

Rethinking technologies in the Knowledge Society

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RED-INK Doctoral School, 6-10 April 2008, Castelrotto, Switzerland

SUPSI

Scuola Universitaria Professionale
della Svizzera Italiana



Research in educational technology

- Teaching technologies
- 3 research approaches (Hiltz / Wegerif /OECD)
- Computer-use frameworks in education
- Learning theories
- Ethics
- Research methods
- Technology-enhanced research

Short Bio Pascale Hardy

- Professor in the Department of Business Management and Social Sciences at the University of Applied Sciences of Southern Switzerland
- Member of the Doctoral School and supervise PhDs students at the Walden University, School of Management, Minneapolis, USA.
- Leading role in a number of international research projects, with partners including the European Commission, UN, World Bank, OECD, as well as many other international and national organizations and companies of developed and developing countries.
- 1994-2007: Open University UK, Glion Institute of Higher Education Switzerland, European Network for Communication & Information Perspectives France and European Commission Joint Research Centre Spain
- PhD (2000) in Social Sciences from the Gregoriana University Rome, Italy, MBA (2005) from the Open University Business School UK, Master in Social Sciences (1994) from the University of Brussels and a Master (1992) from the Libera Università di Comunicazione e Lingue Italy
- Research interests include strategic analysis of ICTs and learning development, capacity building, knowledge management, competences and organizational learning, research strategies, future studies and scenario planning.

Short Bio James Aczel

- Chair of the global online masters course in educational technology research methods at the UK Open University
- Leading role in international research projects looking at knowledge construction in Web 2.0 communities, the influences of multiple digital representations on cognitive processes, and innovative e-learning strategies in Higher Education
- Supervisor of PhD students using data capture methods including eye-tracking, webcams and virtual reality environments
- Advisor for The Open University on exploiting new technology for teaching and learning.

Developing a technology timeline (25 minutes)

- Think back over the past 25 years or so, and try to agree in your group upon a timeline of the available digital technologies in education
 - When did different technologies become available?
 - When did their use become widespread in education?
 - How is education changed over this time?

Teaching technologies and ICT Strategies

Generation	Characteristic technologies
1. correspondence	print, post
2. multimedia	TV, radio, audiotape, videotape, CDs, DVDs simulation software, virtual laboratories, virtual fieldtrips
3. telelearning	audio/video conferencing systems
4. e-learning	webpage-based courses, document data bases asynchronous text-based conferencing, email, internet chat
5. online multimedia	online multimedia learning object repositories online audio-conferencing, online video-conferencing online interactive software, online gameworlds, remote & virtual labs online administration, automated response systems, agent technologies, distributed course development, standardised course representations
6. mobile multimedia	mobile access to online multimedia

Table 1: Generations of distance education (based on Taylor, 2001, and others)

Comparison of studies (30 minutes)

	Research questions	Research methods	Technologies used	Findings and implications
Hiltz and Meinke (1989)				
Wegerif and Mercer (1997)				
OECD (2005)				

Ethics

- Are there any issues on ethical issues related to the 3 papers ?

Ethics – Basic questions

- How will participants be able to give their informed consent?
- How can I guarantee confidentiality and anonymity?
- Are there any potential conflicts of interest in my research?
- Could any aspect of my research cause distress or psychological harm?
- Do I have the skills to analyse the results in an appropriate manner?
- What unintended consequences could result from publication or other publicity?

Undertaking research

- How do we select:
 - Research questions
 - Research methods
 - Research design
 - Technologies used
- Existing frameworks help to clarify how research is defined

Computer-use frameworks in education – Peter Twining (2001)

- Achievement Frameworks – measuring individual's progress in terms of their learning using ICT
- Cognitive Frameworks – impact on an individual in terms of how they think and the interaction
- Software Frameworks – type of software that's being used

Computer-use frameworks in education 2 –Peter Twining (2001)

- Pedagogical Frameworks – nature of the interaction around computer use (relationship between teacher, student and computer)
- Evolutionary Frameworks – progression and change in how ICT has been rolled out in education system, particular classroom or teacher's practice

