Educational Games
Games that Teach, not Preach

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WHICH GAME IS A BETTER TEACHER?
Game Design: Learning Principles

- Small increasingly difficult problems
- Successive challenges
- Provides tutorial practice
- Skills taught just in time
Super Mario World - Tutorial

Pro’s
- The game levels start off simple with hints and progressively get more difficult.
- There are blue boxes which provide hints to players when needed throughout different levels.
- The game offers more changeling levels for more experience players.

Con’s
- The player has to initiate the tutorial by hitting the blue box.
- New players between levels 1 and 10 are guided through a series of basic quests and objectives in order to learn controls and mechanics.
- On-screen tooltips provide detailed information on what abilities and skills do.
- Players leave starting areas having been educated in all critical gameplay elements.
- The learning curve for the game is not difficult. Players can get into the game quickly, but mastery of the game takes much practice.

Tutorials and Learning Curve
TUTORIAL

• Dynamic tutorial that adjusts to the player
  – Hints are given to players that have difficulties
  – Weapons and powers are introduced in cut scenes
  – Uncommon control scheme
Tutorials

**Pros**
- Teaches new abilities during the game
- Teaches most abilities during beginning

**Cons**
- Excess talking
- Must repeat process if not executed correctly
- Instructions not repeated or sometimes not given
Learning to play Lost Planet

- No official tutorial in Lost Planet
- You are told controls as you need them in-game
- Game controls are simple so are learned quickly
- Control screen is shown anytime you enter a vehicle you haven’t been in before
Analytical thinking
Problem Solving
Adaptation
Clear goals
Practice of skills
Monitored practiced

Continuous feedback
Individual adjustment

by patryck.net: http://www.flickr.com/photos/patryck/355720006/in/set-72157594476721951/
Motivation

http://www.zeldauniverse.net/games/z10/maps/ganon.gif
Learning through Video Games

- How to learn
  - Game design as educational theory

- What to learn
  - Procedural literacy and gaming experience
Game Design: Learning Principles

- Simulate specific experiences provide understanding to other learning relationships
- Games are a metaphor & model
Learning Principle - Just in Time

- New skills introduced when needed
- Provide context for skills
- Solving abstract problems
  - Pieces fitting together
IF A GAME PROVIDES A TUTORIAL WITHOUT A CONTEXT, HOW EFFECTIVE IS THE TEACHING?
Game Design: Learning Principles

- Identity
  - Create personal investment
  - “Captures” a player

Vs.
Game Design: Learning Principles

- Interaction
Game Design: Learning Principles

- Production
Game Design: Learning Principles

• Which genres lend themselves to this?
• What genres could?
Game Design: Learning Principles

Customization

Game Design: Learning Principles

- Risk Taking

GAME OVER

Too dangerous for ya? Try again!

Infinite patience

http://criticalmass.sourceforge.net/oldweb/pics.v09/gameOver.jpeg
Write down one game for each of the learning principles discussed that provides a clear example.

Write down one class where these principles are experienced.
Game Design: Learning Principles

- Agency
Game Design: Learning Principles

- Well – Ordered Problems
- Build on previous skills for solving current problems
- Scaffolding
Game Design: Learning Principles

- Challenges
  - “Cycles of Expertise”
Game Design: Learning Principles

- Situated Meaning
  - Knowledge gained from concepts, reading, and terminology
Game Design: Learning Principles

- Pleasantly Frustrating
  - Edge of abilities
Go back through the last 6 principles and an element from your case study game for each of these
Game Design: Learning Principles

- Explore, Think, Rethink
• Distributed Knowledge
  ◦ Understanding skills needed to succeed across players / NPCs
Game Design: Learning Principles

- Cross Functional Teams
  - Collaboration necessary for success
Game Design: Learning Principles

- Performance before Competence
  - Thrown into action before mastery

  - Is competence possible in controlled environments?
Game Design: Learning Principles

- **System Thinking**
  - Relationships, not specific facts
Small group activity

- Look at notes from former checkpoints
- How does the case study game match up to the principles?
- Identify 8 more principles in your case study games
- Be prepared to discuss results
What to learn – Procedural Literacy

- Games create opportunities for players to empathize with real world situations that they would not normally experience

- Ayiti: The Cost of Life – free online
Procedural Literacy

• Interaction with abstract models of specific real or imagined processes in gameplay
Ian Bogost

- “Video games teach biased perspectives about how things work. And the way they teach such perspectives is through... direct engagement and criticism.”

The Redistricting Game – http://www.redistrictinggame.org/
Games that Teach

- Video games do more than just provide meaning and metaphor
- Create meaning for worlds and relationships
Games that Teach - Procedural

- **Learning experiences go beyond simulation**
  - History RTS games may help teach specific events, but more learning happens from the process
  - Less about the moments and more about the underlying conditions
Procedural Experience

- McDonald’s Game vs. PETA’s Super Chick Bros.
  - Serious content doesn’t mean serious experience
Procedural Experience

- Window dressing
- Abstract rules
- Serious skin doesn’t make serious game
“rules” and “fiction”

- Jasper Juul’s
  - Procedural representation using traditional gameplay can still evoke powerful learning experiences
  - Genocide Tetris
Developing Procedural Literacy

- What are the rules of the system?
Developing Procedural Literacy

• What is the significance of these rules?
Developing Procedural Literacy

• What claims about the world do these rules make?
Developing Procedural Literacy

• How does the player respond to those rules?
What do games teach?

- How to think
- How to play
- How to view each other
- How to view the world
How do games teach?

- Game design = learning principles
- Procedural Literacy – learn by doing