



The *Open Catalogue of Manuscripts* Between Paleographic Research and Didactic Application

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ABSTRACT

The paper reports a survey of the most relevant hypotheses and results concerning computer use in education and dwells upon some recent constructivistic experiences that hypothesize the use of cognitive apprenticeship strategies to let the students acquire a meaningful learning. In the second section the main traits of the project of an Open Catalogue of Manuscripts are reported and the reasons for the authors' firm belief of its importance in manuscripts' researches are explained.

In the third and last section the above project is applied to the special case of the Martyrology of Arpino and some results of a didactic project involving it are reported. Analogies and differences with respect to the teaching experiences in the first sections are also explained.

INTRODUCTION

It is well known that computers entered very early in education under the influence of psychological and pedagogical theories like behaviorism, cognitivism and constructivism. Since computers first appearance all the attempts of their introduction in teaching work had the main aim to set their use in the right theoretical perspective; as a consequence new terms have been introduced to explain the different contributions computers gave in teaching/learning processes such as instruction technologies, educational technologies, didactic technologies and more recently e-learning and distance learning (when the Internet and especially the Web spread out).

Relevant still today for the description of the student/computer interaction in a formal learning environment have been the three metaphors R. Taylor suggested: tutor, tool and tutee (Taylor, 1980); these metaphors synthesize the different approaches students have with a computer: a) an automatic system supporting or substituting (in the specific situation of auto-instruction) teachers and tutors in their work, b) an instrument to be used in everyday work, c) an hard worker executing all instructions they will submit to it.

During last decades hardware and software evolution induced many scholars to examine in a different perspective Taylor's metaphors to consider the results of new didactic research (Galliani and others, 1999). The term tutor was used, for example, to describe the well known CAI (*Computer Assisted Instruction*) and CAL (*Computer Assisted Learning*) software, but also the ICAI (*Intelligent Computer Assisted Instruction Systems*) and ITS (*Intelligent Tutoring Systems*) systems, strongly based on the use of Artificial Intelligence results. The tool metaphor, in a very similar way, described the use that students made of general purpose software like a word processor in an educational context, but included also the analysis of more complex editors they could use to create multimedia documents or hypertexts. The tutee metaphor is quite a different matter with respect to the above ones because students must have computer programming skills to get computers able to solve problems. A great work was made in this field by S. Papert, who invented the

LOGO, a graphic programming language helping the students to instruct computers in solving simple problems. Papert defined also the main traits of a pedagogical theory he called constructionism that was centered on computer use; its basic principles are: a) computer has to be a learning partner; b) computers must induce an epistemic inversion, i.e. teaching has to pass from "learning to use" to "using to learn"; c) teaching has to be based on problem finding and problem solving and students have to use trial and error strategies in their learning etc. (Papert, 1993).

Many other studies that didn't fall in the above metaphors have been made all over the world by scholars interested in computer influence on teaching/learning processes. The authors quote here two experiences strongly influenced by constructivistic hypotheses they found interesting for the implications they have in what follows: the former one is due to the CSILE (*Computer Supported Intentional Learning Environments*) research group of M. Scardamalia and C. Bereiter at the Ontario Institute for Studies in Education, the latter one concerns the work of M. C. Linn and her team on the use of the computer as a learning partner (Varisco, 2002). The authors' interest for the above researches has its roots in the hypothesis the two groups share that the students' learning has to be regarded as a cognitive apprenticeship; that is a learning strategy that retrieves the well known apprenticeship experience marked by modeling, coaching, scaffolding, fading and integrates it with new cognitive strategies the students must adopt: articulation, reflection and exploration. The results of the above researchers show that the use of the computer (to simulate complex environments and situations) and the adoption of cognitive apprenticeship strategies lead the students to a meaningful learning (as it is defined by Jonassen, 1995) and are therefore more useful and fruitful than traditional teaching strategies.

The authors fundamentally agree with the above results and are persuaded the Internet can contribute in the strengthening of the above teaching/learning strategies as suggested by many scholars. Two main contributions are remembered here: a) the Internet is an essential element of a new social and cultural system with a great learning potential (Bruckman, 2002), b) it is an instrument leading to meaningful and efficient learning by means of virtual classes and learning networks of students and scholars (Hiltz and Turoff, 2002).

THE OPEN CATALOGUE OF MANUSCRIPTS AS A RESEARCH INSTRUMENT

Likewise many other fields the Internet influenced paleographic researches and manuscript studies at different extents. Among the most relevant experiences carried out all over the world we remember here: *The Digital Scriptorium* hosted by the University of Berkeley (available on line at <http://sunsite.berkeley.edu/scriptorium/>) that proposes the

images of some Middle Ages and Renaissance manuscripts preserved in the Libraries of the Institutions cooperating to this initiative; the Web sites of some great libraries like the Bibliothèque nationale de France, the British Library and the Bodleian Library (available on line at <http://www.bnf.fr/>, <http://www.bl.uk/> and <http://www.bodleian.ox.ac.uk>) reproducing (often partially) some of their most famous manuscripts; *Manuscripta mediaevalia*, an initiative of the DFG (the German Research Council) integrally reproducing a large amount of catalogues of manuscripts hosted in the German libraries (available on line at <http://www.manuscripta-mediaevalia.de/>).

