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## Videogame Virtue

Playing computer games doesn't shorten kids' attention spans—it helps them to manage competing demands in the new era of "continuous partial attention."



Blix by GameLab.

By Henry Jenkins  
[Digital Renaissance](#)  
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Frank Lantz, the head of game design at New York GameLab, demonstrated Arcadia at the Game Developers Conference a few years back. Astonishingly, Lantz played four basic Atari-style games on the screen at the same time. In one window, he was arranging puzzle pieces. In another, he was making a funny little man run through a scrolling maze. In another, he was defending the Earth against alien invaders. And in a fourth, he was moving his paddle to deflect a Pong ball. His mouse circled between windows, always seeming to be in the right place at the right place at the right

time to avert disaster or grab an enticing power-up. Each game created a different spatial orientation—in and out, up and down, right and left. To anyone who respects skilled game play, Lantz gave a virtuoso performance.

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<b>3 Lab News</b> Smoke sensor/Shape recognition/Fighting megacity pollution/Securid'sight		Picture the precipitation maps that appear on nightly newscasts: storms march across the screen, color-coded swirls illustrating the anticipated amounts of rainfall. Now imagine that you could take that loop, which ends abruptly when the radar data it's based on runs out, and extend it one more hour into the future, predicting in five-minute increments exactly where it will rain, how much rain will fall, and whether lightning will strike. With a timely sense of concerning problems, individuals and weather-sensitive businesses would be able to make appropriate adjustments to
<b>4 In the Lab</b> Laser Biomedical Research Center		into pixels, determine elements, and track a radar image. The real innovation: the realization that an atmosphere last long-avoided group leader Sensing Group, which Choosing elements of are filters out small e tribute to the over (intense, some red)
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As Lantz played, Eric Zimmerman, GameLab's cofounder and resident game theorist, offered explanations for what we were seeing, demonstrating the fusion of insightful and innovative design that has been the group's hallmark. The folks at GameLab create games that make you think about the nature of the medium. I want to use their provocation to explore some key questions at the intersection of games, attention, and learning.

I am old enough to have played Pong and to have spent whole evenings mastering some of those Atari games when they first appeared. Those games used to be hard.

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Now, gamers like Lantz can handle four of them at a time and not break a sweat. What happened?

When I spoke to him by telephone, Zimmerman reassured me that there was a trick—the games had been simplified and slowed down from the originals. As soon as any one game got interesting enough that you wanted to play it on its own, it was probably too complicated for Arcadia. Yet, when I tried to play Arcadia, even on its easiest setting, I found myself constantly losing lives, frantically racing from place to place, and always, always, always arriving too late. To use a technical term, I sucked. Arcadia is set to launch at Shockwave.com in early August, so you can see how you stack up.

GameLab works outside the mainstream industry, designing games for the Web, not for the PC or the various game machines. Zimmerman, who recently finished a book, *Rules of Play*, with Katie Salen, sees each game as an experiment in interactive engineering. Much as punk rockers tried to strip rock music down to its core, GameLab embraces a minimalist retro aesthetic, shedding fancy graphics to focus on the mechanics of game play. In one of its games, *Loop*, there aren't even mouse clicks: you simply encircle butterflies by moving your mouse across the screen. Another GameLab title, *Sissyfight 2000*, was a staging of *Prisoner Dilemma* as a multiplayer game set in a schoolyard. All of the emphasis is on social interactions—the choice to tattle, tease, bond with or abuse your classmates.

Arcadia began as a game about minigames—small, simple games that are increasingly embedded within larger and more complicated games. It evolved into a game about multitasking, one that links the management of game resources with the management of one's own attention. That's actually a core issue for many of us right now—how to manage our perceptual and cognitive resources in what digital community builder Linda Stone characterizes as an age of continuous partial attention.

Stone argues that there is a growing tendency for people to move through life, scanning their environments for signals, and shifting their attention from one problem to another. This process has definite downsides—we never give ourselves over fully to any one interaction. It is like being at a cocktail party and constantly looking over the shoulders of the person you are talking with to see if anyone more interesting has arrived. Yet, it is also adaptive to the demands of the new information environment, allowing us to accomplish more, to sort through competing demands, and to interact with a much larger array of people.