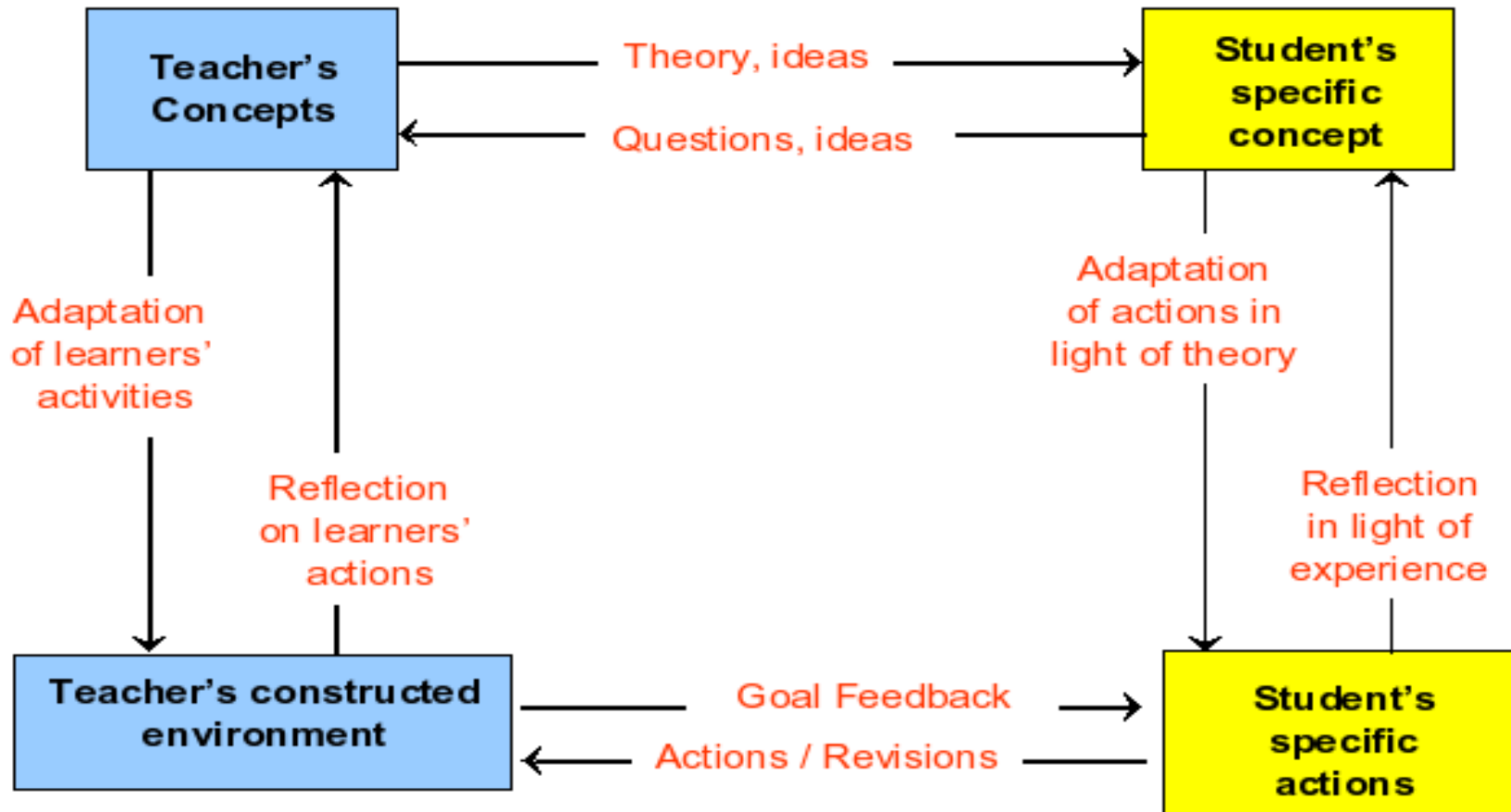
Reflection on Twining frameworks

- Could you classify the 3 papers according to Twining frameworks?

