

Jim Doran
EDTECH 504 (Fall 2014)
Selected Research on Game Based Learning

In recent years, technology has emerged which has opened the world of game creation. Where once in depth programming knowledge and a creative team was required to bring a computer game to life, today, thanks to programs such as MIT's Scratch or GameSalad, anyone with rudimentary programming knowledge and the ability to drag and drop can create anything they can imagine. These developments allow educators to create games specifically for their classroom. While the technology has evolved, it appears that the thought patterns of educators have not. Educational games have become a pleasant method of presenting information to the learners. What the educators are not taking away is how students actually learn while gaming. They've failed to notice how children actually play games, and if they have, they've not taken the time to incorporate it into their game experience. This paper will focus on the current methods used in educational computer games and how these methods can be shifted to take advantage of the new learning paradigms that computer games create.

Allen, M. (2002). Discovery learning: Repurposing an old paradigm. *e. Learning*, 2(3), 19-20.

The author makes note that in the corporate realm, while technology has advanced, the use of the technology has not. He advocates a form of Guided Discovery Learning in which learners are rewarded for successfully completing a series of tasks which they have discovered and taught themselves. He believes this "figuring something out" principal is far preferable to the traditional method of "tell and test" and cites the methods that DaimlerChrysler is using to teach troubleshooting. While the author captures a piece of the game based learning benefits, it seems that he has never been a gamer himself and therefore misses one of the key opportunities that game based learning presents, specifically the ability to create time pressure to move short term facts to long term memory.

Charsky, D., & Ressler, W. (2011). "Games are made for fun": Lessons on the effects of concept maps in the classroom use of computer games. *Computers & Education*, 56(3), 604-615.

The paper includes some good information on what makes computer game learning successful, namely making the "game activity and the learning activity are congruent and mutually supportive." The author cites a great deal of research buttressing this conclusion, unfortunately, the article focuses on concept maps as a method of learning. Again, it appears that the authors have not been a gamer, nor have they spent a great deal of time watching people play video games. Throughout this research it seems as if educators are intent on ignoring the lessons of the marketplace. In order for educational games to be successful, they need to learn from the games that are being produced by the commercial video game industry. These companies are investing a great deal of time and effort to produce games that are popular and enjoyable. More focus should be put on how said companies are doing this rather than simply creating something that satisfies a curriculum requirement.

Gee, J. P. (2005). What would a state of the art instructional video game look like. *Innovate: Journal of Online Education*, 1(6), 159.

John Paul Gee has written extensively of the use of video games for education, including books on how good games make for good learning. Gee argues that individuals who want to create “serious” video games take themselves far too seriously. Instead, he advocates looking to the commercial realm and further states that commercial game designers have been designing video games that teach for years. This is not to say that a free-for-all approach is encouraged. Commercial video games share a bond with education in that the goals of the game are stated up front and the player works to finish the game and accomplish a goal. A good game, in the author’s opinion, is one who combines exploration with a discrete set of defined tasks.

McDonald, K. K., & Hannafin, R. D. (2003). Using web-based computer games to meet the demands of today’s high-stakes testing: A mixed method inquiry. *Journal of Research on Technology in Education*, 35(4), 459-472.

This is a thoroughly researched comprehensive paper on educational gaming. Not surprisingly, it has been written by members of MIT’s Educational Arcade. The authors discuss a number of topics including the prejudices of the educational community toward gamers and the barriers to good educational gaming. While it discusses the difficulties of creating a good educational game, it also represents an excellent primer for any educators who wish to become involved in game creation. The philosophy of the Educational Arcade has always been to simplify the creation process in order to open that process to a greater community. The assumption being involving more minds in the creative process can only lead to increased innovation and effectiveness.

Baek, Y. K. (2008). What hinders teachers in using computer and video games in the classroom? Exploring factors inhibiting the uptake of computer and video games. *CyberPsychology & Behavior*, 11(6), 665-671.

Dr. Baek has written numerous articles on educational gaming. Currently he is teaching EDTECH 536 for Boise State University. This paper examines the various reasons why teachers are reluctant when it comes to using games in the classroom as a teaching tool. The interesting twist this paper provides is that the research was done by surveying teachers in Korea and thus provides an interesting contrast between them and their American counterparts. Dr. Baek is a member of the Boise State faculty.

Van Eck, R. (2006). Digital game-based learning: It's not just the digital natives who are restless. *EDUCAUSE review*, 41(2), 16.

In this article, Van Eck examines what happens when the educational community sits up and recognizes things the Digital Game Based Learning community has been advocating for years. He points out that overcoming prejudice and winning the battle for opinion is only half of the equation. The second, and most important, half is creating games that satisfy the dual role of being both educational and engaging. One of the things he discusses, in great length, is the need for educational gaming to be a collaborative process. He points out, quite rightly, that educators are not game designers and that game designers, in general, do not understand the nuance of education. His opinion is that each should play to their respective strengths and work as a team to create the most effective and engaging games. The last point he examines is one of implementation. He advocates incorporating Digital Game Based Learning, not as an afterthought, but as a vital tool within the ADDIE process. Along with this he recommends educating the faculty so that they will be comfortable with the technology, thus more inclined to include it.

Prensky, M. (2005). Computer games and learning: Digital game-based learning. *Handbook of computer game studies*, 18, 97-122.

In this article, Prensky spends a great deal of time focusing on the learning characteristics of Digital Natives vice those who experience their learning prior to the digital age. This examination is important as it may hold the key as to why Digital Game Based Learning has lagged so far behind in the digital age. He cites the many different ways that digital media has shaped the brains of Digital Natives differently from their analog counterparts. Computers, more so than the education systems, shape the brains of the Digital Natives. No longer is learning a serial activity in which the learner plods through a text book to absorb material. Computers have changed research. When all the information in the world is a mouse click away, learners will quickly peruse everything on a subject, looking to pick and choose what they need as the progress. The old woman in the library bringing a student something they found in a periodical guide has been replaced by a Google search engine which returns 16,000 hits on a single inquiry. Because of this vast difference, Prensky argues, that it is virtually impossible having serial thinkers design tools for those who think in parallel. He believes that educators should embrace the new patterns of learning, and use the knowledge of these patterns to make a giant leap forward.