For my generation, this process feels highly stressful and socially disruptive. But for my son's cohort, young men and women in their late teens or early twenties, it has become second nature. I am amazed watching my son doing his homework, chatting online with multiple friends, each in their own chat room window, downloading stuff off the Web, listening to MP3s, and keeping an eye on the Red Sox score. My parents couldn't understand how I could do homework and watch television. My students sit in class discussions, take detailed notes, and look up relevant Web sites on their wireless laptops.

Our classic notions of literacy assume uninterrupted contemplation in relative social isolation, a single task at a time. Some have characterized the younger generation as having limited attention spans. But these young people have also developed new competencies at rapidly

processing information, forming new connections between separate spheres of knowledge, and filtering a complex field to discern those elements that demand immediate attention. Stone argues that for better or worse, this is the way we are all currently living. Therefore, she claims, we had better design our technologies to accommodate continuous partial attention, and we had better evolve forms of etiquette that allow us to smooth over the social disruptions such behavior can cause.

Contemporary aesthetic choices—the fragmented, MTV-style editing, the dense layering of techno music, the more visually complex pages of some contemporary comic books—reflect consumers' desires for new forms of perceptual play and their capacity to take in more information at once than previous generations. Think for a moment about the scrawl—the layering of informational windows—in today's TV news. Like Arcadia's minigames, there is a trick: any given bit of text is simplified compared to previous news discourse. Such graphical busyness also has an advantage—we can see the interrelationship between stories and pay attention to simultaneous developments. We probably don't read everything on screen, but we monitor and flit between different media flows.

All of this brings us back to games like Arcadia. Much as earlier civilizations used play to sharpen their hunting skills, we use computer games to exercise and enhance our information processing capabilities. Researchers at the University of Rochester found that kids who regularly play intense video games show better perceptual and cognitive skills than those who do not. It isn't just that people who had quick eyes and nimble fingers liked to play games; these skills could be acquired by non-gamers who put in the time and effort to learn how to play.

Zimmerman argues that what makes playing Arcadia possible is the degree to which each of the minigames builds on conventions. We take one look at these games and we know what to do. Yet, the Rochester research suggests something else—that people over time simply become quicker at processing game information and can play more sophisticated games. In a new book, *What Video Games Can Teach Us About Learning and Literacy*, James Paul Gee argues that games are, in some senses, the ideal teaching machines. Gee suggests that educators can learn a great deal about how to sequence a curriculum from watching how game designers orient players to new challenges and how they organize the flow of activities so that players acquire the skills they need just in time for the next task; the goal is for players to find each level challenging but not overwhelming. Games teach us, Gee argues, without us even realizing that any education is taking place.

All of this research points in the same direction. Leaving aside questions of content, video games are good for kids—within limits—because game play helps them to adapt to the demands of the new information environment. Surgeons are already using video games to refine their hand-eye coordination for the ever more exacting demands of contemporary procedures. The military uses games to rehearse the complexity of coordinating group actions in an environment where participants cannot see each other. And all of us can use games to learn how to function in the era of continuous partial attention.

These multitasking skills will be most developed in those who have had access to games from an early age. Our sons and daughters will be the natives of the new media environment; others will be immigrants. Educators have long talked about a hidden curriculum, things kids absorb outside of formal education that shape their thoughts, tastes, and skills and that enable some groups to advance more quickly than others. The same pattern is developing around new media technologies—

those who grow up with them as part of their recreational life relate to them differently than those who only encounter them later at school or work.

While the skills derived from playing video games expand human creative capacity and broaden access to knowledge, they should not come at the expense of older forms of literacy. The challenge is to produce children who have a balanced perspective—who know what each medium does best and what kind of content is most appropriate in each, who can multitask but can also contemplate, who play games but also read books.

So, get thee to Arcadia but also get thee to a library.

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Henry Jenkins is director of the Program in Comparative Media Studies at MIT.

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