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Christopher D. Sessums :: Got Game? A Brief Look at Video and Computer-based Games in Education

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Computer and video games are a cultural and economic force drawing increasing attention from educators, anthropologists, economists, media scholars, journalists, and art critics (King, 2002; Perron & Wolfe, 2003; Poole, 2000).

Computer games have grown in sophistication and brought innovative models of interactive storytelling that is entertaining and inspiring millions of people.

Games have grown not only into an important economic force (grossing roughly US$11 billion), but a cultural force -- a medium of choice for many members of the millennial generation that educators should understand.

While some educational critics have derided games as *pointless*, it is still important for educators to understand why games have such appeal and understand what design principles underlie them.

Dodlinger's (2007) academic literature review focuses on 35 publications addressing educational video game design spanning the last ten years in order to "identify elements of game design that promote learning as well as the learning theories that conceptualize how video games foster learning" (p. 21).

Dodlinger notes that "While there is widespread consensus that games motivate players to spend time on task mastering the skills a game imparts, some disagreement over the specific characteristics that provoke that motivation exists" (p. 28).

Elements of game design that promote learning

Moreover, Dodlinger's (2007) review identified **six distinct design elements** that could be deemed necessary to stimulate desired learning outcomes. These elements include:
Narrative context -- for situating and contextualizing learning -- the storyline
Goals and rules -- objectives and guidelines - short term, medium term, long term

Rewards -- (associated w/motivation) -- signals achievement
Interactivity and multisensory cues -- direct attention, introduce new sensory perspectives, provides feedback cues for error correction

Learning outcomes from educational video games

In terms of learning outcomes from educational video games, Dodlinger (2007) points to research that suggests that well-designed games support the development of *21st century learning skills* (e.g., play, performance, navigation, resourcefulness, negotiation, synthesis, collaboration, team work, judgement, discernment) but also other higher order thinking skills such as *deduction and hypothesis testing*, *complex concepts and abstract thinking*, and *visual and spatial processing*.

While exploring the potential for games in educational contexts, there seem to be a handful of **challenges** to widespread adoption and game integration:
Understanding the value of games
Finding appropriately designed games
Getting games into educators' hands
Integrating games into curricula, i.e., getting them into kids' hands
The ethical roles and responsibilities associated with gaming
The lack of clear evaluation standards associated with work produced utilizing games
How do we guarantee that the rich opportunities afforded by the expanding educational gaming landscape are available to all?

[*I'm sure there are more, these are just a few that sprung to mind*.]

Class activity:
Let's take a look at a couple of online educational games and see to what extent they incorporate the six design elements listed above.

Examples:
Tut pup -- basic math and spelling games -- http://tutpup.com

Getty Games -- basic puzzle games based on museum pieces in the Gettty collection -- http://www.getty.edu/gettygames/

Villany, Inc. -- Thwarting World Supremacy through Mathematics storytelling, problem-solving and mathematics -- http://villainyinc.thinkport.org/mission1/default.asp?autoload=1
Free Rice -- social action and educational game -- http://www.freerice.com/

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