The Role of ‘Edutainment’ in Education for Sustainable Development

Dr. Kay Emblen-Perry
Senior Lecturer, Sustainable Management
Worcester Business School, University of Worcester
1. Research context
2. The Sustainable Strategies Game
3. Research methodology
4. Findings of initial study
5. Next steps
• Games promote new ways of learning and thinking, which is considered vital within ESD (HEFCE: 2013).
• Games engage and motivate students who no longer find tradition approaches engaging (Cheong et. al.: 2014; Nagel et. al.: 2014)
• Games are valuable as tools to generate positive effects on learning (Annetta et. al.: 2009; Katsaliaki and Mustafee: 2015)
• Games provide valuable learning environments for ESD as they engage players in cognitively demanding tasks that require problem-solving and decision-making skills (Fabricatore and Lopez: 2012)
• Students are Net’geners who exhibit different learning characteristics and preference for collaborative experiential activities (Raines: 2002)
• Contextualised activities within games generate experiential learning that can motivate players to engage in rethinking the game strategy (Gee: 2007; Baytak and Land: 2011)
Module Context

• Sustainable Strategies Game played with Level 5 & 6 students
• > 50 students played S2 2015-16
• Students enjoy playing SSG
  ✓ Round 1 - “I like this game”
  ✓ Round 5 - Players are responding with “competition and greed”

• But it could be so much better...
Sustainable Strategies Game (SSG)

- Groups act as manufacturing companies based around a lake
  - Production utilises lake water
  - Profits depend on quality of water
- Game tasks groups to maximise profits whilst considering
  - Prudent use of natural resources
  - Protection of the environment
  - Social impact
- SSG is played over a series of rounds in which students define their business strategy
  - Pay off from each round = money earned and change to water quality
Facilitator Reflection

• SSG needs to be developed:
  ✓ Collaboration as an strategic option
  ✓ Consideration of impacts of chosen strategy e.g. environment, local community
  ✓ Challenge players’ thinking for sustainability

• Student feedback required
  Q1: Experience of playing SSG
  Q2: How it could be enhanced to challenge their thinking
Methodology: Action Research

Step 1: Study and Plan

Step 2: Take Action

Step 3: Collect and Analyse Evidence

Step 4: Reflect

Survey asked students 2 questions:
1. What is your experience of playing SSG?
2. What game enhancements could challenge behaviours?

AR follows methodology of Riel and Lepori (2011)
Q1: Research Findings: ‘Edutainment’ Value

Graph showing the comparison of enjoyment and learning across different levels:

- **Level 6 Group 1**
- **Level 6 Group 2**
- **Level 5**

The graph indicates a higher percentage of enjoyment and learning across all levels, with Level 6 Group 2 showing the highest percentage in both categories.
“Great experience. It showed how businesses in real life act when rewards are being given for not being sustainable.”

“Eye-opener, enjoyable, educational.”

“I found it really helpful and challenging.”

“A good use of how sustainability is implemented within business operations. Fun way to understand it.”

“The experience I found by playing the game was highly educating. I learned new things by enjoying a team game.”

“It was fun and challenging.”
Q2: Research Findings - Potential Interventions

Game Logistics: 42.5%

Game Problems: 15%

Game Features: 42.5%
Q2: Research Findings - New Game Features?

- Modifications to the Reward System
- Intervention cards to drive collaboration
- Introduce a method to change water quality more frequently
- Introduce additional strategic game-play options
- Prevent partnerships or secret collaborations
- Increase the risk a polluter is fined
## Findings Evaluation: Game Features

<table>
<thead>
<tr>
<th>Game Feature</th>
<th>Ease of implementation</th>
<th>Cost of development</th>
<th>Likelihood of challenging behaviours</th>
<th>Total score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intervention cards to drive collaboration</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>48</td>
</tr>
<tr>
<td>Introduce additional strategic game-play options</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>36</td>
</tr>
<tr>
<td>Modifications to Reward System</td>
<td>2</td>
<td>5</td>
<td>3</td>
<td>30</td>
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<tr>
<td>Increase the risk a polluter is fined</td>
<td>3</td>
<td>5</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td>Introduce a method to change water quality more frequently</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>Prevent partnerships or secret collaborations</td>
<td>1</td>
<td>5</td>
<td>2</td>
<td>10</td>
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Q2: Research Findings - New Game Logistics?

- Simplify players manual
- Create a video showing rules
- Play with more teams
- Play over longer term
- Base location on real place to provide more details
- Computerise the game
- Teams play in different rooms
- Use larger teams
- Introduce teams with only one player
## Findings Evaluation: Game Logistics

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<td>Provide more background information</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>32</td>
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<tr>
<td>Rearrange team structure</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>24</td>
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<tr>
<td>Play online</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>16</td>
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<tr>
<td>Make the game more anonymous</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>Simplify game rules</td>
<td>1</td>
<td>4</td>
<td>3</td>
<td>12</td>
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<tr>
<td>Extend the game</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Reduce the length of the game</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>8</td>
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Q2: Research Findings - New Game Problems?

- Introduce additional issues into the game
- Introduce a natural disaster or tragic circumstance
- External agency intervention
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Prioritising improvements

• Highest scoring potential interventions:
  ✓ Intervention cards to drive collaboration
  ✓ Introduce additional issues into the game
  ✓ Provide more background information

• Next steps – design and test
  ✓ Additional interventions – use players suggestions e.g. external agency
  ✓ Location storyboard – present as part of introduction

• Pursue opportunities to digitise SSG
Conclusion

• SSG is valued by students as edutainment

• Additional interventions and logistics changes can challenge players’ approach to sustainability throughout SSG
  ➢ Encourage collaboration and cooperation
  ➢ Challenge business decision making


