

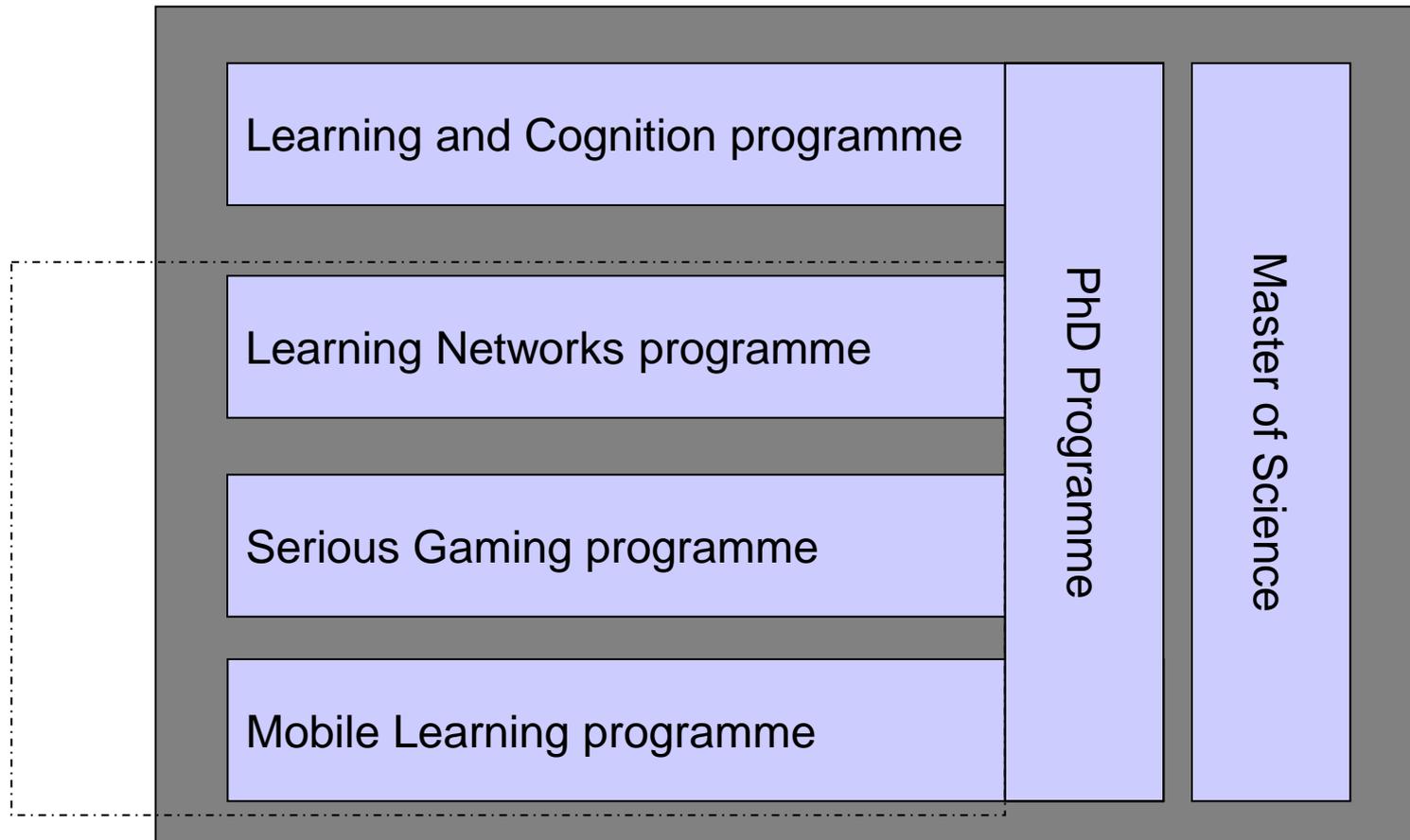
Overview
Serious Gaming Research
Centre for Learning Sciences and Technologies

Rob Nadolski & Peter van Rosmalen

Centre for Learning Sciences and Technologies
celstec.org



CELSTEC programma's



Serious Games Programme

(Wim Westera)

