

Diabologic: Levels of the Game

by Frank Dolinar

Orson Scott Card, author of the classic science fiction novel *Ender's Game*, noted that one inspiration for the book was his observation of people who play computer games and the implications of gaming.

There is an artificial intelligence component of games that is being driven because of the interest in modeling behaviors that we find in nature. More specifically, we want human figures to move in natural ways and we want objects to behave as we would expect based on our experience in the physical world.

Then there's the realm of computer graphics. Today's graphics cards are very good, containing their own processor chips that are often faster than the primary chip in the computer. Why? Because every time the image on the computer screen changes every pixel on the screen must be recalculated and displayed. That's on the order of 60 million calculations per second for a fast, interactive game.

The best graphic cards store these images in lots of very fast memory organized into multiple frames. One frame is moved into the video display memory to be presented for its 30th of a second, one being rendered into a graphic image, and one being calculated prior to being rendered. Then it's "clean cup, move down" for the next 30th of a second. Every improvement in the speed of computer & video memory first shows up in the top of the line gaming computers.

The so-called "first person shooter" games, such as *Doom* and *Halo 2*, are what many people think of as computer games. But they are not the only games in town. There are other warcraft games where teams of players must work together against other teams in ways that require coordination of planning, communication, and execution among your team members to succeed. This has obvious implications for the military. Last week, the *Washington Post* ran an article discussing the U.S. military's increased reliance on gaming for training the next generation of soldiers. And it works, providing to the trainees, through practice and repetition, better situational awareness, an understanding of their role, and the capability to execute it.

This leads to the potential for gaming in schools. In primary & secondary schools, games could help teach science, math, language skills, and history. In college and grad school, there are efforts underway to use gaming to teach problem-solving, resilience, persistence, and collaboration, just the kinds of things effective managers need.

As high-speed home networks become commonplace and as it becomes easier to connect disparate gadgets to the internet, our home AV systems will morph into multi-way communication systems. This will make telecommuting more effective and provide ability to hold business meetings with individuals in geographically dispersed locations. It will enhance a student's participation in distance learning courses from any accredited university in the world, dramatically revising the process of education when we can take classes when we choose from the very best teachers on the planet and blurring the line between "formal" and "home" schooling.

We're already seeing some aspects of this in a number of "massively multiplayer online game" (MMOG) environments, such as *World of Warcraft* (<http://www.worldofwarcraft.com/>). It enables thousands of players to participate online and battle against the world and each other. Another, perhaps not so well known, is *Second Life* (<http://secondlife.com/>), which is not a war game, but a 3-D virtual world entirely built and owned by its residents -- the characters created by the players. Such games require broadband connections and a high level of interaction among the players.

These are becoming online environments for social interactions well beyond what is required of the putative game. Perhaps our use of the term "game" to describe electronic entertainment and interaction is inadequate. In 2006, gaming has become as much a recognized art form as film and music. Referring to these communications media as games probably limits their adoption by mainstream society -- certainly among the over 40 crowd. A comment from Slashdot (<http://slashdot.org>) about a week ago quotes the following from an article on the website GamePolitics.com:

"Things have changed, of course. Video game content now runs the gamut from kid-friendly titles like Curious George and LEGO Star Wars to adult-themed offerings such as GTA San Andreas and Black to the highly socialized online communities of World of Warcraft and Second Life or the largely adult-populated casual game scene of Pogo. Over the years, gamers and game designers have recognized the artistic and expressive potential of videogames, along with their power to enlighten and entertain players from four to ninety-four. But there are also millions who missed that particular cultural bus."

If you have not paid any attention to the myriad possibilities of gaming, you might give it a try. I'm finding that the more I know the more intrigued I have become.