Unlocking the Potential of Gaming Technology

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Learners
Product of the environment

- Baby Boomers
  - TV generation
  - Typewriters
  - Memos

- Generation X
  - Video games
  - Computers
  - Email

- Millennials
  - The Web
  - Multiple, mobile devices
  - Instant messaging
  - Online communities
Themes

- Digitally literate
- Always on
- Experiential
- Mobile
- Community-oriented
Net Gen preferences

**Learning Preferences**
- Teamwork
- Technology
- Structure
- Engagement & excitement
- Experiential activities

**Strengths**
- Multitasking
- Goal orientation
- Positive attitudes
- Collaborative style
- Technology savvy

― Raines, 2002
Media literacy

By age 21, the average person will have spent

- 10,000 hours video games
- 200,000 emails
- 20,000 hours TV
- 10,000 hours cell phone
- Under 5,000 hours reading

– Prensky, 2003
Games are a way of life

- An 8th grader plays video games an average of 5 hours/week
- By high school, 77% of students have played games
- 69% have played games since elementary school
- By college, nearly all students have experienced games
- Game sales nearly $7 billion (in 2002)

--Jones, 2003
Games in college

- 60% of college students are regular game players
- Games are part of students’ multitasking environment
- Games are integrated into daily life (and studying)
- Students do not feel gaming impacts their studies
- Men play more games than women
- Computer games are most common form of games (video, computer, online)
- Students not exposed to games in the classroom

--Jones, 2003
Games as socializing

- Students play games to socialize
- Students play games while socializing
- Online game communities thrive

--Jones, 2003
# Types of gamers

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
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<tbody>
<tr>
<td>Committed gamers</td>
<td>Driven by challenge; high tolerance for frustration; self-motivated</td>
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<tr>
<td>Wanna be’s</td>
<td>Identify with committed gamers; less tolerant of frustration</td>
</tr>
<tr>
<td>Fun seekers</td>
<td>Seek immediate gratification; games vie with other entertainment choices</td>
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<tr>
<td>Time killers</td>
<td>Play games to kill time; shallow players; want immediate rewards</td>
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</tbody>
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– Phillips, 2003
Games in Education
Educational value of games

**Games support**
- Active learning
- Experiential learning
- Problem-based learning
- Immediate feedback
- Learner-centered

**Environments include**
- Problem solving in complex systems
- Creative expression
- Social relationships
- Peer assessment
## Attributes of games

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<tr>
<td>Individualized</td>
<td>Games adapt to the level of the individual while providing support</td>
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<tr>
<td>Challenging</td>
<td>Games are built with multiple levels, ensuring user’s skills are challenged</td>
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<tr>
<td>Motivating</td>
<td>Games engage users for hours in pursuit of a goal</td>
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<tr>
<td>Social</td>
<td>Games can be played with others; online communities provide engagement</td>
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<tr>
<td>Rapid feedback</td>
<td>Games provide immediate and contextualized feedback</td>
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Augmented reality

Computer simulation on handheld computer triggered by real world location

- Combines physical world and virtual world contexts
- Embeds learners in authentic situations
- Engages users in a socially facilitated context

—Klopfer & Squire, 2003
Environmental detectives

- Players briefed about rash of local health problems linked to the environment
- Provided with background information and “budget”
- Need to determine source of pollution by drilling sampling wells and ultimately remediate with pumping wells
- Work in teams representing different interests (EPA, industry, etc.)

—Klopfer & Squire, 2003
Results

- Augmented reality: engaging and easy
- Cooperation and competition in game play
- Gender patterns appear (males are number driven; females are interpersonally driven)

—Klopfer & Squire, 2003
In the real world, conflicts are resolved through politics.

Immersion in national & international politics.

Teams assume different roles; learn negotiation.

Involves face-to-face and online.

Mentors and facilitators work with students.

Simulation & debriefing.

University of Michigan.

—Kupperman, 2003
Issues
Issues

● Who will be responsible for developing the content of games?
  — What are the appropriate roles for game developers, content experts, instructional designers?
  — How will entertainment value be weighed against educational value?
How will intellectual integrity be safeguarded?

- Will educational content be validated by a peer-review-process?
- Will games be shaped by the same forces as cinema or television, where content may be sensationalized or oversimplified?
Issues

- Could the need for high volume game sales lead to the “dumbing down” of curricular materials?
  - Will we see a “Wal-Mart” effect bring educational standards to the lowest common denominator?
  - Can games be developed with enough flexibility to allow for institutional differences? For faculty differences?
  - Will computer games allow for creative, out-of-the-box solutions to problems?
Issues

- How will games be integrated with traditional teaching methods?
  - Will the time students spend on games take away from other activities (reading, lectures, papers)?
  - Will games encourage students to resist more “boring” activities?
  - Is there a risk that games will displace traditional teaching methods? Would that be good or bad?
Issues

● Will games have unintended consequences?
  – Beyond the academic content, what other types of information might be conveyed by games?
  – What is the risk that negative themes or undesirable perspectives would be conveyed by educational games?
Issues

- How will games be evaluated and the benefits documented?
  - What kind of data will be needed to verify the benefits of games and improved learning outcomes?
  - What have we learned about evaluating instructional software that can be applied to games?
  - What size of investment can be justified by improved learning outcomes?
Issues

- Who will pay for educational games?
  - Will colleges and universities pay for educational computer games or will students pay? Or both?
  - Will licensing fees for games further strain instructional budgets or will such costs be balanced by savings elsewhere?
  - Will the business model bring higher education and game developers into a dynamic symbiosis or will the producer-consumer relationship prevail?
Issues

- Who will be responsible for developing the content of games?
- How will intellectual integrity be safeguarded?
- Could the need for large scale sales lead to the “dumbing down” of smart games?
- How will games be integrated with traditional teaching methods?
- Will games have unintended consequences?
- How will games be evaluated and the benefits documented?
- Who will pay for educational games?
Issues

- Who will be responsible for developing the content of games?
  - It will be important to develop alliances between higher education and game publishers so that experts can work together to maximize the power of games with the pedagogy of learning.
  - Other suggestions
Issues

● How will intellectual integrity be safeguarded?
  — Develop peer reviewers and review panels with the game publishers
  — Clarify of purpose between educational games and other games
  — Other suggestions
Issues

- Could the need for large scale sales lead to the “dumbing down” of smart games?
  - Who determines the use of particular games within curricular support?
    - Standards for games - entertainment
    - Standards for learning within gaming situations
  - Guidelines that preserve the intellectual standards
  - Other suggestions
Issues

- How will games be integrated with traditional teaching methods?
  - One of many tools
  - Use in teacher education courses
  - Connection to pedagogy
  - Other suggestions
Issues

• Will games have unintended consequences?
  – Yes, though difficult to predict
  – Understanding by developers
  – Standards and guidelines can assist
  – Other suggestions
Issues

- How will games be evaluated and the benefits documented?
  - As with any pedagogy, this educational tool will require research
  - Research agenda would include
    - Standards
    - Training
    - Evaluation
    - Clarity of purpose
    - Reporting channels
  - Other suggestions
Issues

- Who will pay for educational games?
  - Users
  - Educators
  - Need for a corporate/higher education symbiosis/collaboration
  - Evidence from past incorporation of software modules
  - Avoid producer/consumer model
  - Other suggestions
Your questions
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