Innovations in Technology Enhanced Learning

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Here!
Open University of the Netherlands

Three faculties (7 bachelor & 9 master programs):
• Humanities and Law
• Management, Science, and Technology
• Psychology and Educational Sciences
  – Welten Institute, Research Center for Learning, Teaching and Technology

• 17,000 students (part-time; age 20-80)
• 550 staff (fte)
The Welten Institute offers a Master of Learning Sciences & the research program: "Learning and teaching in technology enhanced learning environments".

With three foci of research:

- Fostering Effective, Efficient and Enjoyable Learning (cognitive)
- Technology enhanced learning and innovations (technology)
- Teaching and teacher professionalization (teachers)

Some figures:

- 55 Staff members; 20 Internal & 80 external PhD students
- over 100 projects & over 250 partners
**AR-Learn**

**Mijn stad**
Een interactieve wandeling door de geschiedenis van Heerlen

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Research Centre for Learning, Teaching and Technology

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Contact person angel.suarez@ou.nl

2) What do you need to know?

Explain what do you still need to know about the topic.

Angel: I think we still need to know how people is going to have water up there.

Martin: That trip will be only one way. We still need to know why these people want to leave the earth forever.

Angel: Yes, I can not even think about it :V

Write comment...

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The Evaluation Framework for Learning Analytics (EFLA) by Maren Scheffel

• Up to now:
  – No standardised evaluation of learning analytics implementations available
  – Very little hard evidence for the effect of learning analytics

• Our solution: EFLA!
  – Developed with experts from the field
  – Easy to apply
  – Can be used like a scorecard

• For more information
  – contact Maren via maren.scheffel@ou.nl
  – Take a look at http://www.laceproject.eu/evaluation-framework-for-la/

Visual Learning Pulse

Learning Record Store

- Heart rate, step-count
- Activity data
- Software Tracking (RescueTime)
- Weather data
- Feedback Cubes

Data Transformation
- Regression Model Fitting
- Predictions Recommendations

Machine Learning
- Python on a VM

Activity Rating Tool
- Productivity, Stress, Challenge, Abilities, Activity type (hourly)

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PhD project: Analyzing educational scalability of Massive Open Online Courses (MOOCs)

- Educational scalability scale

Iron Triangle =

Contact: Julia Kasch (julia.kasch@ou.nl)

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Sensor-based learning support (Problem)

- Current educational systems.

- One Tutor for too many students.

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Sensor-based learning support (Problem)

- Work overload for teachers.

- Personalized Feedback through more human workforce NOT feasible.

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Sensors can be used to...

Environment

Performance

Physiological State
Can we use sensors for...?
Literature Review

All proof of concepts

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Results published on Sensors journal
Presentation Trainer

Body Posture

Speaking Cadence

Hands

Voice Volume

Lower your voice

Pausing Time  Speaking Time

Amount of Movement

Save  reset  Sound

Learning, Teaching and Technology
Presentation Trainer

» Learning, Teaching and Technology
Studies so far

• Expert Study
• Lab Experiment
• Study in the wild
Expert Study

• Interviewed 10 Experts
  – Teachers
  – Actors
  – TV-presenters
  – Professional speakers

• Purpose
  – Expert model of assessment
  – Formative evaluation
Expert Study

• Model of assessment
  – 61 nonverbal mistakes
  – 70 good practices

• Presentation Trainer purpose change
  – Not a public speaking teacher
  – Tool to improve current practices
Experiment in the lab

1. Nonverbal Communication Lecture
2. Elevator Pitch Lecture
3. Elevator Pitch Demonstration
4. Elevator Pitch Creation
5. Five practice sessions of Elevator Pitch
   - **Treatment Group**: Full Version of PT (Receiving Feedback)
   - **Control Group**: Limited Version of PT (No Feedback)
6. User Experience Questionnaire
7. Final Elevator Pitch
   - Learner
   - Kinect
   - Experimenter
8. Self-assessment and Self-awareness questionnaire about Final Elevator Pitch
Results (User Experience)

Control Group
- Motivation vs. Boredom: 3.48
- Learning Perception: 6
- Practice using tool vs. Classroom: 6.1

Treatment Group
- Motivation vs. Boredom: 6.95
- Learning Perception: 7.47
- Practice using tool vs. Classroom: 6.94
# Results Final (Self-Awareness)

<table>
<thead>
<tr>
<th>Control Group Mistake Difference</th>
<th>Treatment Group Mistake Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voice Volume 4.15</td>
<td>Voice Volume 3.45</td>
</tr>
<tr>
<td>Posture 4.4</td>
<td>Posture 1.25</td>
</tr>
<tr>
<td>Gestures 2.5</td>
<td>Gestures 1.55</td>
</tr>
<tr>
<td>Cadence 2.1</td>
<td>Cadence 1.5</td>
</tr>
<tr>
<td>Phonetic Pauses 2.2</td>
<td>Phonetic Pauses 2.45</td>
</tr>
<tr>
<td>Grounded Mistakes 1.7</td>
<td>Grounded Mistakes 0.25</td>
</tr>
</tbody>
</table>

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Results (Confidence in Skills)

- Control Group
  - Confidence in Elevator Pitch skills: 2.75

- Treatment Group
  - Confidence in Elevator Pitch skills: 3.3
Results (Performance)

% time in Mistake

Control Group

Treatment Group

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Study in the Wild

1. Before The Session
   1a. Project Presentation
   1b. Feedback from peers and tutors
   1c. Homework Pitch Preparation

2. First Pitch to audience
   Student
   Audience

3. Practice Sessions
   3a. Feedback Briefing

4. Second Pitch to audience
   Student
   Audience

5. User Experience Questionnaire
Study in the Wild

- Students liked the Presentation Trainer
- Feedback of the Presentation Trainer a good complement.
Conclusion