Technology-enhanced learning research
at
CELSTEC

Wim Westera
Overview

1. CELSTEC: General profile
2. CELSTEC: Research programmes
3. CELSTEC: Learning Media Research programme
<table>
<thead>
<tr>
<th></th>
<th>OU-China</th>
<th>OU-NL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrolled students</td>
<td>943800</td>
<td>26000</td>
</tr>
<tr>
<td>Staff</td>
<td>86300</td>
<td>630</td>
</tr>
<tr>
<td>Diplomas</td>
<td>543400</td>
<td>961</td>
</tr>
</tbody>
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CELSTEC

- Research and application (40%-60%)
- 100 fte (academic staff)
  - 8 professors
  - 12 associate professors
  - 24 assistant professors
  - 34 researchers/consultants
  - 22 PhD students (computer science and pedagogy/psychology)
- National review (2008)
  - Best research group in Learning Sciences
- International review (2009)
- Leading research group in Educational Design
Key achievements of CELSTEC

• Instructional design Model:
  – 4C-ID (van Merriënboer)

• E-learning technology specification:
  – IMS Learning Design

• Interactive Multimedia at OUNL

• Various European research projects
CELSTEC research and innovation

Learning and cognition programme
Learning networks programme
Learning media programme
CELSTEC research and innovation

- Learning and cognition programme
- Learning networks programme
- Learning media programme

Master of Science
PhD Programme
Learning & Cognition Programme

• Cognitive principles of:
  – Learning tasks
  – Learning arrangements
  – Learning assessments

• Director Paul Kirschner
CELSTEC research and innovation

Learning and cognition programme
Learning networks programme
Learning media programme

PhD Programme

Master of Science

CELSTEC
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- Learning and cognition programme
- Learning networks programme
- Learning media programme

Master of Science
PhD Programme
Learning Networks Programme

• Informal and distributed learning
  – Professional development
  – Learning network services
  – Professional communities

• Director Peter Sloep
CELSTEC research and innovation

Learning and cognition programme
Learning networks programme
Learning media programme
PhD Programme
Master of Science
CELSTEC research and innovation

Learning and cognition programme

Learning networks programme

Learning media programme

PhD Programme

Master of Science
Learning Media Programme

- Exploration of new media technologies for education
  - Immersive media
  - Mobile media
  - Social media
- Director Wim Westera
- Celstec Laboratory
Educational media at OU.NL

Books
Letters
TV
Telephone
Audiocassettes
Laserdisk CLV, CAV
Videocassettes
Audio CD’s
CD-I
CD-ROM
Bulletin Board
Mercator (CMS)
LMS Studienet (Web, RCA’s, streaming)
Edubox
DVD-V
Blackboard
...ELO2B...
Media production unit

Learning Media Programme
1. Immersive media for learning

Absorbing, rich media environments
- Virtual laboratories/virtual practicals
- Real world complexity, Realtime awareness
- Serious games
- Computational dynamics/ simulations
- Role play/multi-user models
- Mixed and augmented virtuality

Projects:
- EMERGO
- Skills Labs
- i-Coper
- Game Learning Patterns
- Image
Mobile media for learning

*Ubiquitous, adaptive and contextualised access*
- Cross media authoring and delivery
- Ubiquitous access
- Location-based learning
- Contextualised, personalised learning
- Mixed & augmented reality learning

Projects
- Molecule
- Mobile field trip
- SURFNET survey mobile learning
- Video delivery for mobile
- Grapple
Social media for learning

Collective expertise and creativity of learners

- User-generated content
- Data mashups
- Content tagging/annotation
- Aggregation of mashup tools and services
- Socio-cultural codes
- Media literacy

Projects:
- Widgets for reflection
- Sharetec open resources
- Openscout
CELSTEC Open Innovation Laboratory
Open Innovation

• Shared interests
• Multiple parties co-operation
• Shared funding
• Joint fund-raising
Innovation cycle

Directed by Celstec

Directed by partners

Laboratory

R&D → Experiments → Implementation → Appliance

Celstec staff

Partner staff