Overview

Serious Gaming Research

Centre for Learning Sciences and Technologies

Rob Nadolski & Peter van Rosmalen
CELSTEC programma's

- Learning and Cognition programme
- Learning Networks programme
- Serious Gaming programme
- Mobile Learning programme
- PhD Programme
- Master of Science
Serious Games Programme

(Wim Westera)

1. Research tools & methods
2. Development cases
3. Education
Serious Games Programme

On going research, cases and education:

- EMERGO toolkit & methodology (‘all’)
- Collaborative Scripting Games (Hans)
- StreetLearn/ARLearn (Google StreetView) (Roland, Stefaan)
- Language Technologies, chatbot: Luctor (Peter – Bachelor stage)
- Wiki games (Peter)
- Sensors: Game-based Communication Skills (Kiavash – PhD)
- Game Learning Patterns (Sebastian – PhD)
- Case: Thermenmuseum (Unity) (Wen, Wim)
- Case: CHERMUG (research methods) (Peter)
- GALA (Network of Excellence) (Wim, Rob)
  - e.g. serious gaming & assessment
- Topic (Wim, Rob, Roland, Peter)
- Master course (Rob)
2. Development Tools & Methods

EMERGO (www.emergo.cc)
EMERGO is a method and toolkit for the development and delivery of multimedia cases that enable the acquisition of complex skills.

Collaboration Scripts toolset (prototype)
Collaboration scripts are an instructional method that structures the collaboration process by guiding the interacting partners through a sequence of interaction phases with designated activities and roles.

StreetLearn/ARLearn (toolkit)
ARLearn combines real time notification and mixed reality games across Mobile Augmented Reality and Virtual Reality. Three prototypical use cases: a field trip system, an augmented Google StreetView client called StreetLearn, and a real time crisis intervention game.
In Skills Labs student investigate environmental problems and conflicts between stakeholders and propose strategies toward sustainable solutions.
Game-based assessment

- "Serious games will not grow as an industry unless the learning experience is definable, quantifiable and measurable." [5]
- "Assessment is the future of serious games." [5]

Developments:
FROM game → WITH game → IN game [6]
Game scoring → external assessment → embedded assessment [7]
Game-based assessment

Questions:

• What do we want to do with the results of the assessment?
• What learning goals do we want to assess?
• What observations of learner actions would provide evidence for the claims?
• What claims do we want to make about the learner based on performance in the game? (validity, reliability)?
Game-based assessment

Data ‘available’ or additions:

- Completion data & scores
- Detailed logging: time used to complete; errors/mistakes; user-initiated corrections; resources used

- Structured design (levels and/or rounds)
  - Levels: enable to learn to game rules in steps, so complexity can stepwise be increased
  - Rounds: enable to engage in a restricted challenge per time unit

- Assessor observations and/or assessor as interface to the game
- Pre- and post test
- In game test (e.g. tutor lead reflection on decision taken)
Game-based assessment: EMERGO?

Pro:
- story line (authentic context)
- structured scenarios
- detailed logging
- Easy to implement different rounds
- Test facilities included

Contra:
- Limited experience with assessment [4]

Research questions:
- Fit with different types of learning goals (scope)
- Fit with purpose of assessment (reliability, validity)
Discussion

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References/Links

1. EMERGO: www.emergo.cc
2. GALA (Network of Excellence) http://www.galanoe.eu
4. Stichting Praktijkleren casus: http://celstec.org/content/assessing-competencies-serious-game