ICT and innovating learning environments
... a love and hate relation?

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January 8th, 2012
OECD ILE Conference
Findings in learning and instruction are defining “new” requirements for ICT tools.

New digital artefacts and applications are enabling to understand and intervene learning and instructional processes.

Moving target
Guiding Questions

• Where and how can ICT contribute to the ILE framework
• Where and how can ICT contribute to the 7 principles
Guiding Questions v.2

• How to improve partnership, leadership and pedagogical dimensions of ILE?
• What do we need to facilitate the uptake and empower the 7 principles?
Examples

• Communication tools
  – Enriched and expanded interaction environments

• Scaffolding tools (personalisation)
  – Learning analytics “Standardized personalisation”
  – Semantic analysis (semantic spaces)

• Representational tools
  – Modelling, simulations, augmented reality

• Media analysis
  – Image/sound search, analysis and transformation
Learning: Knowledge construction

Selecting

Integrating

Organizing

Facts

Concepts

Procedures

Strategies
Learning: Knowledge construction

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Communication tools
Representational
Scaffolding
Media analysis

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"The 6 ILE Requirements / Needs"

- Connecting
- Expanding
- Empowering
- Enriching
- Enabling
- Managing
Opportunities 1

• **Connecting:**
  – Integrating students, teachers and community regardless of space and time - Partnership
  – Aligning needs, resources and support (ex. semantic analysis and semantic spaces) - Leadership
  – Virtual and real worlds - Pedagogy

• **Expanding:**
  – Learning spaces (blurring boundaries of schools) - Pedagogy
  – Support possibilities (resources) and agents - Partnership
  – Knowledge - Pedagogy

• **Empowering:**
  – Participation ("legitimate peripheral participation") – P&P
  – Learners to take control of their learning process - Leadership
  – Manipulation, experimentation and creation - Pedagogy
Opportunities 2

• **Enriching:**
  – Communication itself (ex. tools that include an emotional dimension). P&P
  – Quantity, quality and opportunity of students’ and teachers’ feedback
  – Content and resources

• **Enabling**
  – Making the invisible visible (ex. interaction patterns among students).
  – Systemic diagnostic processes
  – Access, manipulation and integration of fragmented knowledge

• **Managing**
  – Interactions and organisation of the “IL environment”
Learning from Experts
Learning with Others
Learning through Making
Learning through Exploring
Learning through Inquiry
Learning through Practising
Learning from Assessment
Learning in and across Settings

7 Principles

- Learners at the centre
- The social nature of learning
- Emotions are integral to learning
- Recognising individual differences
- Stretching all students
- Assessment for learning
- Building horizontal connections

Communication tools
Scaffolding tools
Representational tools
Media analysis
Challenges & Questions

• Avoid be driven by technology
  – Innovation <-> technology <-> failure ()
  – Innovation (10%) <-> improvement (90%) – Balance the dose
  – Activity <-> process <-> method
  – Practice <-> beliefs <-> culture

• Risks
  – Data can be used for good ... or bad
  – Expanding participating actors can bring in unfriendly consequences

• Scalability
  – Appropriation by the “system” – context is relevant indeed
  – Can be ICT tool to manage the process of scaling-up
Access to ICT in LA

Figure 8. Relationship between enrolment in primary programmes offering CAI and access to computers as measured by the proportion of primary schools with CAI, 2010