1. Research tools & methods
2. Development cases
3. Education

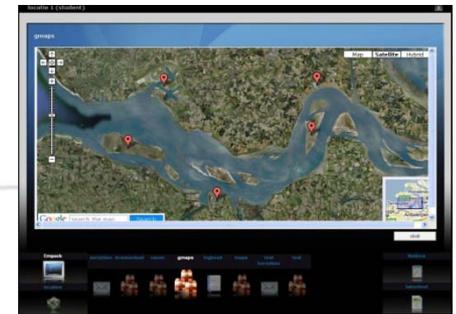
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Serious Games Programme

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)

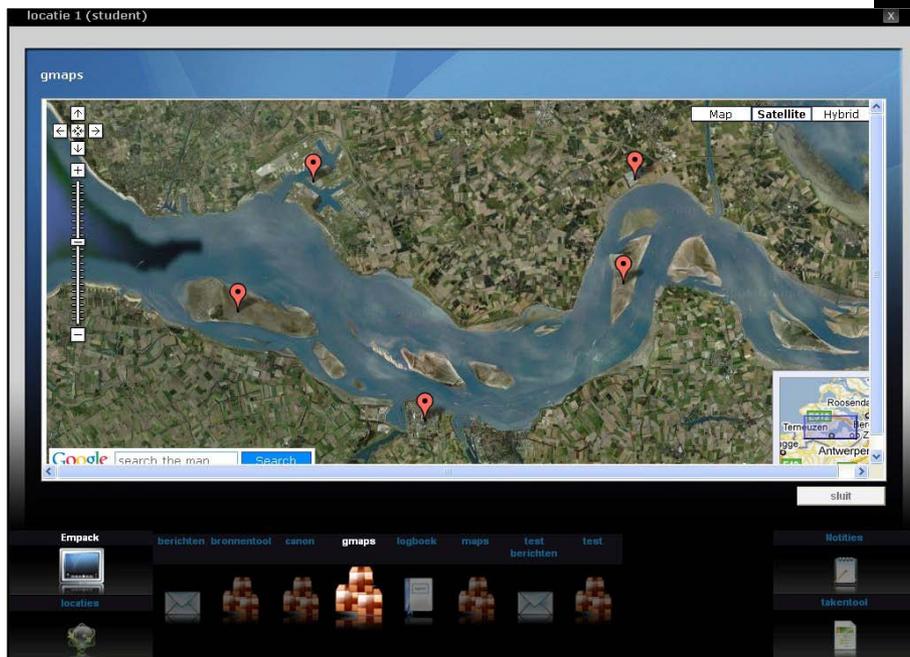
ARLearn combines real time notification and mixed reality games across Mobile Augmented Reality and Virtual Reality. Three prototypical use cases: a field trip system, an augmented Google StreetView client called StreetLearn, and a real time crisis intervention game.



EMERGO

Skills Labs: Water Management (2010)

In Skills Labs student investigate environmental problems and conflicts between stakeholders and propose strategies toward sustainable solutions.



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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>
3. Topic: <http://portal.ou.nl/en/web/topic-serious-gaming>
4. Stichting Praktijkleren casus: <http://celstec.org/content/assessing-competencies-serious-game>
5. http://www.gamasutra.com/view/feature/2433/proof_of_learning_assessment_in_.php
6. Underwood, J.S., Kruse, S., Jakl, P. (2010) Chapter 9: Moving to the Next Level: Designing Embedded Assessments into Educational Games. In: P. Zemliansky, & D. Wilcox (Eds.), *Design and Implementation of Educational Games: Theoretical and Practical Perspectives* (pp. 126-140). Information Science Network, Hersey, New York <http://www.pr-sol.com/file/Chap%209.pdf>
7. Ifenthaler, D., Eseryel, D., & Ge, X. (2012). Chapter 1: Assessment for Game-Based Learning. In: D. Ifenthaler et al. (Eds.), *Assessment in Game-Based Learning: Foundations, Innovations, and Perspectives* (pp. 1 – 8). Springer, New York.

