E-Learning in Learning, Teaching, Work and Knowledge Processes:

Potential and Challenges

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Profile

- Associate Professor
- Researcher
- Project Manager
- EU Evaluator
- E-Learning Manager
- Flexible Networker
- Lifelong Learner
CELSTEC

Research, Development, Innovation in Technology Enhanced Learning

- Learning & Cognition
- Learning Networks
- Learning Media
Shift in e-Learning

**Centralised**
Focus on institution

**Decentralised**
Learner-focussed

**Platform (VLE/LMS)**
Traditional curriculum
Classes & cohorts
Online lecture notes

**PLE**
Open lifelong learning
Open Learning Networks
Adaptive Environments

**Content**
Learning objects
Consumption
Instructor
Certification

**Process**
Pedagogic design (LD)
Creation
Mentor, Moderator, Orchestrator
Competences

**Industrialisation**
Scalability
Outreach, equal opportunities

**Individualisation**
Personalisation
Context (Work, Play, Leisure)
Knowledge Acquisition

consume, transfer, transmit, certify

create, form, share, participate, reflekt, evidence

socialise, connect, create (together), collaborate, recognise

Content

Process

Behaviorism
Instructivism
Cognitivism
Constructivism
Socio-constructivism
Connectivism
Advantages

Short Head:
- Traditional Teaching
- Masseducation
- e-Learning 1.0

Long Tail:
- Learning niches
- e-Learning 2.0

- Flexibility
- Breaks down time- & location barriers
- Extends existing course structures
- Continuous Learning: LLL, professional development, situated learning, micro learning, learning networks
- New Business Models

C. Anderson 2004
Evolution of Systems

E-Learning 2.0

Evolution of Systems

E-Learning 1.0

- Static
- HTML- or Text
- Multimedia

- Interactive
- Dynamic
- Collaborative
- Databases/RSS
- Social/Communicative

- Connected
- Integrated
- Personal
- Intelligent
- Contextual

Learning Systems
LLL: Work Situation

- Jobs increasingly mobile
- Hours increasingly flexible
- Times in one job become shorter
- Face-to-face training and one-fits-all courses loose importance

Learning for the job ⇒ Learning is the job
Challenges

- **Learners**: Learning to learn, live with change, reflection
- **Teachers**: Role change, orchestration
- **Institutions**: Openness, quality assurance
- **Corporate Learning**: Change management, cultural change, learning organisation

Open Questions:
Pedagogic efficiency: Blended Learning, orchestration, evidence
New key competences: e.g. reflection, interpretation, evaluation
New ethics, privacy/law/identity/ownership
Educational, access & technology standards: e.g. IMS LD, Open Data
Technology Enhanced Learning (TEL)

Themes over the last 5 years:

- Competence development
- Learning networks
- Creativity, critical thinking
- Mobile learning - ubiquity
- Game mechanics
- Mash-up PLEs
- Innovation management
- Integrated system architectures
- Recommender systems
- Context-aware systems
- Learning & Knowledge Analytics
- Language Technologies
- Open Practice
- e-Portfolios
Learning Networks:

“A Learning Network is a technology supported community of people who are helping each other to better understand and handle certain events and concepts in work or life” (Sloep, 2009)

Problem oriented or theme oriented

- Problem solution (ad hoc)
- Extension of existing learning structures
- Professional development
- Career and employability
Learning Networks

- Exchange of knowledge and experiences with stakeholders
- Collective knowledge creation across entire sector
- Catalyst for change
- Meets flexible learning needs of sectors
Sample Case: Libraries Limburg

Limburg’s public libraries in the Netherlands have to reinvent their role in society and need to retrain their staff to meet these needs.

For their employees they create a learning network to restructure and innovate collaboratively their services and to update the competences of staff for the digital age.
(Horizon 2011)

Making use of abundant data:

Linked Data

Knowledge Society
Knowledge Workers

Knowledge
Information
Data

T. Berners-Lee 2009
Learning & Knowledge Analytics

- New insights from data
- Make invisibles visible
- Recommender systems & Personalisation
- Drop-out warnings

But!
- Privacy?!
- Equity?!
- Impact?!
- Dependency on method?!
Learning & Knowledge Analytics

Design Framework:

Competences
- Critical thinking
- Interpretation

Constraints
- Privacy
- Ethics

Stakeholders
- Institutions
- Teachers
- Learners
- Parents

Method
- EDM
- Machine Learning
- Statistical Analysis

Goals
- Reflection
- Prediction
- Open
- Protected

Data

W. Greller 2011
Mobile Learning

- Ubiquitous access to learning, e.g. e-books, content
- Contextualisation
- Authentic learning, localised learning
- Sensors, Channels, AR
- Reflection amplifiers: in situ reflection
- Microlearning
Language Technologies

NLP, LSA, Sentiment Analyse, SNA, ML

- Analysis of learner artefacts
- Conceptual understanding in semantic space
- Detection of concept gaps
- Positioning
- Discourse analysis
- Student engagement
Openness

New Openness concepts:

- Open Educational Resources (tangible/intangible)
- Open Practice (open processes)
- Open (Peer) Assessment
- Open Innovation
- Open Data
Objective 8.1 Technology-Enhanced Learning

(a) Technology-enhanced systems endowed with capabilities of human tutors
(b) Educational technologies for Science, Technology and Maths
(c) Advanced solutions for fast and flexible deployment of learning opportunities at the workplace
(d) Computational tools fostering creativity in learning processes
(e) Exploratory activities for fundamentally new forms of learning through ICT