If You Build It, They (May) Come: Reflections on Educational Games

Ruben R. PuenteDura, Ph.D.
The Games and The Players
The Games

Wolf Quest

Democracy

The Forbidden City

JA Titan

Zon
The Players

Total Project Number of Players: ~1400

Players by Game

% Players by Game
The Survey
Respondents by Gender

Total Number of Respondents: 609
Respondents Who Did Not Play Games: 147
(~33% of Players)
Respondents by Grade
How Often Did They Play?

- Once
- Occasionally
- Frequently

Games:
- WolfQuest
- Democracy
- Forbidden City
- JA Titan
- Zon
How Many Games Did They Play?

Number of Games Played:
1: 250
2: 70
3: 40
4: 20
5: 10

Number Games Played
Did They Enjoy The Games?

WolfQuest

- Strongly Agree: 21%
- Agree: 38%
- Neither Agree Nor Disagree: 23%
- Disagree: 6%
- Strongly Disagree: 10%

Forbidden City

- Strongly Agree: 17%
- Agree: 33%
- Neither Agree Nor Disagree: 21%
- Disagree: 6%
- Strongly Disagree: 6%

Zon

- Strongly Agree: 24%
- Agree: 38%
- Neither Agree Nor Disagree: 20%
- Disagree: 1%
- Strongly Disagree: 1%

Democracy

- Strongly Agree: 28%
- Agree: 20%
- Neither Agree Nor Disagree: 24%
- Disagree: 9%
- Strongly Disagree: 8%

JA Titan

- Strongly Agree: 23%
- Agree: 28%
- Neither Agree Nor Disagree: 28%
- Disagree: 17%
- Strongly Disagree: 9%
Enjoyment By Gender

WolfQuest

Forbidden City

Democracy

JA Titan

Zon

Male
Female
Hardcore and Casual Players

**Hardcore Players:**
- Buy and play many games
- Enjoy longer play sessions
- Enjoy challenge, progression, and game mastery
- Tolerate complex controls because they have played many games and absorbed the skills involved
- See game playing as a lifestyle preference; talking about games is a social component of their lives

**Casual Players:**
- Buy fewer games, buy popular games, or play Hardcore friend-recommended games
- Enjoy shorter play sessions
- Prefer having fun, or immersion in an atmospheric experience
- Generally require simpler controls (exception: C1 players)
- See games as another time-passing entertainment; might talk about games with Hardcore friends
What Type Of Gamer Are They?

- **Male**: 41% No Idea, 43% Casual, 16% Hardcore
- **Female**: 43% No Idea, 52% Casual, 5% Hardcore
The DGD1 Model (Bateman 2004)
The Four Play Styles

- **Conqueror:**
  - Associated with challenge and the emotional payoff of triumph over adversity; tend to finish games they start.
  - Highly patient with frustration: if they stick with it, they can win.
  - Skills: proficiency with logistical optimization and strategic thinking.

- **Manager:**
  - Associated with mastery and systems; may not finish many games that they start playing.
  - Good at dealing with multiple factors in parallel.
  - Skills: tactical competence backed with strategic thinking.

- **Wanderer:**
  - Associated with experience and identity; challenge is not especially desired, but may be tolerated.
  - Attracted by the feeling that something new is just around the corner, an involving story, or a beautiful world.
  - Skills: tactical competence and abstract thinking.

- **Participant:**
  - Associated with emotions and involvement; seem happiest when playing with people, but also enjoy play which is rooted in emotion.
  - Drawn to games with an emotional effect, that allow the player to affect virtual or real people.
  - Skills: logistical optimization.
What Play Styles Do They Favor?
Player Type By Gender

Male

Female

- Conqueror
- Manager
- Wanderer
- Participant
Next Steps
For 2010–2011

• All five games included on laptop.

