Blick über den TEL.........................lerrand

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Some Facts:
- 20,000 Students
- 60 Mio Budget
- 15 Study Centers

CELSTEC
- 120 fte, 7 Mio budget
Research Lines and topics

#1 Mobile and ubiquitous learning content
*Ubiquitous access to learning support and distributed multi-format learning content.*

– Mobile Video and Audio Content (Youtube EDU, iTunes U), Cloud-based learning content, Mobile data collection and aggregation, **eBooks and tablet content.**

#2 Orchestration of seamless learning support
*Instructional design of nomadic and seamless learning support.*

– Ubiquitous LMS access, Mixed Reality Games, Excursions and Field Trip systems, Mobile Augmented Reality, Mobile Learning Games, Object and location-based service access.

#3 Situated learning experiences
*Connect the Learning and the real World, context-aware learning systems, sensor-based learning support.*

– Experience sampling apps, Sensor-based learning apps, Situated and ambient displays, Context-aware social media, Tangible and smart-objects for learning
Mobile Learning Applications Domains

- **eHealth and healthcare**  
  EMURGENCY: performance support and notification system, Handover procedures, Reference apps for daily practice

- **Law and Management education**  
  OpenScout, OUNL iPad pilots, UNHCR mobile simulated games

- **Architecture and creative industries**  
  MACE location-based content and social media, Cloud-based cooperation methods in design and architecture

- **Cultural Heritage**  
  Mixed reality field trips with Cultural Sciences

- **Logistics**  
  SALOMO: Situation Awareness and Mobile data collection

- **Language learning**  
  ELENA, PhD projects

- **Teacher education and networking**  
  mobile social networking apps
New media for learning and professional development
Workshop Plan

• Trends and Technologies
• Discussion and Reflection
• Grand Challenges
MOBILES

Time-to-Adoption Horizon: One Year or Less

The unprecedented evolution of mobiles continues to generate great interest. The idea of a single portable device that can make phone calls, take pictures, record audio and video, store data, music, and movies, and interact with the Internet — all of it — has become so interwoven into our lifestyles that it is now surprising to learn that someone does not carry one. As new devices continue to enter the market, new features and new capabilities are appearing at an accelerated pace. One recent feature — the ability to run third-party applications — represents a fundamental change in the way we regard mobiles and opens the door to myriad uses for education, entertainment, productivity, and social interaction.
#mobileaccess #mobiledata #experiencesampling
Each year 1.2 billion new phones, information can be accessed not only in city centres but much more important in rural areas, information will grow even more rapidly, mobile devices become more context-aware, new user interfaces
“mobiles as universal tools for reading, discussion, documentation, annotation, and others learning activities.”

350,000 apps and growing.
mobile RA

experience sampling and mobile data collection

Figure 8.2. Student reflective practice a. Daily SMS received by students. b. What were your main learning channels today? c. How intense was your learning day? Rate it from 1 to 5.
#sensordata #usertracking
#feedback #loops
#sensor technology can record data in a scalable way.

http://quantifiedself.com/
#cloud technology can support seamless learning trajectories.

Display technology can create feedback loops ...

#augmented reality

Courtesy of “Window to The Future” door Steve Kozareff

Centre for Learning Sciences and Technologies

Open Universiteit
celestec.org
#AR technology can augment your perception of a context ...

http://www.designbynotion.com/metamirror-next-generation-tv/
AUGMENTED (HYPER)REALITY
Tricorder
Holo chess
X-Ray Vision
#3 CELSTEC: leren in context

- Augmented Reality Games,
- Excursions,
- Mixed Reality Games,
- Mobile Games and Simulations.

http://code.google.com/p/arlearn/

Authoring

Mobile App

StreetLearn
## ARLearn Case studies

<table>
<thead>
<tr>
<th></th>
<th>Florence case</th>
<th>Amsterdam case</th>
<th>Hostage case</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Game design</strong></td>
<td>Scavenger game</td>
<td>Adventure game</td>
<td>Decision game</td>
</tr>
<tr>
<td><strong>Delivery Channel</strong></td>
<td>augmented reality</td>
<td>augmented virtuality</td>
<td>augmented reality</td>
</tr>
<tr>
<td><strong>Pedagogic approach</strong></td>
<td>situated learning</td>
<td>expository learning</td>
<td>learning through decision taking</td>
</tr>
</tbody>
</table>
#situated #ambientdisplay
situated displays for awareness
#display tech. can support awareness and reflection.


Fig. 1. The current prototype of *Reflect*
sensor infrastructure, power, Tags (NFC, QR), location, build in mobile
ambient and situated displays
#visualisation #learning #analytics
#visualisation and LA can support personal sense making.

#effects
#visiblelearning
### Table 10.8 Summary of major uses of computers in classrooms

<table>
<thead>
<tr>
<th>Method</th>
<th>No. metas</th>
<th>No. effect sizes</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tutorials</td>
<td>8</td>
<td>78</td>
<td>0.71</td>
</tr>
<tr>
<td>Programming</td>
<td>2</td>
<td>43</td>
<td>0.50</td>
</tr>
<tr>
<td>Word processing</td>
<td>2</td>
<td>47</td>
<td>0.42</td>
</tr>
<tr>
<td>Drill &amp; practice</td>
<td>9</td>
<td>506</td>
<td>0.34</td>
</tr>
<tr>
<td>Simulations</td>
<td>5</td>
<td>94</td>
<td>0.34</td>
</tr>
<tr>
<td>Problem solving</td>
<td>7</td>
<td>197</td>
<td>0.26</td>
</tr>
</tbody>
</table>

**KEY**

- Standard error: 0.076 (Medium)
- Rank: 44th
- Number of meta-analyses: 6
- Number of studies: 441
- Number of effects: 3,930
- Number of people (1): 4,800
The grand challenge for technology enhanced learning

To unite the disjoint scientific communities with a virtual and distributed centre of excellence that expands the capacity of each research unit and that fits the “Grand Challenge” for the future of TEL, and that will be sustained though valuable instruments.

