Serious Games - Potential & Challenges for Higher Education & Beyond

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Note – Changes will be made for the conference.
Agenda

- Introducing Serious Games – Definition & taxonomy
- Current Usage and Trends
- Quick look at some serious games
  - Child labour - Role playing online game
  - Run your online company – Multiplayer online Sim
  - Learn basics of Oil Exploration – Competitive learning event.
- Effectiveness, potential and challenges
- Q&A
Learning Objectives

- Develop an understanding of the taxonomy of serious games
- Experience some serious games “hands on”
- Understand the current usage trends
- Learn about the potential and challenges
You as a journalist collect evidence of child labour

Run your own company and learn business studies concepts.

Compete to find oil and learn the basics of exploration.
Definition

- A serious game is a game designed for a primary purpose other than pure entertainment.
‘Simulations can be defined as a ‘representation of a real-life situation in a computer program’ (Hutchinson Encyclopedia 2005),

A. J. Faria, David Hutchinson, William J. Wellington, Steven Gold
Developments in Business Gaming A Review of the Past 40 Years
Simulation & Gaming Journal December 22, 2008
Why do Serious Games Work?

Deep Learning
- Learning by doing
- Learning by experimenting
- Life-like learning situations
- Believing in abilities
- Clear objectives
- Team learning and skills
- Learning without limitations

Hard Fun
- Engagement
- Competitive (in most cases)
Flexibility of Delivery

Team or Multiplayer

- Online Student Competitions
- Class Discussions and briefings

Individual Learning

- Single Online Play
- Individual Assignments

Online

Blended
Some Serious Games
Sweatshops
Sweatshops

Scenario

You arrive in Bangladesh to investigate a case of child labour in a tannery in the nation’s capital, Dhaka.

You work for the European Leatherwear Industries. A couple of days ago, you received an e-mail from a woman that claims she has spoken to a girl that works in the tannery.

You have to investigate the case and find proof of child labour as well as coming up with a solution that will not damage the tannery or your company.

Should you stop buying leather from the factory knowing that it will probably shut down? The more information you gather, the better you stand in the final interview with the factory owner.
Sweatshops

<table>
<thead>
<tr>
<th>FOCUS</th>
<th>PLAYTIME</th>
<th>LEVEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child labour, globalization, poverty</td>
<td>35 minutes.</td>
<td>13-20 years</td>
</tr>
</tbody>
</table>

Subjects
Sweatshops supports Social Studies by challenging the students grasp on social science and history and encourages them to analyse and make up their mind on international affairs, child labour, globalization and human rights.

Supporting Material
Game Manual, Teacher’s Manual, Student Assignments, Topic Overview

SERVICES
Webportal has a lot of interactive options that makes it possible for students and teachers to interact with each other in an online community.
Teachers are able to monitor students playtime and activities, as well as see the end results. Furthermore are students able to write, publish, rate and discuss articles to an international audience.
Teaching with Sweatshops

Teacher talks
- Read topic overview
- Overview of theme

Play Game
- Explore perspectives
- Experience issues

Group discussions
- Discuss experiences
- Write article

Plenum
- Debriefing
- Evaluation

Teacher manual
- Topic overview
- Other curriculum

Mission sheets

Work sheets
- Online resources
Child Soldiers
Collect Statements & Arguments

Not really. The ICC charges against Joseph Kony are rock solid and the pressure from the international society is massive. Promising Kony to drop the charges would be risky. But it might save the fragile peace process in northern Uganda.
Final Meeting with Kony

How can I? I keep telling people that this so-called agreement is full of holes. It says I have to do this and that, but I was never consulted on these matters, and the wording is vague. I have so many concerns and questions, but they won't listen. It's just "sign, or we will send the army for you." The treaty was written without my consent.
Do you succeed or fail?

<table>
<thead>
<tr>
<th>Uganda</th>
<th>Epilogue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>55 of 150 pts.</td>
</tr>
<tr>
<td>Rating</td>
<td>Medium</td>
</tr>
<tr>
<td>Mission Outcome</td>
<td></td>
</tr>
<tr>
<td>Military intervention:</td>
<td>0 pts.</td>
</tr>
<tr>
<td>Research</td>
<td></td>
</tr>
<tr>
<td>Statements found:</td>
<td>11/15</td>
</tr>
<tr>
<td>Arguments unlocked:</td>
<td>7/11</td>
</tr>
<tr>
<td>Time remaining:</td>
<td>00:00</td>
</tr>
<tr>
<td>Final Interview</td>
<td></td>
</tr>
<tr>
<td>Stress level:</td>
<td>36%</td>
</tr>
<tr>
<td>Argumentation success:</td>
<td>80%</td>
</tr>
</tbody>
</table>

Main Menu
Online Business Simulations
Online Business Simulations

- Learning for
  - Business Studies
  - Basic Finance
  - Entrepreneurship
  - Management
Online Business Simulations
Business Concepts

