Supporting Innovative Technology with Contemporary Pedagogy:

A Layered Learning Approach for Developing Multimedia Curricula

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Disclosures

- Eric Bauman: CAE Healthcare (Stock Shareholder excluding mutual funds); Clinical Playground LLC (Consultant); Clovis Oncology Inc (Stock Shareholder excluding mutual funds); General Electric (Stock Shareholder excluding mutual funds); Pfizer (Stock Shareholder excluding mutual funds); Springer Publishing Co. (Royalties); Zynga (Stock Shareholder excluding mutual funds)

- Kim Leighton: no disclosures

- Angela Samosorn: no disclosures

Objectives

Following completion of the session, participants will be able to:

1. Analyze pedagogy that supports innovative learning tools including game-based learning, multi-media technology and mobile learning applications.

2. Critique existing curricula to identify opportunities to integrate clinical simulation and gaming applications.

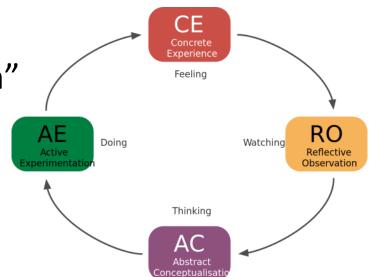3. Design a storyboard for a game-based learning intervention.

Traditional Experiential Pedagogy

- Kolb – Experiential Learning Cycle

- Schön – Reflection "in" and "on"

  Action

- Benner – Thinking in Action

Traditional Theorists

- Could theorists like Kolb, Schön and Benner have predicted the rapid advances in technology being used for clinical education?

- Many contemporary theories that support multimedia teaching and learning draw in part from experiential learning theories

Contemporary Pedagogy

For the digital learning landscape

- Gee – Socially Situated Cognition

- Squire – Designed Experience

- Games & Bauman – Ecology of Culturally Competent Design

- Bauman – Layered Learning Model

Gee – Socially Situated Cognition

<u>Socially Situated Cognition</u>: Refers to learning that is situated within a material, social, and cultural world. Learning that is situated takes place in contextually specific and authentic environment with a host of values and expectations.

Squire – Designed Experience

Designed Experience: Is engineered to include structured activities targeted to facilitate interactions that drive anticipated experiences. These activities are created to embody participant experience as performance.
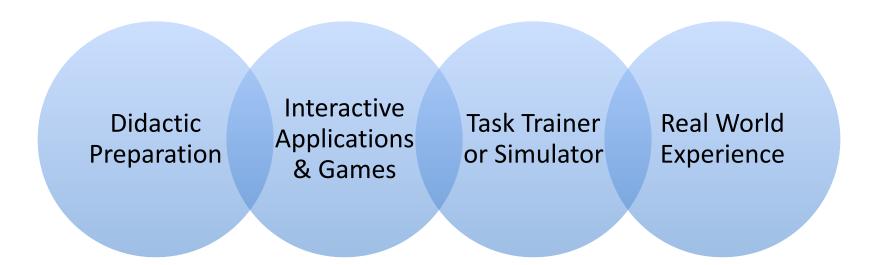
Games & Bauman
Ecology of Culturally Competent Design

Four-element model that emphasizes the importance of:

1. Activities: What players/learners do in the game or environment
2. Contexts: The context in which activities take place
3. Narratives: The story that situates the learning and drives psychological fidelity
4. Characters: How player and non-player characters are represented in the digital environment

Bauman - Layered Learning Model

Situated learning experiences link didactic content with practical hands on experiences

Didactic Preparation

Interactive Applications & Games

Task Trainer or Simulator

Real World Experience

Why Embrace Game Based Learning Pedagogy: Connect Learning with Reward

Intrinsic	Extrinsic
Reward comes from Mastery	Tangible Reward
Goals are clear, meaningful and situated	Goals assigned
Progress is intuitive apparent and immediate [real-time or just-in-time]	Progress is determined or assigned outside of the current activity
Endorses or reinforces behavior you are already committed to or hope to engage in the future – Represents Player Agency	If you complete this task you will be given access to another task – Hierarchical Direction
Autonomous	**Directed**

