Alleviating the Entrance to Serious Games by Exploring the Use of Commonly Available Tools

Peter van Rosmalen
Roland Klemke
Wim Westera

5th European Conference on Games Based Learning, Athens, 20-21 October 2011
Overview

• Background
• Wiki-games (evaluation, game, results)
• Streetlearn (evaluation, game, results)
• Questions
Open University of the Netherlands
Centre for Learning Sciences and Technologies (CELSTEC)

1. Distance education (academic):
   • 6 bachelor; 13 master programmes
   • approx. 20000 students (part time: 60% working)

2. CELSTEC:
   • Research & Innovation (100 fte)
     (learning sciences & technology-enhanced learning)

3. RdMC:
   • Teacher training in the Netherlands
Alleviating the Entrance to Serious Games

Games receive much attention in education. However, the actual use is limited:
- Games, web 2.0 and digital testing are the less used ICT applications in education (NL: ‘Vier in Balans Monitor 2010, Kennisnet’)

Barriers:
- High technical demands (games hardware & game development)
- Organising game difficult (lesson plan fit & measurable accomplishments)
- Support of serious games difficult for teachers (knowledge required, number of students to assist)
Alleviating the Entrance to Serious Games

Research questions:

• Is it possible to create games with commonly available tools?
  • which can easily be created, adapted, adopted and applied by teachers
  • How do teachers/students perceive these kind of games?
Alleviating the Entrance to Serious Games

Approach:

1. A game environment build within one of the most commonly used tools i.e. a Wiki: 'Wiki-game Argument' (focus: as simple as possible).

2. A game environment linking to immersive games using a very well known Google App i.e. StreetView: 'StreetLearn' (focus: adopting 3D in serious games but making it easy and affordable by re-using existing tools & representations).
1. Wiki-games ‘Argument’ Evaluation

Two evaluations rounds:

• Teachers ‘as students’ using Argument:
  • to validate the game perception

• Teacher ‘as teachers’ to create a new instantiation of Argument or to build a new wiki-game based on a template version of Argument and instructions:
  • to validate how easy it is to create, adapt, adopt and/or apply a wiki-game
1. Wiki-games 'Argument'

In Argument teams argue about a given position. Each team defends their opinion with arguments and counter arguments. A team may use 'external evidence' and 'cheats'. A team receives scores depending of how convincing their arguing is perceived.

**Example:**
Team 1 - pro: Your team is in favor of the use of serious games in education. Argue and document why you are in favor of the use of serious games in education.

Team 1 - contra: Your team is absolutely opposing the use of serious games in education. ..........................“
1. Wiki-games ‘Argument’

Wiki with:
- Assignment & background material
- Calendar, Game rules
- Team page
- Hall of Fame
- Group discussion forum (for reflection)

Four game rounds:
1. Short essay pro or against
2. 5 arguments pro or against
   (with cheats & external evidence)
3. Counter arguments
4. Closing pitch

It is played as a board game meaning the players score each other manually following a giving set of rules.
Example: Opening screen of the Template version

1. Copy and paste the contents of this page to your Wiki page ‘Home’
2. Replace the yellow-marked hyperlinks with your hyperlinks
1. Wiki-games Pilots

1. **Student**, focus on experiences with Argument
   - **Data**: loggings, game-input, forum discussions & questionnaire.
   - 15 participants (11 female, 4 male; 24 – 54 year), 11 completed all 4 rounds in 4 weeks: game run completely over the Internet;
   - Average experience: 7 years working in education (& studying for a Msc Learning Sciences);
   - Knowledge/experience with wiki’s/serious games ranged from no to limited (+/- 50/50);
   - Time -on average- approximately 1 day (8 hours).

2. **Teacher**, focus applicability, ease of use to adapt/adopt & apply:
   - **Data**: created designs & questionnaire
   - 7 participants (participated also in pilot 'student')
   - Individual design and implementation
   - Time: 0.5 day (adapt/improve Argument) – 2 days (new Wiki-game)
1. Wiki-games Pilot Students

- Quality contributions: good (also in the discussion forum 40 contributions)
- Wiki does not enforce/support synchronization of activities. This was sometimes difficult (20% of contributions too late).
- Users report (subjective) increase in learning.