• Self-contained podcast series:
  *Game And Learn: An Introduction to Educational Gaming*
  On iTunes U at:

• Webinars for teachers planning to use games in classroom:
  • General games in education support;
  • Content-specific support for five games on image;
  • Content-specific support for new, vetted games:
    • *Sleep Is Death* – http://www.sleepisdeath.net/
Game And Learn: 
An Introduction to Educational Gaming
The Core Definitions

Games and Narrative

Games and Boredom

<table>
<thead>
<tr>
<th>When Players Say…</th>
<th>…They Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>The game is too easy</td>
<td>Game patterns are too simple</td>
</tr>
<tr>
<td>The game is too involved</td>
<td>Players are uninterested in the information required to detect patterns</td>
</tr>
<tr>
<td>The game is too hard</td>
<td>Patterns are perceived as noise</td>
</tr>
<tr>
<td>The game becomes too repetitive</td>
<td>New patterns are added too slowly</td>
</tr>
<tr>
<td>The game becomes too hard</td>
<td>New patterns are added too fast</td>
</tr>
<tr>
<td>The game runs out of options</td>
<td>All game patterns are exhausted</td>
</tr>
</tbody>
</table>
The Taxonomy
Learning and Education

Symbolic Systems

2. Appreciating good design and its principles
3. Seeing interrelations within and across symbolic systems
4. Mastering game symbolic systems
5. Relating the game world to other worlds
Using Games

The Serious Games Networking Portal
Games and Narrative

## Character Functions

### Introduction

<table>
<thead>
<tr>
<th>#</th>
<th>Function</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Absentation</td>
<td>A member of the family absents him/herself.</td>
</tr>
<tr>
<td>2</td>
<td>Interdiction</td>
<td>An interdiction is given to the hero.</td>
</tr>
<tr>
<td>3</td>
<td>Violation</td>
<td>The interdiction is violated.</td>
</tr>
<tr>
<td>4</td>
<td>Reconnaissance</td>
<td>A villain makes an attempt to get information.</td>
</tr>
<tr>
<td>5</td>
<td>Delivery</td>
<td>The villain gets information about the victim.</td>
</tr>
<tr>
<td>6</td>
<td>Trickery</td>
<td>The villain tries to deceive the victim.</td>
</tr>
<tr>
<td>7</td>
<td>Complicity</td>
<td>The victim is deceived.</td>
</tr>
</tbody>
</table>

### The Donor Sequence

<table>
<thead>
<tr>
<th>#</th>
<th>Function</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>1st Donor Function</td>
<td>The hero is tested by a donor of a magical agent.</td>
</tr>
<tr>
<td>13</td>
<td>Hero’s Reaction</td>
<td>The hero reacts to the agent or donor.</td>
</tr>
<tr>
<td>14</td>
<td>Receipt of Agent</td>
<td>The hero acquires the use of the magical agent.</td>
</tr>
<tr>
<td>15</td>
<td>Guidance</td>
<td>The hero is led to the object of search.</td>
</tr>
<tr>
<td>16</td>
<td>Struggle</td>
<td>The hero and villain join in combat.</td>
</tr>
<tr>
<td>17</td>
<td>Branding</td>
<td>The hero is branded.</td>
</tr>
<tr>
<td>18</td>
<td>Victory</td>
<td>The hero defeats the villain.</td>
</tr>
<tr>
<td>19</td>
<td>Liquidation</td>
<td>The initial misfortune or lack is liquidated.</td>
</tr>
</tbody>
</table>

### The Body of the Story

<table>
<thead>
<tr>
<th>#</th>
<th>Function</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Villain</td>
<td>The villain causes harm to a family member. - OR</td>
</tr>
<tr>
<td>8a</td>
<td>Lack</td>
<td>A family member lacks or desires something.</td>
</tr>
<tr>
<td>9</td>
<td>Mediation</td>
<td>A misfortune is made known, the hero is dispatched.</td>
</tr>
<tr>
<td>10</td>
<td>Begin Counteraction</td>
<td>The hero (seeker) agrees to counteraction.</td>
</tr>
<tr>
<td>11</td>
<td>Departure</td>
<td>The hero leaves home.</td>
</tr>
</tbody>
</table>

