Ambient Information
Channels for Learning in Context

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OUNL and CELSTEC.org
Activities of CELSTEC

• Three programmes, each with three themes:
  – Learning and Cognition
  – Learning Networks for Professional Development
  – Learning Media

• Each programme integrates three activities:
  – Research Activities
  – Laboratory Activities for Open Innovations
  – Providing Solutions and Services to the market

• Institute for Education & Training
  – MSc Learning Sciences
  – Commercial Training (provided by the staff of 3 programmes)

• Temporary Strategic Programmes
  – Lifelong Learning Services
  – OUNL related programmes (e.g. IPO)
  – Open Educational Resources
#1 Technology Invasion

#2 Learning in invaded land

#3 Ambient Information Channels

#4 Build your Channels
# 1: Invaded Land
computers become ubiquitous and adapt to their environment
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
Fast Human Enhancements

Freitag, 11. Juni 2010
Magic Artefacts
No Phones.
No Internet.

An elevator to the Moon.

Think about it!
Freitag, 11. Juni 2010
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

Mobile Access
<table>
<thead>
<tr>
<th>Style</th>
<th>Building Type</th>
<th>ARCHITECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modern Architecture</td>
<td>Building</td>
<td>Frank Lloyd Wright</td>
</tr>
<tr>
<td>Organic</td>
<td>Int.</td>
<td>Philip Johnson</td>
</tr>
<tr>
<td>International</td>
<td>Modern</td>
<td></td>
</tr>
<tr>
<td>19th-century</td>
<td>Postmodern</td>
<td></td>
</tr>
<tr>
<td>Contemporary</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Futurism</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sustainable</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**MACE | EVERYVILLE**
interactive installation at the Venice Biennale '08
mobiles as universal tools for reading, discussion, documentation, annotation, and others learning activities.
Mobile Phones are still considered as a toy or non-learning device in the classroom.
While a variety of senseful learning practices have already been described in 2002.
Sensors for learning
multi-method assessment measuring real world activities, long-term assessment, personal interaction logs, from formal to formative assessment

Displays for learning
embedded displays, reflection in and about action, anywhere anytime delivery, multimodal displays, personal and shared displays
# 2: Learning in invaded land
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.
Connecting the World and Digital Media
how do humans learn with augmented objects?
how can we unleash the power of **context** for the design of ubiquitous learning?
context gives meaning, The term context is used in different research disciplines. Linguistics makes two claims about context. Context is defined as the text in which a word or passage appears and which helps ascertain its meaning. the surroundings, circumstances, environment, background or settings which determine, specify, or clarify the meaning of an event.
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**Table 1** A reference model for mobile social software for learning

<table>
<thead>
<tr>
<th>Content</th>
<th>Context</th>
<th>Purpose</th>
<th>Information flow</th>
<th>Pedagogical model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annotations</td>
<td>Individuality context</td>
<td>Sharing content and knowledge</td>
<td>One-to-one</td>
<td>Behaviourist</td>
</tr>
<tr>
<td>Documents</td>
<td>Time context</td>
<td>Facilitate discussion and brainstorming</td>
<td>One-to-many</td>
<td>Cognitive</td>
</tr>
<tr>
<td>Messages</td>
<td>Locations context</td>
<td>Social awareness</td>
<td>Many-to-one</td>
<td>Constructivist</td>
</tr>
<tr>
<td>Notifications</td>
<td>Environment or activity context</td>
<td>Guide communication</td>
<td>Many-to-many</td>
<td>Social constructivist</td>
</tr>
<tr>
<td></td>
<td>Relations context</td>
<td>Engagement and immersion</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SenseCam in Context
# three: A Model for all of this Ambient Information Channels
AICHE Processes
Contextualised TV
# 4: CELSTEC Research
Content in Context
contextualised delivery, media creation in learning situations, synchronisation of learning activities, ubiquitous learning environments, mixed reality mash-ups

Reflection in Context
framing of learning activities, visualisation of contextual information, context indicators, multi-channel synchronisation
Mobile App Models

- Mobile Learning Content (iTunes U)
- Web-Based Apps with limited sensor access (TeamsPod, ContextBlogger, Mooble)
- Local Contextualised Apps with Sensors and Scanners (Language Learning)
- Map exploration of POI channels (Aloqua)
- Augmented Reality Browsers (Locatory)
Mobile Learning Content (iTunes U)
News/Death ratio hype!

This is a very nice analysis reporting about current and future catastrophes which call for swine flu and swine flu in social media.

Collection: Design Patterns

posted By Jeroen Storm, on 2009-06-16 07:32:44

Freitag, 11. Juni 2010
Notifications in Mobile Learning Activities: Mooble
Object Tagging/Augmentation
Location Filtering: Mobile Language Learning

Figure 1. One variation of the language learning software using a room-based search to filter the learning content.
AR4Learning

Matching RW and AR: Locatory
# 5: do it your way ...
# Selecting Artefacts

- **Containers**: Rooms, Buildings
- **Objects**: Cups, Tables, Screen, Machine, Picture, Plant, Computers, Leaflet
- **Positions**, Locations: Views, Perspectives, Zones
#2 Choosing Activities

- **Receive Information:** Video, Text, Audio, *MetaInformation*
- **Explore:** searchInfo, searchMetaInfo, addPerspective, relatedObjects
- **Perform:** doQuiz, performGroupActivity, do360Performance
- **Cooperate:** Discuss, Exchange Views

Freitag, 11. Juni 2010
#3 provide resources

- Receive Information: Video, Text, -> hyperlink on mobile Devices
- Explore: online services, web forms
- Perform: online quiz, task
- Cooperate: just instruction
- Contribute: create resources!
<table>
<thead>
<tr>
<th>Artefact</th>
<th>Activity</th>
<th>Resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room</td>
<td>Perform</td>
<td>Instruction</td>
</tr>
<tr>
<td>Artwork</td>
<td>Listen</td>
<td>AudioFile</td>
</tr>
<tr>
<td>Cup</td>
<td>Explore</td>
<td>WebForm</td>
</tr>
<tr>
<td>Food</td>
<td>Discuss</td>
<td>AudioRecorder</td>
</tr>
</tbody>
</table>
Post It on real Objects

<table>
<thead>
<tr>
<th>identifier of artefact</th>
<th>learning activity</th>
<th>resource</th>
</tr>
</thead>
<tbody>
<tr>
<td>B134</td>
<td>find something on google</td>
<td><a href="http://google.com">http://google.com</a></td>
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</table>
Contextualisation
<table>
<thead>
<tr>
<th>time</th>
<th>action</th>
<th>loc</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;9</td>
<td>viewMountainlight</td>
<td>fixed</td>
</tr>
<tr>
<td>&lt;12</td>
<td>discussMountainProfile</td>
<td>fixed</td>
</tr>
<tr>
<td>&lt;18</td>
<td>goToLocation#C111</td>
<td>fixed</td>
</tr>
<tr>
<td>&lt;24</td>
<td>performPresentation</td>
<td>fixed</td>
</tr>
<tr>
<td>social context</td>
<td>action</td>
<td>id</td>
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<tr>
<td>----------------</td>
<td>------------------</td>
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<tr>
<td>alone</td>
<td>viewMountainlight</td>
<td>fixed</td>
</tr>
<tr>
<td>group</td>
<td></td>
<td>fixed</td>
</tr>
<tr>
<td>friends</td>
<td></td>
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</tr>
</tbody>
</table>
thank you!
marcuspecht.de