<table>
<thead>
<tr>
<th>I see Argument as a serious game.</th>
<th>7 (-)</th>
<th>2 (neutral)</th>
<th>4 (+)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argument is an interesting and challenging study method.</td>
<td>1</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Argument is a good way to improve my knowledge in a selected topic.</td>
<td>1</td>
<td>3</td>
<td>9</td>
</tr>
</tbody>
</table>
1. Wiki-games Pilot Teacher

Simple to work with, **but** wiki-tools are limited

The 7 teacher’s designs varied on:

- Wiki software used (one preferred Googlesites: more powerful)
- Game elements (e.g. extra score options)
- Level: from primary to higher education
- Topics: Spelling of verbs (primary education) to Research methods (higher education)
1. Wiki-games Conclusion

- Argument is in the perception of the users no serious game.

+ Argument offers an interesting and challenging learning method
+ Argument inspires to further exploration or as a first step to start using serious games

<table>
<thead>
<tr>
<th></th>
<th>--</th>
<th>??</th>
<th>++</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argument inspired me to start using wiki’s and/or other simple ICT tools in education</td>
<td></td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Argument inspired me to start using serious games</td>
<td>1</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>I plan to further use Argument or an adapted version of it</td>
<td>3</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>
2. StreetLearn Evaluation

Two evaluations rounds:

• Teachers:
  • to validate the proof of concepts design

• Students:
  • to validate an example game in StreetLearn (note: in progress – evaluation starting in November 2011)
2. StreetLearn

Immersive learning, but high modeling costs for:
- 3d environments
- Game logic
- Learning content
2. StreetLearn (Proof of Concepts)

First realisation in Google StreetView
Uses StreetView widget and API

Basic „game engine“, functionality:
   Walking, finding, taking, dropping
Interoperability with published maps
Low modeling cost due to existing environment
Open API for content and application logic
2. StreetLearn - Proof of Concepts Test

An expert walkthrough supported by a structured interview (2 teachers, 2 TEL designers) of the StreetLearn mock-up:

+ A useful tool
+ Interface

But support required to enable its use, i.e.:
• Templates and scenarios
• Predefined objects

Therefore focus next steps:
• Development of student version of StreetLearn &
• A joint game production with StreetLearn designer & faculty member of Cultural Science.
2. StreetLearn

System architecture with possible extensions (note: mobile app is under development in parallel project)
2. StreetLearn

Example storyline: a detective story & a cultural heritage tour in Amsterdam
2. StreetLearn

Welcome Message
It is the year 1973. You are police inspector Ada Jobse investigating the smuggling of marihuana. An anonymous witness has informed the Amsterdam police that large amounts of marihuana are smuggled in Dutch fishing boats from Lebanon to Ijmuiden, in the north of the Netherlands. The marihuana is distributed in Amsterdam. Inspector Jobse tries to find out from where the marihuana is stored and how it is sold.
2. StreetLearn

- Locations: History of locations of importance
- Pick-ups: Objects collected
- Inventory: Objects applied
- Objects to be collected / interaction & information objects
Alleviating the Entrance to Serious Games?

The results so far:

- Wiki-game Argument contributes to a further exploration of serious games. Unfortunately, its interface itself is too limited to meet up to the participants game expectations. Nevertheless, the designs created were positively appreciated. ........ It might be a matter of how wiki-"games" will be introduced.

- StreetLearn (it has to be evaluated and is only partly implemented) is clearly appealing and can fit a niche for specific game scenarios. A set of templates or scenarios will be needed to take the full benefit.
Questions

Sources:

**Argument** (template including documentation – Dutch only):
http://wiki-games-argument-sjabloon.wikispaces.com/
*Further info: peter.vanrosmalen@ou.nl*

**Streetlearn** (under evaluation – will be published after the evaluation)
*Further info: roland.klemke@ou.nl*