

Learning with ICT

Perspectives on emerging digital learning
environments
Challenges and consequences

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Reflections on best practice

- Purpose :
- To share experiences from R&D projects at NTNU/Trondheim
- To point to consequences of the emerging digital learning practices with regards to teaching and learning

- What we are doing
- What do we see is happening
- What do we have to relate to in the future

Strategic initiatives at NTNU I

- Strategic initiative ICT <http://www.ntnu.no/ikt/>
- Premise : ICT migrates into all fields of work, life and education
 - Co ordinate & initiate activities
 - To establish cross curricular and multi curricular teams and projects
 - Establish R&D projects in the interface between the humanistic traditions and technology

Strategic initiatives at NTNU II

- InfoSam 2020 ([InfoSam 2020](#))
 - Position papers, reports
- Scenario / future perspectives: what are the skills and competences that coming learners will need by 2020:
 - Partly a technological perspective
 - Partly a social science / sociological perspective

Premise for *any* future

Scenario

- Generations after 1990: grown up with computers, PlayStation, mobile phones, internet applications (web, chat, mail, etc)
- Distinction between *Natives* and *immigrants* - born with vs moved to
- Main references:
 - *Interaction*
 - *Participation*
 - *Commitment*
- Technology migrates into social and cultural practices

Established practices at NTNU

- Implementation of Learning Management System and Portal for students and teachers
- Most courses now on the web
 - File services, mail, communities & conferences,
 - Use: dissemination of lecture notes, student assignments, portfolios
- More students than teachers use LMS

Coming technological initiatives

- Broadband
- WLAN Wide Area Networks - wireless broadband -> Wireless Trondheim
- Mobile devices
 - 3 G phones
 - PDA devices
 - Portable PCs
- Changing the way students work; flexible, on the fly, ad hoc groups, dispersed in time & space
- I.e.: new hybrid work forms that challenge the concepts of individual and social aspects of learning

Traits of development - what do we see is happening

- From representation / consumption to production / participation
- From improvement to transformation
 - From better / more / faster - > different
 - Administrative needs - > subject specific needs, development of the subject themselves

Traits of development I

- Development of Learning Management Systems

- (Previously: files to be distributed)

Now:

- More tools for cooperation / communication
 - Blog, chat, collaborative documents
 - Multimedia content (streaming video)
 - Coordination with handheld devices (PDA, 3 G phones)
 - WIKI

Traits of development II

- Development of work forms
 - From lectures to production of portfolios, simulations, PBL (Problem Based learning in digital environments, i.e Experts in Teams)
 - Urgent: The need to harmonize work forms, content of learning and the exam/evaluation systems.
 - From classroom to virtual campus
 - A work form that is highly individualized, flexible, adaptable,
 - Work forms based on local & individual needs

Challenges I

- Literacy for digital learning environments & The Networked Society
 - The development of *Multi literacies*
 - Literacy - " *how to read the world* "
 - Information literacy: how to search, collect, evaluate,
 - Visual literacy (pictures, video)
 - Digital Literacies as gate keeper to participation in the Network Society, the Knowledge Society.

Challenges II

- Understanding the new context of 'people in technological environments'
- Changing the perspectives upon 'learning in technology rich learning environments'
- ***Information ecologies*** - focus on activities, contexts, people in interaction with a natural environment

Challenges III

- Developing new metaphors for understanding the learning activities that goes on in information ecologies
- Change of focus from technology as *tool* to technology as *context*
- Learning seen as developing ability to deal with the *complexity* of web based learning resources.
- Ecology as main metaphor
 - Connotations of development, mutation, locality, historicity, mutual and continual influence

Challenges IV

- The effects of the use of technology on what we perceive as knowledge
 - The deepest effect of information technologies ?
- *Digital epistemology* - new field of reasearch
 - How the means, the tools the activities and processes impact upon our understand of 'knowledge'

15 Coda



*“Each singing what belongs to him or her and to no one else,
The day what belongs to the day - at night the party of young fellows, robust, friendly,
Singing with open mouths their strong melodious songs”*

Walt Whitman: *I hear America singing.*

Leaves of Grass. 1900



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