dr. Antonio Cartelli – cartan@unicas.it
Laboratory for Teaching and Learning Technologies
Dept. of Human and Social Sciences, University of Cassino, Italy

From Socio-Technical Proposals To Open Education: MIS and ICT For New Educational Paradigms
List of topics in the presentation

- **Socio-technical approach** and suggestions for a revision

- Two experiences on **ICT use and communities of practices**

- Pedagogy and the implementation of practices by means of ICT

- The **Open Education** proposal

- Towards new **teaching paradigms**?
Main aspects of socio-technical theory

- Presence of two sub-systems in every work context where technology has a relevant role: the technical sub-system and the social sub-system (Watson, 2004). Joint optimization of the two subsystems for the maximization of the organization’s performances.

- Importance of communities of practice in the enhancement of organization and the fostering of professional development (Coakes, 2004).

- More recent elements coming from activity theory (Y. Engeström, B. Nardi etc.); including HCl studies.
Hypothesis for the revision of the traditional socio-technical approach
Common features of the experiences carried out during last years are:

**Implementation of the work processes** with the help of ICT and especially of online MISs

**Use of the socio-technical approach** (with its recent modifications)

- whether scholars’ and researchers’ (palaeographers) practices were implemented,
- or new teaching strategies, following new regulations for school innovation, were implemented
ICT, MIS and Web tech. in palaeography

People working on the online information systems made in cooperation with M. Palma for Latin palaeography courses (BMB on line, Women and written culture in Middle Ages etc.) had the following features:

a) they made real constructivist learning environments and helped the students in developing cognitive apprenticeship strategies

b) every group working on a system was a community of practice as defined from E. Wenger (2004), its main features were: identification, common will and shared repertoire of symbols, languages and instruments

c) the same groups were communities of learners as described from A.L. Brown and J. Campione (1994, 1996)

d) a shared community memory was created and made available to people outside the communities (Trentin, 2004)
ICT, MIS and Web tech. in teachers’ training

Due to recent changes in Italian School regulation a Master course was recently made. It was based on the ICT use and especially on the use of MIS and web technologies.

Two dynamic web systems were adopted:

- an e-learning platform to be used as a CMS and CSCLS to manage teaching materials (lectures, presentations and documents concerning the changes in teaching management induced from the reform laws) and discussions among teachers, tutors and lecturers

- the TETIS platform (Teaching Transparency Information System) was used to implement every day teaching practices as modified from reform laws and to let people simulate their everyday work due to the changes induced from the new laws
Implementation of teachers’ practices

- Modular planning of teaching work
- Defining the pre-requisites for the new teaching module
- Analyzing the presence of the pre-requisites
- Stating the knowledge, competences and skills students must have and develop at the end of the module
- Defining the evaluation strategies for the module’s teaching
- Planning of the assessment test to submit to the students

(All operations being stored in the TETIS platform)
Pedagogy and the implementation of practices by means of ICT – 8

- connection between human memory and storing and retrieving systems
- control the information system has on the subjects’ action
- constructivist environments

Implementation of practices by means of ICT as a teaching-learning paradigm

- connections between education and society
- control and compliance with standards
- role of technology in the development of subjects’ autonomy, cultural growth and self actualization
The hypothesized approach to teaching-learning:

a) involves all the levels formerly suggested for knowledge construction: subject, community and society

b) implies the analysis, planning and carrying out of information systems where authorized people can manage the information they are allowed to and other people can query the system for extracting all or part of the data they are interested in (including statistical information on the whole set of data)

c) is strongly based on web technologies and on database management systems interfaced with dynamic web pages (mostly forms)

c) can be made by creating dynamic web sites based on the use of Open Source software (Linux OS, Apache http web server, PostgreSQL or MySQL RDBMS and PHP interface language at least)

On the above statements was hypothesized the project Open Education, based on the use of the TETIS platform into real school life.
TETIS platform aims at making transparent teaching-learning processes so that each actor of the educational activity can access his/her data and look at the evolution of his/her profile with respect to the planned activities and to the data managed form different people (teachers, students and families, social workers, researchers etc.)

Furthermore forums are available to:
- teachers in a class,
- teachers, students and families in a class,
- teachers of the same disciplines,
- etc.
The implementation of practices by means of ICT will be in a near future a standard and commonly used teaching-learning method? Are there any other teaching-learning method based on ICT use? We can easily agree on the answer to the second question: augmented reality and simulation in virtual environments are more and more used for training and education.

As regards the first question it seems possible to conclude that the features of the method described here are:
- to be based on the planning of MISs by adopting the socio-technical approach for their introduction in every organization,
- to be a dynamic teaching-training system, subjected to the changes induced from the people involved in the use of the systems it is based on.

Furthermore it is a good candidate in every complex situation and system where different aggregation levels of people (individuals, communities and whole organizations) need specific actions to be planned.
Implementation of practices by means of ICT and Informing Science

**Informing Science** is the discipline that “provides its clientele information in a form, format and schedule that maximizes its effectiveness” (Cohen, 1999).