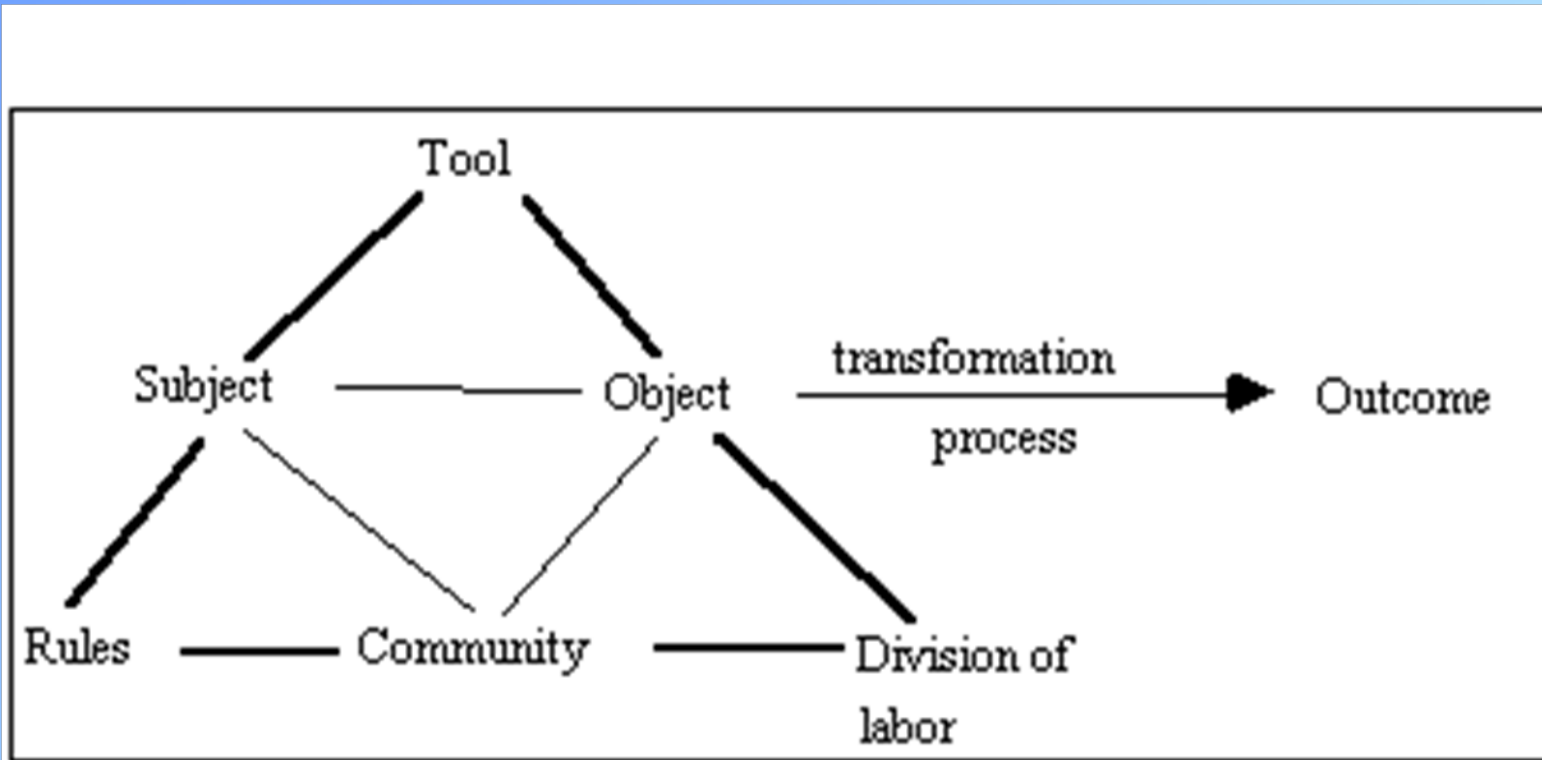
Learning theories

- **Cognitive approach** – the impact of technologies on the individual learner
- **Socio cultural theory**
 - Mediated learning – everything we do is “done through” cultural artefacts
 - Distributed learning – learning as forms of participation in social activity
 - Situated learning – learning situated within our current context

Laurillard Conversational Framework (1994)



Activity theory – Engeström (1997)



Mapping pedagogy and tools for effective learning design – Conole et al (2004)

- Read the paper
- Classify the 3 papers read so far using Conole framework