Justin Schuyler
IS&LT 9085

Translating Game Research – 5/15 Update #3

QUEST LOG: SERIOUS GAMES CURRICULUM

Press X to Join: Introduction to Games through Gameplay
Cut Scene: History, Terminology, and Culture
Character Build: Instructional Design
Skill Tree: Game Design
Leveling Up: Game Development
End Game: the Symbiosis of Instructional and Game Design

Press X to Join — *Introduction to Games through Gameplay*

Students should start the course by playing a social game together. Why?

- To facilitate student interaction, teamwork, and camaraderie
- To demonstrate what games can do; their features and potential
- To dispel the notion that games are just for entertainment
- To spark creativity
- To have fun

Suggestion: Minecraft (https://minecraft.net/)

- Sandbox with serious game implications (http://minecraftedu.com/)
- Art, history, architecture, electronics, computer science, economics, geography

Students should also watch videos, read about, and play with examples of serious games:

Serious Game Examples

- CodeSpells: http://www.jacobsschool.ucsd.edu/news/news_releases/release.sfe?id=1347
- World without Oil: http://worldwithoutoil.org
- Foldit: http://fold.it/portal/
- Algodoo: http://www.algodoo.com/wiki/Home
- Duolingo: http://duolingo.com/
- Re-Mission: http://www.re-mission.net/

Cut Scene — *History, Terminology, and Culture*

We need to establish the playing field. That involves:

- Video game history and the origins of serious games
- Definitions and terminology (serious game types, genres, lingo)
- State of the art (it's a growing field; not standardized)
- Culture (stigma, oxymoron, palatable education)
- Leaders (Jane McGonigal, James Gee)
- Community (Universities, companies, and organizations)

Origins of Serious Games
Djaouti, Alvarez, Jessel, Rampnoux
http://www.ludoscience.com/files/ressources/origins_of_serious_games.pdf

Serious Game Flavors
http://www.seriousgameuniversity.com/index.php?option=com_content&view=article&id=22&Itemid=149
Edutainment, game-based learning, training/simulation, persuasive, organizational-dynamic, health

Community
The Games and Learning Alliance (GaLA): http://www.galanoe.eu/
MIT, Carnegie Mellon, Michigan State, Stanford, University of Washington

Character Build — *Instructional Design*

Explore the instructional design theories, frameworks, and strategies that drive serious games:

- Cognitive Task Analysis
- Needs Assessment
- Information Framing
- Activity Theory
- Bloom's Taxonomy
- Core competencies
- Structured vs. Naturalistic Practice

Identify instructional problems characteristic of game design:

- Non-linear gameplay
- Pace and structure
- Delivery

Skill Tree — *Game Design*

Go behind the scenes and learn how video games are designed.

Game Design Document
http://www-personal.engin.umd.umich.edu/~bmaxim/cis488/BaldwinGameDesignDocumentTemplate.doc
Story, characters, levels, environment, gameplay, art, sound, music, interface, controls

Storyboarding
http://www.cs.cornell.edu/courses/CS3152/2013sp/labs/design1/
http://filmmakeriq.com/2010/10/500-storyboard-tutorials-resources/

Prototyping Video Games with Animation
Richard C. Davis – School of Information Systems at the Singapore Management University
http://www.mysmu.edu/faculty/rcdavis/pubs/2011-GamesSeminar-RichardDavis.pdf

Unreal Tournament 3: Behind the Scenes
- https://www.youtube.com/watch?v=R_TU6nHzHDM
- Macro Processes: Artists, modelers, audio, video, motion capture, level designers
- Micro Processes: Concept art, rough poly, proof of functionality, high poly, process map
- Fidelity: play test even after just a month, constantly adjusting and polishing, art comes later

Heuristic Evaluation for Games: Usability Principles for Video Game Design
Pinelle, Wong, and Stach 2008
http://www.irit.fr/recherches/ICS/projects/twintide/upload/447.pdf

Leveling Up — *Game Development*

Our goal ≠ producing game developers; however, development experience is invaluable. Benefits:
- Perspective; getting smarter about what's possible and what's involved in making that possible
- Application; knowledge through experience
- Ownership

Technologies
- HTML5
  - Audio (Web Audio + Flash)
  - Video
  - Canvas (WebGL)
  - Storage (local storage + WebSQL)
- CSS3
- JavaScript
- jQuery: http://jquery.com/
- jQuery UI: http://jqueryui.com/
- Game and physics engines
- Unity, UDK, jME3, Alice

Development Possibilities

- http://bengal.missouri.edu/~jrs43b/match/
- http://bengal.missouri.edu/~jrs43b/denkan/
    - Animations: transitions, hide/show, fade in/out
    - Interactions: draggable, droppable, resizeable, selectable, sortable
    - Input: keys, mouse, and more
    - Tools: dynamic loading (AJAX), timers, events, widgets

End Game *the Symbiosis of Instructional and Game Design*

Students will learn how to combine instructional design and game design, drawing out the best qualities of each.

Game Development: The Marriage between Task Analysis and Game Discourse Analysis
Wouters, van der Spek, Oostendorp 2009
http://www.cs.uu.nl/docs/vakken/musy/Earli2009.pdf

Game Design: The mapping of Cognitive Task Analysis and Game Discourse Analysis in creating effective and entertaining serious games
Wouters, van der Spek, Oostendorp 2010
http://dl.acm.org/citation.cfm?id=1962300.1962358&coll=DL&dl=GUIDE&CFID=312993793&CFTOKEN=79070483

Human-Centered Design for Serious Games: A Bridge across Disciplines
Holloway and Kurniawan 2010
http://www.soe.ucsc.edu/research/technical-reports/ucsc-soe-10-36

- Applying iterative design, evaluation, and testing to childbirth preparation game
- HCD, Star Life Cycle, Fullerton's Method, Rankin, Dondlinger
- Conceptualization, prototyping, usability play-testing

Amory and Seagram's Game Object Model
http://sgiwiki.cueltd.co.uk/papers/Chapter_Staalduinen_Freitas_-_Final.pdf

Kiili's Experimental Gaming Model
http://fardinpour.info/system/files/myfiles/Kiili%282005%29DigitalGame-basedLearning_ExperientialGamingModel.pdf
Application: http://www.humantechnology.jyu.fi/articles/volume2/2006/kiili.pdf

Educational Game Design Patterns
http://www.pori.tut.fi/~krikii/patterns/
"Educational game design patterns are semiformal interdependent descriptions of commonly reoccurring parts of the design of an educational game that concern and optimize gameplay from an educational perspective focusing on the integration of engagement and learning objectives."