### The Hero’s Return

<table>
<thead>
<tr>
<th>#</th>
<th>Function</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>Return</td>
<td>The hero returns.</td>
</tr>
<tr>
<td>21</td>
<td>Pursuit</td>
<td>The hero is pursued.</td>
</tr>
<tr>
<td>22</td>
<td>Rescue</td>
<td>The hero is rescued from pursuit.</td>
</tr>
<tr>
<td>23</td>
<td>Unrecognized Arrival</td>
<td>The hero, unrecognized, arrives home or elsewhere.</td>
</tr>
<tr>
<td>24</td>
<td>Unfounded Claims</td>
<td>A false hero presents unfounded claims.</td>
</tr>
<tr>
<td>25</td>
<td>Difficult Task</td>
<td>A difficult task is proposed to the hero.</td>
</tr>
<tr>
<td>26</td>
<td>Solution</td>
<td>The task is resolved.</td>
</tr>
<tr>
<td>27</td>
<td>Recognition</td>
<td>The hero is recognized.</td>
</tr>
<tr>
<td>28</td>
<td>Exposure</td>
<td>The false hero or villain is exposed.</td>
</tr>
<tr>
<td>29</td>
<td>Transfiguration</td>
<td>The hero is given a new appearance.</td>
</tr>
<tr>
<td>30</td>
<td>Punishment</td>
<td>The villain is punished.</td>
</tr>
<tr>
<td>31</td>
<td>Wedding</td>
<td>The hero is married and ascends the throne.</td>
</tr>
</tbody>
</table>

**Notes:**
- 12–14 can also occur as a block prior to the 8–11 block;
- 23–24 and 25–26 can also occur prior to 19;
- 17 can occur between 25 and 26.
The Players

Bartle’s Types and the Games (Puentedura)
Assessment and Design

<table>
<thead>
<tr>
<th>Groups</th>
<th>Teacher Expectation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Benefit</td>
<td>No Benefit</td>
</tr>
<tr>
<td>1. No-Treatment Control</td>
<td>A</td>
<td>B</td>
</tr>
<tr>
<td>2. Hawthorne Control</td>
<td>C</td>
<td>D</td>
</tr>
<tr>
<td>3. Experimental Procedure</td>
<td>E</td>
<td>F</td>
</tr>
</tbody>
</table>

Electromagnetism Supercharged! Learning Physics with Digital Simulation Games

Introduction

Many science educators advocate conceptual or qualitative physics, the notion that physics is best taught not by a cookbook formula, but rather through experiments, lab activities, and investigations which help students understand physical phenomena conceptually (Witten, 2000; Forss, 1997; Everitt, 2002). Consistent with the Physics Four-curriculum movement, this perspective maintains that a deep, fundamental understanding of physics provides a solid basis for future science learning. How to engage younger students in complex physics thinking is a challenge, but computer simulations provide one intriguing way to engage students in the study of abstract, complex physical phenomena (Sears, 2000; Dede et al., 1993). Digital technologies can immerse the learner in worlds that not only represent scientific phenomena, but behave according to the rules of physics. Simulated worlds can be programmed to behave by Newtonian or Microworld rules (Dede et al., 1993). By representing the simulation through digital game conventions, educators can potentially increase engagement while also fostering deeper learning. As learners engage in critical and meaningful game play, whereby they generate hypotheses about the game systems, develop physics and strategies, observe their strengths and adjust their behaviors about the game systems (Casilda & Kupper, 1994; Gut, 2003; Agius, 2005), experiences in game worlds become experiences that students
Game Creation
With Thanks To

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• Merrilea J. Mayo, Ph.D.

• The Maine Learning Technology Initiative (MLTI)

• The Ewing Marion Kauffman Foundation
Resources


• Puente
More information at: http://hippasus.com/resources/gameandlearn/
Hippasus

http://hippasus.com/rrpweblog/
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