The Educational Value of Computer Games

"**W**hat are we going to do about computer games?"
This is a question that is on the minds of parents and teachers across the country. It echoes in staff rooms, district offices, and school board meetings.

Here's why: Our students today live in a world of technological sophistication and global competition. Workers overseas are a mouse-click away and good jobs only go to those who have mastered the new digital technologies of information and communication that let them navigate through the sea of images, text, and video that surround us all.

On the one hand, computer games seem like an obvious answer to the problem. Here is a sophisticated technology that millions of students spend hours using. And they don't just use it, they want to use it; many of them *desperately* want to use it. What better way to start building interest in and understanding of these new digital tools?

On the other hand, people worry that students already may spend too much time playing computer games. People worry that some games are violent, or have themes that are inappropriate for elementary and middle school students. Teachers and administrators worry that games in school will distract students, and make classes hard to manage. Here's the good news: This dilemma is actually a false choice because research now shows quite convincingly that we can have the best of both worlds.

Case in Point

No one expects that just any book will be good for students, or add to their learning in school. We use books as part of a larger curriculum of activities—of reading, writing, and discussion—that turns reading into thinking.

The same is true for computer games. Consider, for example, the computer game Urban Science, in which students work as urban planners to redesign a city. The game begins when players get a project directive from the mayor: Create a detailed redesign of the local pedestrian mall. They get a city budget plan and letters from concerned citizens about issues such as crime, revenue, jobs, waste, traffic, and affordable housing. Players conduct a site assessment of the street and use iPlan, a model of their city, to create a redevelopment plan. iPlan shows how different land use changes affect the city. Like real planners, players have to balance the costs and benefits of alternative choices. After completing a land use plan, players present their proposals to the city planning office.

Urban Science players aren't just playing around. They must understand issues in civics, economics, social studies, and history. They have to read and write complex, professional documents, and use, interpret, and produce graphs, maps, and charts. They learn to see themselves as people who can change the world around them, and to see the world as a place worth changing.

Does this sound like a pretty complicated game? It is. But here's the amazing thing: This game is designed for middle school students, who can play it, enjoy it, and learn from it. In fact, we've tested games like this—just as complicated and just as challenging—with students as young as rising sixth graders, and we are working on versions for players 8-years-old and younger (*see box*).

Real-World Learning

Why is it that a game like this works if it seems so much more difficult than the work students usually do in elementary and middle school? Urban Science is fundamentally about something that matters in the world: about the places where students live, why they look the way they do, and how they can be made better. So part of what makes Urban Science a good game for learn-

ing—and part of what makes any game a good game for learning—is that the world of the game is something worth learning about.

Such games based on things that people do in the real world are what makes kids learn. They are role-playing games in which players solve problems—and thus learn to think—the way innovative and creative professionals do. We have built a whole set of games (and are building more) in which students learn to think like architects, engineers, journalists, and other professionals. With these "epistemic games," students don't have to wait to begin their education for creative and innovative thinking until college or graduate school. They learn to solve real problems right from the start.

They are a good example of what we need to do about computer games in the digital age—because part of the wonder of well-designed games is that they make it possible for students to

think in ways that we never thought possible. P

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