group found that one of the best negative predictors of performance was the act of walking away after failure. Low scores themselves were far less significant than abandonment, and abandonment is a measurement that does not exist in a traditional classroom.

## Access

During the lively conversation that followed the presentations – the overflow crowd included designers, entrepreneurs, venture capitalists, students, teachers and professors –one student asked how gamification could be made available to poor children. How can they get access to games that might teach them far more than they learn with textbooks?

"Access doesn't solve the equity problem," Gee noted. "It is conversation that is crucial to how literacy develops; it's interaction. The crucial thing with books is that you learn to read like a writer, you think about how it was designed. The same things are absolutely true about digital media. Giving a kid the [game](#) won't work. You have to get the kid to play like a designer. You have to interact. Lots of charity groups say let's give them games. But we didn't solve the problem by giving them books."

The traditional classroom, panelists agreed, in many ways stifles some of the attributes most crucial for human learning: persistence, risk taking, collaboration, problem solving. Attributes all found back in Bauer's childhood arcade.

Provided by Stanford University

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