Active Learning   Creative   Shallow   Compliance

Deep Meaning   Outcome Driven

Identifying Opportunities to Integrate Game Based Learning

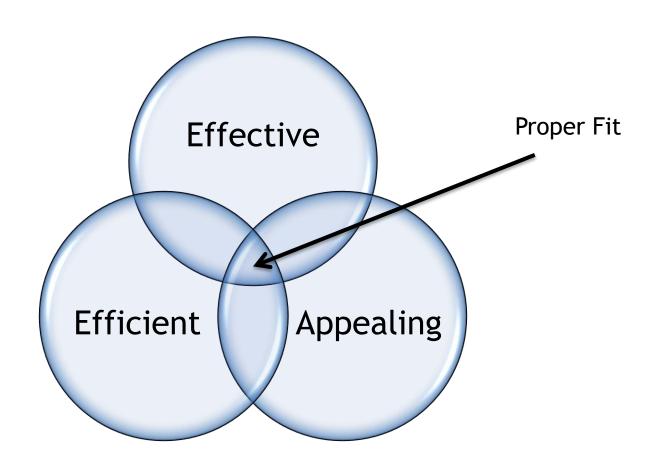Identify and Solve a Problem

- Ask: Can game based learning solve this problem?

- Ask: Is game based learning a good fit?
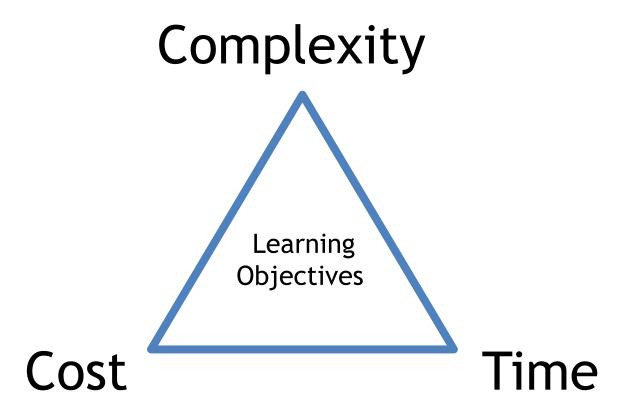
- Ask: What is the cost/benefit analysis?

Aspects of Fit: Impact

Effective

Efficient

Appealing

Proper Fit

Ralston-Berg, P. & Lara, M. (2012). Fitting virtual reality and game-based learning into an existing curriculum. In E. Bauman (Ed.), *Games and Simulation for Nursing Education.* New York: Springer.

Aspects of Fit: Constraints

Aleckson, J., & Ralston-Berg, P. (2011). *MindMeld: Micro-Collaboration between eLearning designers and instructor experts.* Madison, WI: Atwood Publishing.

Digital Fit for Learning Situations

Learning Situation or Goal	Type of Game or Simulation
Boring, mundane, undesirable tasks	Games that level up; intrinsic motivation
Distinct levels of achievement or competency	Meta-gaming; use out-of-game resources or strategies to succeed
Reinforce information or processes	Mini-games within game
Define terms; use appropriately; syntax	Quick games; reward for speed; replay from pool

Ralston-Berg, P. & Bauman, E.B. (August, 2015). *Are Games and Simulations a Good Fit for Your Curriculum?* 2015 Distance Teaching and Learning Wisconsin. University of Wisconsin, Madison, WI

Storyboarding

If you can build a PowerPoint presentation you can build a rudimentary Storyboard

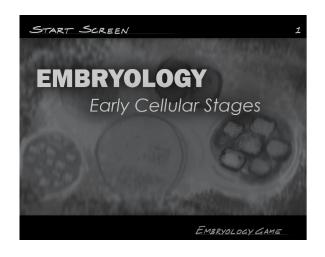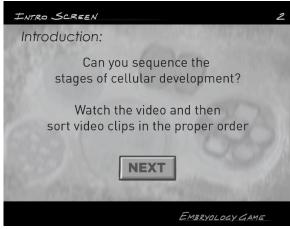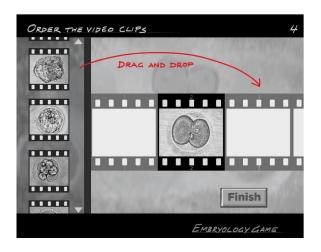Think about how a comic book or graphic novel unfolds

Images used with Permission from "Healing Blade" by Nerdcore Medical
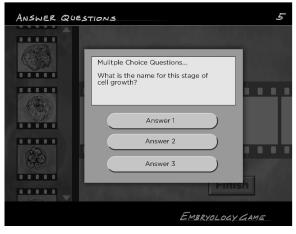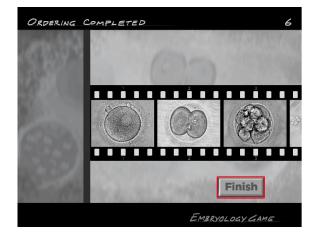http://www.healingblade.com

Storyboarding

Storyboarding

Discussion & Questions

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