To connect with policy-makers to provide strategic direction
To reduce discipline and community fragmentation
To look beyond the Network partnership
+
Set a mid-term agenda
Increase interdisciplinary collaboration
Establish and institutionalise discourse and exchange
Increase international visibility
The STELLAR GRAND Challenge Cluster Waves

INITIATE 2009
ESTABLISH 2010
REFINE 2011
MATURE 2012

CONNECT
ORCHESTRATE
CONTEXT
# The STELLAR Instruments and Communities

<table>
<thead>
<tr>
<th>Category</th>
<th>Instrument</th>
<th>Audience</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Leadership Capacity</td>
<td>A. STELLAR Meeting of Minds</td>
<td>Learning executives, policy makers, senior researchers</td>
</tr>
<tr>
<td></td>
<td>B. STELLAR Podcasts</td>
<td>Integrative</td>
</tr>
<tr>
<td>2. Researcher Capacity</td>
<td>C. STELLAR Theme Teams</td>
<td>Mid tier research staff</td>
</tr>
<tr>
<td></td>
<td>D. STELLAR Incubator Programme</td>
<td>Early stage researcher</td>
</tr>
<tr>
<td></td>
<td>E. STELLAR Rendezvous</td>
<td>Integrative</td>
</tr>
<tr>
<td>3. Doctoral Academy Capacity</td>
<td>F. STELLAR Doctoral Consortium</td>
<td>Mid stage PhD</td>
</tr>
<tr>
<td></td>
<td>G. STELLAR Doctoral School</td>
<td>Early stage PhD</td>
</tr>
<tr>
<td>4. Community Level Capacity</td>
<td>H. STELLAR Community Channels</td>
<td>Stakeholder Network</td>
</tr>
</tbody>
</table>
Grand Challenge Problems in Technology Enhanced Learning

Prepared for STELLAR Big Meeting, London 2012
# Grand Challenges in TEL

<table>
<thead>
<tr>
<th>Grand Challenge Topics</th>
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<tbody>
<tr>
<td>• ARV GCP1: Open Collaboration in Formal Education</td>
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<tr>
<td>• ARV GCP2: Technology-Supported Representation-Fitness</td>
</tr>
<tr>
<td>• ARV GCP3: Rich-Media Assignments</td>
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<td>• ARV GCP4: Supporting an Open Culture of Design for TEL</td>
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<tr>
<td>• ARV GCP5: Multi-Level Evaluations of TEL</td>
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<tr>
<td>• ARV GCP6: Emotion-Adaptive TEL</td>
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<tr>
<td>• ARV GCP7: Assessment and Automated Feedback</td>
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<tr>
<td>• ARV GCP8: One Informed Tutor per Child</td>
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<tr>
<td>• ARV GCP9: Improving Educational Practices through Data-supported Information Systems</td>
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<tr>
<td>• ARV GCP10: Semiotic Recommender Systems for Learning</td>
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<tr>
<td>• ARV GCP11: Enhancing Learning with Improved Information Retrieval</td>
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<tr>
<td>• ARV GCP12: Open TEL Practices</td>
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<tr>
<td>• ARV GCP13: Learning Reading at Home</td>
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<tr>
<td>• ARV GCP14: Technology for Young Children’s Expression of Scientific Ideas</td>
</tr>
<tr>
<td>• ARV GCP15: Evaluating Informal TEL</td>
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<tr>
<td>• ARV GCP16: Engaging the Brain’s Reward System</td>
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<tr>
<td>• ARV GCP17: Drop-Out Prevention through Attrition Analytics</td>
</tr>
<tr>
<td>• ARV GCP18: New Forms of Assessment for Social TEL Environments</td>
</tr>
<tr>
<td>• ARV GCP19: Guidance for Technology Use in Early Years</td>
</tr>
<tr>
<td>• ARV GCP20: TEL Plasticity</td>
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<tr>
<td>• ARV GCP21: European TEL DataMart</td>
</tr>
<tr>
<td>• ARV GCP22: Open Research Methodology Infrastructure for CSCL</td>
</tr>
<tr>
<td>• Delphi GCP1: CSCL in teacher training and professional development</td>
</tr>
<tr>
<td>• Delphi GCP2: Mobile augmented reality in health care and medicine</td>
</tr>
<tr>
<td>• Delphi GCP3: Acquisition of graphical and digital literacies through teaching with ICTs</td>
</tr>
<tr>
<td>• Delphi GCP 4: Increasing student motivation to learn and engaging the disengaged</td>
</tr>
<tr>
<td>• Delphi GCP5: Bridging informal and formal contexts to create a unified learning landscape</td>
</tr>
<tr>
<td>• Delphi GCP 6: The ‘perfect’ Personalized Learning Environment</td>
</tr>
</tbody>
</table>
What is your Grand Challenge Problem?
What problems of the European education system are addressed, and what are the long term benefits for society?
What are the main activities to address this Grand Challenge Problem?
What is the timeframe for the Grand Challenge Problem?
What are measurable progress and success indicators?
How can funding be attracted?
www.openU.nl,
celstec.org,
marcuspecht.de