Learning Games Are Hard Fun

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Course Goals

• Learn about educational technologies that are new, exciting, and classroom ready

• Understand the value and role of games in learning

• Construct your own understanding of learning by building

• Develop skills connecting games and simulations to the curriculum

• Create new ideas for connecting technology, play and learning
Course Overview

• Connecting games and learning
  – Intro to educational games
  – *Playing an educational game*

• Integrating curriculum and games
  – Connect games to curriculum in design and implementation
  – *Connecting a game to your curriculum*

• Introducing constructionism, simulations, and complexity
  – Learn through building simulations and games
  – *Exploring computer simulations*
Course Overview (continued)

• Learning to Simulate
  – Introduction to programming in StarLogo TNG
  – *Creating your own computer simulations*

• Designing Games
  – Understand the game design process
  – “Pitching” an idea for an educational game

• Staff
  – Eric Klopfer, Scot Osterweil, Wendy Huang, Daniel Wendel, Jason Haas, Susannah Gordon-Messer, Ilana Schoenfeld
STEP/TEA Pedagogical Frameworks

• What kinds of learning environments?
  – Create highly engaged, motivated students
  – Provide immersive environments, relevant problems
  – Facilitate collaborative, project-based learning
  – Game-like, active, “Hard Fun”
    • A teacher heard one child using these words to describe the computer work: "It's fun. It's hard..." I have no doubt that this kid called the work fun because it was hard rather than in spite of being hard. [S. Papert, 2002]
  – Applicable to formal and informal settings, extending learning beyond walls of the school, beyond hours of the school-day
Learning Through Game Play and Creation
Learning to Make Games, Sims and Apps
Games? Learning?

How many volts do I need for my laser canon to kill 3 x 6 opponents?
The Legacy of Math Blaster

• Edutainment

  – Where play is the *reward* for learning
The Legacy of Math Blaster

• Edutainment
  – Gets kids to eat broccoli
  – But doesn’t promote healthy eating
  – What happens when the chocolate goes away?
The Joy of Gaming?
The Joy of Gaming = Hard Fun
Feedback?

• How can we provide more feedback?
Feedback

- **When** should we provide feedback?
  - Frequency and response type
Gamification Everywhere

Mr. Zichermann said, “We use game concepts to get them to focus on things.”

fits that description. After graduating from high school, Mr. Kroll said, he was overweight, living at home and playing World of Warcraft at least six hours a week. Things changed after starting to work out at a gym regularly with the help of a friend. He started using a fitness app on his iPhone called Fitocracy, in which badges are awarded for a robot.

who has lost about 75 pounds, says he plays video games less frequently now, but still enjoys the gamelike challenges that the app sets for him at the gym. He said the app gives him “the same satisfaction of getting points and leveling up” that he gets from

Mrs. Snavder and her 9-year-old daughter, Emma, also know how well embracing games can be. Ms. Snavder signed up for a service called Zambie to encourage Emma to be physically active.

At the day, Emma wears a small motion sensor that records her activity level and earns points for a brisk walk, an impromptu dance party in the living room and any...
Learning Goals?

• Cognitive Skills
• Non-cognitive skills
  – Persistence
  – Grit
• Metacognitive skills
  – Reflection
  – Abstraction
Zone of Proximal Development

Can/Will Do With Help

Can’t Do/ Won’t Do

Can Do/ Will Do

Vygotsky
Zone of Proximal Development

Can/Will Do With Help

Can’t Do/ Won’t Do

Can Do/ Will Do
The Fun of Structure

Structured, goal-oriented, feedback-driven can be fun

In games we willingly submit to arbitrary rules and structures in pursuit of mastery, but only if we can continue to be playful.
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Gaminess

• What features are important to *structure* games?
  – Interesting **decisions** (*Sid Meier*)
  – **Consequences** to decisions (*+/- value*)
  – Clearly defined **goals** (*rules/constraints*)
  – Visible measurable **feedback** (*quantifiable outcome*)
  – Underlying **model/system** (*coherent system of rules*)

**Little Gaminess**
- Movies
- Dolls
- Books

**Lots of Gaminess**
- Scavenger Hunt
- The Sims
- WoW
- Risk
UbiqGames

The Lab

Hands Tail Horns Mouth

Contract

Pay Beetles Time
$39 3 Hours
$52 4 Weeks
$30 3 Hours
$40 4 Rounds

Current Contract ($39)
Hairless
0/3 in Shipping Box

Game Status
Level: 3
Bank: $205
Contracts: 0/3

Hide Status

Mating Cage

7363 Hairy HH
7374 Hairy Hh

Hatch Challenge
Learning

Experience (games)

Resources ↔ Reflection
Radix - An MMO for STEM Learning
Vanished - An Alternate Reality Game

• A “Curated Game”
• With the Smithsonian Institute
Course Outline

• Week 1
  – Connecting games and learning
• Week 2
  – Integrating curriculum and games
• Week 3
  – Introducing constructionism and simulations
• Week 4
  – Learning to Simulate
• Week 5
  – Designing Games
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