Session Summary

This session begins by identifying the research underlying "gamification", the practice of applying the motivational elements of gaming in non-game settings. These elements, which are actually prevalent in our daily lives, have a solid foundation in behavioral, cognitive, and neuropsychology research. When applied to digital games, they can become nearly addictive drivers of behavior. How can we exploit them to re-engage our disaffected and struggling students? What does it mean to leverage adaptive leveling, immediate feedback, transparent progress, and intriguing math tasks to build resiliency and conceptual and procedural fluency? A skills trace through the CCSS for Mathematics will identify content ripe for gamification. A review of successful and unsuccessful models of instructional gaming will provide a framework for creating and evaluating games along with broader lessons for managing classroom environments that foster resilience.

Helpful Links

Student Motivation: http://www.cep-dc.org/displayDocument.cfm?DocumentID=405 is an excellent summary of the research on student motivation that underlies gamification

Drive: http://www.youtube.com/watch?v=u6XAPnuFjJc offers a very compelling illustrated version of a Daniel Pink talk about what motivates us all

Gamification: http://blog.jointhecompany.com/2010/09/29/pawned-gamification-and-its-discontents/. You can find several gamification-in-education websites, but this set of slides offers an insightful critique of gamification from within the gaming industry

Choice Architecture: http://ssrn.com/abstract=1583509 includes a link to a paper about choice architecture, an idea for how to structure options to promote good choices.
David Dockterman: Games help kids learn through failure

By Guest Blogger on March 5th, 2012

This post first appeared on the NBC News “Learning Curve” blog. Dr. David Dockterman is an Adjunct Lecturer at the Harvard Graduate School of Education and the Chief Architect of Learning Sciences at Scholastic Education. He began developing technology for schools in the 1980s and is one of the country’s leading experts in educational game development.

Dockterman will be part of a panel examining the potential for gaming to help struggling students during the Celebration of Teaching & Learning conference on March 17th. If you’ll be at the conference, don’t miss it!

Failure is hot. The Harvard Business Review devoted an entire issue to the power of failure last year. Noted economist Tim Harford wrote a fabulous book about it – *Adapt: Why Success Always Comes from Failure*. And 10s of millions of children (and adults) happily subject themselves to it everyday. They play video games.

One of the reasons video games are so compelling is that you fail a bunch of times before you “win.” Without the struggle there’s little satisfaction. You try, find out right away that you failed, adjust and repeat the process likely several more times. And when you finally figure it out, it feels pretty good. That’s because the brain’s reward center provides a satisfying dopamine hit to help validate the effort.

We could call this failure-adjustment loop “learning,” and fundamentally it’s nothing new. Thoughtful (and not so thoughtful) trial-and-error is a tried and true mechanism for learning across the animal kingdom and always has been. Well-designed video games, though, provide a vehicle for really focusing and scaling learning through failure in lots of disciplines.

Four key elements are required:

1. The tasks must be about the content to be learned. You can find lots of “educational” video games in which the game is the dessert for eating your educational vegetables. Using the carrot of racing around obstacles or shooting monsters as the reward for completing some math or vocabulary problems not only doesn’t leverage the power of the game for learning, it sends the wrong message to kids. It reinforces the notion that learning is boring and distasteful, requiring an external reward to justify it. Look for games in which the learning tasks – whether about improved speed and accuracy or completing increasingly challenging puzzles — are central. We want the learning to be its own reward.

2. Feedback must be immediate and meaningful. Immediate feedback is a fundamental component of learning. If you have a reading problem, you need to figure it out and then correct it immediately. If you are learning how to play a video game, you need feedback right away about how well you are performing so you can keep adjusting. Without feedback, you have no idea how you are doing and how to improve.

Failure is a necessary part of learning. It can be a powerful tool that kids can learn to use as long as we give them lots of opportunities to practice and do it in a fun environment during which they can learn to use it in a productive way.
quality of video games. You find out right away if you're right or wrong. For the practice of routine tasks – those the child already knows – like spelling or math fact retrieval, immediate corrective feedback ensures that adjustments get made and bad habits don't get repeated over and over again. For novel tasks, immediate feedback should be more thoughtful. We want kids thinking, "Hmm…that didn’t work, I wonder what will." Look for games with useful visual feedback and careful use of hints.

3. Progress must be transparent. Lee Peng Yee, one of the main thinkers behind the system of math instruction in Singapore, once told me: "If you think you can catch the bus, you will run for it." It's a great image, and good games keep players in a recurring cycle of running to catch one bus after another, all leading to reachable goals. Look for games that keep the next milestone in sight and constantly show progress toward it. Seeing yourself get better at something is incredibly motivating.

4. The stakes must be low. Failure is the norm in many video games. It wouldn't be satisfying if you didn't struggle. In fact, you fail more often than you succeed. Failure in video games is a key part of the learning process. I wish schools and parents embraced failure as readily as most games do. All too often students are afraid to raise their hands in class or explore their thinking because the stakes of being wrong are so high. The expectation in many classrooms is success, and failure is humiliating. Better, some students think, not to try than to try and fail. Games can provide a safe haven for trial and error, for using failure as a steppingstone to understanding and eventual mastery. Look for games that keep the social exposure to failure low. Competition against others, particularly when the skill levels are uneven, can be very discouraging for a kid who usually finishes near the bottom. A focus on self-improvement and personal mastery keeps the stakes low and the progress transparent. Maybe we can leverage some of these game elements into everyday learning in school and at home.

Do you make annual reading resolutions?
- Yes, and I always meet them
- Yes, and I do ok!
- Nothing specific
- Nope, but maybe I should?

Previously On Our Minds...
- Pencils of Promise & Justin Bieber team up for education
- Mindful reading of nonfiction: “What I know, what I think I know, what I want to know”
- An educator’s take on using Infinity Ring in the classroom
- Focusing on social issues with reading
- There for you then, there for you now: Ann M. Martin on The Baby-sitters Club!

Comments

Jeanette W. Stickel says...
Thanks for the insightful observations. I'll keep those key elements in mind as I choose iPad apps & games for my students.

Comment on March 5, 2012 at 4:39 pm