

# Harnessing Computer Games in Education

Morris S.Y. Jong, Junjie Shang, Fong-Lok Lee  
& Jimmy H.M. Lee  
Presentation by: Brianna Chen

# First thoughts....

- What are your first thoughts when considering using games in the classroom?
- Have any of you experienced a class with games as a learning tool?
- Why do you think more classrooms aren't incorporating games into learning?

# Benefits

- Motivational Perspective
- Cognitive Perspective
- Socio-cultural Perspective
- Learning Style Perspective

# Motivational Perspective

- “Fun and enjoyment cause learners to be more relaxed, motivated and willing to learn”
- Malone & Lepper intrinsic motivation theory:  
*challenge, fantasy, control, curiosity,  
cooperation, recognition and competition*

# Cognitive Perspective

- “Learning should be an active process based upon concrete experience” - Piaget 1964
- Game can present near real-life contexts of situations and contexts (*Situated learning*)
- Mini-games vs complex-games

# Socio-Cultural Perspective

- Human Competitors, online games, gaming systems, chat systems, group missions
- Does not need to be face-to-face or even take place in schools

# Learning Styles

Table 1. A mapping of learning styles to in-game component

Learning styles	Typical methods	Serious game for a course
Visual (Spatial)	Pictures, images, and spatial understanding; Mind maps; replaces words with pictures.	Non-player characters (NPC), background, images, texture, environment, sprites, and characters, etc.
Aural (Auditory-musical)	Sound and music; Rhyme in learning; Sound recordings to provide background.	Narratives, background music, interactions, sound effects.
Verbal (Linguistic)	Techniques involving speaking and writing.	Read and playback (recording lectures), storytelling, cut scene, narratives, role playing, etc.
Physical (Kinesthetic)	Body, sense, and touch; focus on sensations.	Feasible using Wii and Kinect.
Logical (Mathematical)	Logic, reasoning, and systems; extract key points from list.	Puzzle, mini games, AI, quizzes, etc.
Solitary (Intrapersonal)	Work alone and self-study.	Single player version.
Social (Interpersonal)	Prefer to learn in groups or with other people.	Multiplayer online (may require different quest for characters).

# Ok if they're so great.....

- Many educational games are lacking in quality
- Most popular genre of games in schools are drill and practice



# Education in Games vs. Games in Education

- “Education in Games’ - educational use of existing commercial games
- “Games in Education” - designing learning games with underlying pedagogy for specific curricula

# VISOLE

- *Virtual Interactive Student-Orientation Learning Environment*
- Phase 1 - Multi-disciplinary Scaffolding
- Phase 2 - Game Based Learning
- Phase 3 - Reflection and Debriefing

# Phase 1 Multi-disciplinary Scaffolding

- Teachers act as cognitive coaches to activate students learning motive and assist students to gain some high-level abstract knowledge in a multi-disciplinary framework

# Phase 2: Game Based Learning

- Deploys an online multi-player interactive game portraying a virtual world
- Scenarios become dominating motivator
- Missions/problems are generative and open-ended

# Phase 3 - Reflection and Debriefing

- Students write down what they've learned (K-10)
- Students analyze with professor and discuss how what they've learned can apply.
- Is professor directed (Older students)

# Conclusion and Discussion

- In your class/future class, would an appropriate game enhance your teaching?
- What reservations would you have about using a game in the classroom?
- Any other questions or comments?