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ICT and Knowledge Evolution in Learning Organizations
the Lesson from Paleographers’ Community of Learners
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List of topics in the paper:

• From individual to social constructivism
• From communities of practice to knowledge management
• ICT, teaching and researching in some paleographers’ special communities (classes)
• Conclusion: implications for subjects (students), communities and knowledge evolution in SECI model
Knowledge in human sciences

Theories supporting individual knowledge construction

- Subject-reality interaction (J. Piaget, D. P. Ausubel)
- Cognitivist hypotheses
- Constructivist environments (supported or not by IT and ICT) (Perkins D. P.)

Theories supporting social effects on knowledge construction

- Historical-cultural matrix in philo-ontogenetical knowledge construction (L. S. Vygotskij)
- Communities of Learning (A. L. Brown & J. Campione)
- Social Learning (E. Wenger)
Knowledge in corporate and organizations

Corporate and organizations are based on communities of practice CoPs; subjects in a CoP have the following features (E. Wenger):

a) common enterprise (i.e. they have the same view of the problems to face and share the same possible solutions for them),
b) reciprocal engagement,
c) shared repertoire of knowledge, instruments and methods.

Main features of knowledge (I. Nonaka & N. Konno):

a) tacit knowledge: deeply-rooted in the actions and experiences of the subjects in the community (it is difficultly codified, transmitted and shared),
b) explicit knowledge: community’s knowledge (it can be easily formalized, represented, transmitted and shared).
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Latin paleography and ICT: experiences 1

Didactical materials

Plates and texts

http://www.let.unicas.it/links/didattica/palma/paldimat.html

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Latin paleography and ICT: experiences 2

Women and written culture in the Middle Age

Dynamic Web site letting users access women and manuscript data
http://edu.let.unicas.it/womediev/

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Latin paleography and ICT: experiences 3

“Malatestiana Library” Open catalogue
http://www.malatestiana.it/manoscritti

“Martirology of Arpino” Open catalogue
http://www.let.unicas.it/links/didattica/palma/martirin.html

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Latin paleography and ICT: experiences 4

Information system

**BMB on line**

Types of Users:
- a) System administrator
- b) Scientific administrator
- c) Contributor
- d) General user (who can only query the system for accessing data)

[http://edu.let.unicas.it/bmb/](http://edu.let.unicas.it/bmb/)

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Didactical effects of ICT use in Paleography

1. ICT, and especially information systems described in previous slides, created constructivist learning environments for paleography’s students,

2. the features of CoLs and FCL, as described from A. L. Brown & J. Campione, were observed in the students experimenting the use of the information systems (the number of the students involved each time in the above experiences was very little so that they could be analyzed very closely),

3. new effects never observed in traditional paleography courses were detected in students involved in the use of the information systems: a) talent in working in a group (in traditional courses it was a very rare experience), b) easier facing of complex tasks (thanks to the help each student could have from colleagues) and c) raising of the individuals’ peculiarities within the community (A. L. Brown & J. Campione, J. Lave & E. Wenger),

4. ICT helped students in experimenting a metacognitive environment and cognitive apprenticeship strategies, and involved them in the discussion and evaluation of the procedures they took part in
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the Lesson from Paleographers’ Community of Learners

ICT effects on CoLs, FCL and CoPs

1. Information Systems transformed previous kinds of teaching, mostly directive and devoted to single students, in environments for collaborative and situated learning,

2. Information Systems just implemented the best practices scholars developed in their researches and obliged students to respect times and procedures in those practices,

3. Information Systems, while implementing the research practice, make easier the processes’ socialization among people (students/researchers) involved in their use; this phenomenon is much more evident than the creation of a community memory to be shared among the students in the class,

4. All groups of students (classes) involved in the use of the information systems not only made CoLs and FCL but had the features of CoPs.
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The BMB on line is a good example of Information System implementing the implicit knowledge people working on beneventan manuscripts usually share. It also externalizes that knowledge so leading to the sharing of the practices within the community; i.e. the elements of the Nonaka & Takeuchi’s SECI model of knowledge evolution can be applied to this community. All phases in the SECI model and their order seem in fact confirmed, but a new element has to be added to former ones: the implementation of communities’ practices by means of ICT.

Fig. 2 – SECI cycle after introduction of the new element by means of ICT.
The evolution of the site *Women and written culture in the Middle Ages* and its transformation with the time, support the application of the modified SECI model (with the new element *Implementation of practices by means of ICT*) to the description of knowledge construction and evolution in communities (at least in the special case of paleographers).
CONCLUSION

It is probably too early to say if the model suggested from the author can be applied to general learning organizations but some conclusions can be drawn:

- communities of practice can be virtual (subjects with special interests in the community work can become members of the community by means of ICT),
- implementation of researchers’ practices by means of ICT can help teachers/professors in creating new constructivist learning environments and can lead students to the meaningful learning of discipline topics,
- studies on CoPs and CoLs can help in explaining knowledge phenomena which were analyzed until now separately in the two different contexts: corporate and school/university.