Share Price

Economic Parameters
- Interest Rates
- Cost of Labour
- etc

Financials
- P&L
- Cash Flow
- Debt Ratios
- Balance Sheet

Strategy
- R&D
- Customer Service
- HR
- Quality

Product
- Maturity
- Supply Level
- Pricing
- Marketing

Capacity
- Supply Level
Online Business Simulations

**CORPORATE RATIOS**

<table>
<thead>
<tr>
<th>Ratios</th>
<th>Formula</th>
<th><strong>YEAR 3</strong></th>
<th>% of Rev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenues Growth</td>
<td>(Revenues Year 3 / Revenues Year 2) - 1</td>
<td>100.55%</td>
<td></td>
</tr>
<tr>
<td>EBIT Margin</td>
<td>EBIT / Revenues</td>
<td>33.29%</td>
<td></td>
</tr>
<tr>
<td>Debt Ratio</td>
<td>(Short Term Debt + Long Term Debt) / Total Liabilities and Equity</td>
<td>49.03%</td>
<td></td>
</tr>
<tr>
<td>Cumulative ROE</td>
<td>(Shareholders Equity / Seed Equity) / 100</td>
<td>61.74%</td>
<td></td>
</tr>
<tr>
<td>Share Price</td>
<td>Shareholders Equity / Seed Equity / 100</td>
<td>428.07%</td>
<td></td>
</tr>
<tr>
<td>Current Interest Rate</td>
<td></td>
<td>23.64%</td>
<td></td>
</tr>
<tr>
<td>Average Product Maturity</td>
<td></td>
<td>76.00%</td>
<td></td>
</tr>
</tbody>
</table>

**BALANCE SHEET YEAR 3**

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities and Equity</th>
<th><strong>YEAR 3</strong></th>
<th>% of Rev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>Accounting</td>
<td>101,526,714$</td>
<td>19.97%</td>
</tr>
<tr>
<td>Accounts Payable</td>
<td>Bills in Inventory</td>
<td>76,198,926$</td>
<td>15.01%</td>
</tr>
<tr>
<td>Short Term Debt</td>
<td>Total Liabilities and Equity</td>
<td>278,300$</td>
<td>0.05%</td>
</tr>
<tr>
<td>Long Term Debt</td>
<td>Terms in Accounts Receivable</td>
<td>2,635,810$</td>
<td>0.11%</td>
</tr>
<tr>
<td>Shareholders Equity</td>
<td>Total Liabilities and Equity</td>
<td>195,739,881$</td>
<td>3.82%</td>
</tr>
<tr>
<td>Seed Equity</td>
<td>Total Liabilities and Equity</td>
<td>30,000,000$</td>
<td>0.59%</td>
</tr>
<tr>
<td>Retained Earnings</td>
<td>Total Liabilities and Equity</td>
<td>151,537,324$</td>
<td>2.96%</td>
</tr>
</tbody>
</table>

**CASH FLOW**

<table>
<thead>
<tr>
<th>Year 3</th>
<th>% of Rev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Cash Flow</td>
<td>177,434,062$</td>
</tr>
<tr>
<td>Less: Cash Flow</td>
<td>-212,354,109$</td>
</tr>
<tr>
<td>Operating Cash Flow</td>
<td>55,040,127$</td>
</tr>
<tr>
<td>Net Cash Flow</td>
<td>55,040,127$</td>
</tr>
</tbody>
</table>

**PROFIT & LOSS**

<table>
<thead>
<tr>
<th>Year 3</th>
<th>% of Rev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>503,351,920$</td>
</tr>
<tr>
<td>Operating Income</td>
<td>76,319,923$</td>
</tr>
<tr>
<td>Goods Sold</td>
<td>212,353,109$</td>
</tr>
<tr>
<td>Costs</td>
<td>2,699,064$</td>
</tr>
<tr>
<td>Total Costs</td>
<td>20,334,590$</td>
</tr>
</tbody>
</table>
Online Business Simulations

MJansz Inc. (Month 56/60)

Share Price 694.72%
Change -1.22%

Seed Equity 250.80M$ Investment Budget 199.99M$ Credit Rating CC

-2.5% 12.5% 9% 24% 36% 45% 0% 75% 10% Revenues Growth 0.99% EBIT Margin 25.03% Debt Ratio 6.86%
Cumulative ROE 10%

Market Share
- Insufficient - Moderate - Good

EBIT Margin
- Insufficient - Moderate - Good

Debt Ratio
- Insufficient - Moderate - Exceeding

Cumulative ROE
- Insufficient - Moderate - Good

Your current interest rate is high. Further investments are not recommended.
The average Maturity is 104%, consider Upsizing or Rebalancing to reduce rising interest.

AUTOMOTIVE
Ø Investment: 225M$ Cycle: 23 months

PHARMA
Ø Investment: 76M$ Cycle: 22 months

Introduction Video
Competitive Learning Events
Some Examples

**MouseTrap**

IIM-A Business School Competition

- Running since 2005
- 2009 Focus on Financial Crises
- More than 300 teams
- Sponsored by Microsoft

**Tactica**

IIFT Business School Competition

- More 1000 participants
- 350 teams
- 2009 Focus on Foreign Trade
- More than 300 teams
- Sponsored by SAIL
Oil & Gas Exploration Simulation
Simulate Exploration Process


Proposed PetroChallenge ANZ Competition

- For Australian and New Zealand universities students in Oil & Gas Courses.
- In collaboration with a university and association.
- Online event where teams compete to get the best exploration results.
- Planned for late 2010

Conducted in

- Norway
- Denmark
- Scotland
- Iceland
Suggested Structure

Teams participate virtually or onsite

Pre Event Learning
LMS & Social Networking

Event Briefing & Learning
Session

Classroom  Virtual Classroom

Competition Prelims

Competition Final

Post Event Briefing & Learning
Session and/or online assessment

Sponsorships
Event Costs
Prizes
Current Trends

- Being Researched.
Potential

- Being Researched.
Challenges

- Being Researched.
References

- “Getting Serious About Digital Games in Learning”, John A Purdy, Corporate University Journal, No1, 07
- The learning effect of “Global Conflicts: Palestine” Tasha Buch and Simon Egenfeldt-Nielsen, Center for Computer Games Research, University of Copenhagen
- Others – To be added