Mobile and ubiquitous learning technologies

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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
#mobilelearning
#ContextAwareComputing
#challenges
ontological challenge: what is context and how can we conceptualize it to better understand learning in context?
There is, however, a narrative that begins with work drawn from geography and architecture, that moves into discussions about research from anthropology and psychology and onto work drawn from education and computer science.

*Note:* About context and interdisciplinarity

Shared on March 23rd, 2012 from Kindle

See recent activity from Marcus Specht
body network sensors, rooms intelligent carpets, wall colour, or gesture tracking, building, architects already create completely new facades for buildings, public places and city planning new artefacts will enable dynamic routing and highlighting of space

context is always ...
context is dynamic ...
context is social ...
context is connecting ...
engineering challenge: what are the opportunities for technology to enhance learning in context?
#sensor technology can record data in a scalable way.

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

#AR technology can augment your perception of a context ...

http://www.designbynotion.com/metamirror-next-generation-tv/
display technology can create feedback loops ...

display tech. can support awareness and reflection.

Fig. 1. The current prototype of Reflect

#visualisation and LA can support personal sense making.

# the plan:

how to model and design this: Ambient Information CHannelS AICHE
AICHE Processes
AICHE Processes

Diagram showing various components and relationships:
- User
- Channel
- Artefact
- Relation
- Env.
- Location
- Time
- ID

Enrichment component connects these elements.
AICHE Processes
AICHE Processes
AICHE brings together context-aware computing, semantic-web technologies, instructional design for adaptive and personal learning, HCI aspects as tangible computing and IOThings.

AICHE Processes
#research #Context #CELSTEC #OpenUniversiteit
creation and management of iTunes U channel and media workflows for the OU
Content Bundles via iBooks
http://hdl.handle.net/1820/2729
Blackboard Mobile Learn
sensor infrastructure, power, Tags (NFC, QR), location, build in mobile

http://www.plugwise.com/
sensor data aggregation, metadata, federatories, ...
personal indicators
Context Indicators

instructional design for best framing
ambient and situated displays
ILE + context indicators

Reflection Amplifiers
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.
situated displays for awareness
ARLearn framework

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

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

open source framework

Authoring

StreetLearn

Mobile App
www.openU.nl,
celstec.org,
marcuspecht.de