In Italy together with some experiences very similar to the above ones (it has to be remembered the Ambrosiana Library with its Atlantic Codex by Leonardo, available on line at <http://www.ambrosiana.it/>) there have been other experiences that used the Net to offer new research instruments to Middle Age scholars and paleographers: *BMB*, a Web site hosted by the Faculty of Humanities of the University of Cassino (available on line at <http://www.let.unicas.it/links/bmb/flf-bmb.html>) periodically reporting the bibliography of Beneventan manuscripts (yearly collected in a printed catalogue); *Donne e cultura scritta nel Medioevo*, hosted in the same institution site (available on line at <http://edu.let.unicas.it/womediev/>) and proposing a database of Middle Age female scribes operating until the fifteenth century; *Reti Medievali*, a Web site carried out by scholars and researchers of various Italian universities to propose initiatives supporting Middle Ages studies (at http://www.storia.unifi.it/_RM/) and *Scrineum*, an on line magazine hosting papers and other works concerning medieval charters and manuscripts (at <http://dobb.unipv.it/scrineum/>).

It has to be noted that the different ways the Internet could guarantee for a better sharing of manuscripts' information have been deeply analyzed in the international scientific debate (as the above sites demonstrate), but the most determined and resolute opinion in this regard has been expressed by the DFG "Recovery of Scientific Literature and Information Systems" working group. This committee, that is responsible among other things for the cataloguing of German manuscripts, affirmed (in a recent paper we will refer to with the title *Neue Konzepte*) that the publication of printed catalogues is today out of date and useless (even in the form of a CD-Rom); the same committee proposes the Web as the medium to be used for the publishing of the results of the research on manuscripts because it grants a free access to everyone and spreads all information at the top level (Bunzel 2001). As a consequence of the committee's choices all future catalogues will be published in Germany mainly on the Web.

From a careful reading of the materials contained in most part of the above sites clearly emerges what scholars and researchers involved in manuscripts' studies really think about the Internet and the Web; i.e. this medium is seen as an extension of printed publishing or at most as a compromise with this ancient and well settled communication medium: it is more economic and effective in reaching a greater audience than printed matter, but it is always and only a medium to be used for the spreading of materials that came to their ultimate stage and final structure (in other words: that are ready to be printed).

In the authors' opinion the time has come for a revolution in the use of the Web as a medium for the catalogue publishing and as an instrument for manuscripts' studies. The Internet with its communication services gives in fact to all researchers new and more powerful instruments for their researches while allowing the creation of virtual communities (Rheingold, 1994) or letting the creation of a *connective or collective intelligence* (Lévy, 1996); in other words the Internet is the ideal medium for learning and practice communities and for cooperative research (Calvani and Rotta, 1999).

From the above remarks was born the authors' idea of an *Open Catalogue of Manuscripts*, a catalogue in progress, continuously changing for the supply of new information coming out locally or, in a more flexible way, from the Net.

A first reason for the authors' choice has its roots in the difficulty of the management of a national program of cataloguing involving all Italian manuscripts (this cultural heritage is made by hundred thousands if not millions of handwritten books, depending on the different catego-

ries of matters under consideration). The single libraries and especially the little-medium ones that don't depend on the central administration will find in the authors' proposal the instruments and the energies to give more value to their manuscripts (at least to make their existence known to everyone). On the other hand it has to be noted that if scholars can find a first support in the *Open Catalogue* they will always ask the library for the manuscripts they are interested in when deep analysis will be needed, as always happened until now and as it is reported in the *Neue Konzepte*.

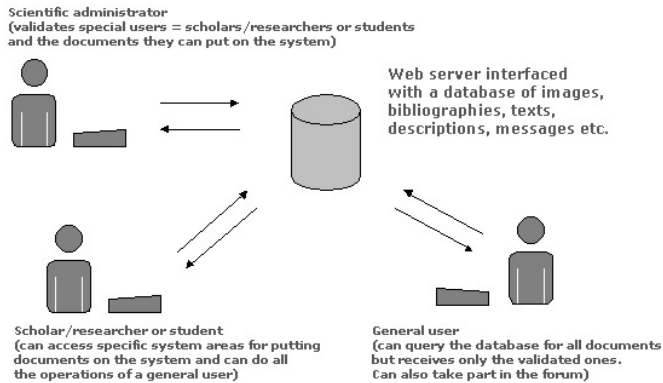
A second reason for the authors' definition of the *Open Catalogue* lies in the flexibility and dynamism of this proposal with respect to the closing and immobility of printed catalogues. The authors' structure is in fact an Information System that is made by human, hardware and software resources devoted to the management of documentary information and it is based on the use of the Internet and especially of the Web (Cartelli and Palma, 2002). It is made by five sections that have to be intended in a flexible manner, i.e. each library will start the various sections depending on its funds and resources and will adopt for each section the solutions it will judge consistent with the whole project (Palma, 2002):

- The first section is devoted to the documents illustrating the library history and the history of its funds of manuscripts. The monographs and papers already published or intentionally written, and all materials giving the visitors a good idea of the whole library's heritage and of the single manuscripts they could be interested in will take place in this section.
- The manuscripts' bibliography ordered by shelfmark and, eventually, alphabetically and chronologically, will be housed in the second section.
- In the third section there will be the descriptions of the manuscripts and of the funds, i.e. the previous printed catalogues or the ancient handwritten catalogues (suitably digitalized) and the new descriptions (according to nationally defined standards) that will recover the information coming from the old catalogues.
- The fourth section will be devoted to the images. Until now many different hypotheses and solutions have been adopted for their use in electronic catalogues and in the Internet; in the *Open Catalogue* the authors propose the choice of a medium resolution for each image (high resolution images need too much time to be downloaded) but a number of images documenting most part if not all manuscripts of the library (the *Digital Scriptorium*, the Bodleian Library and *Manuscripta mediaevalia* are good examples of the above choice).
- The fifth and last section is made by a communication subsystem including electronic blackboards, chats, forums and particular Web solutions granting the easier acquisition, writing and editing of texts; it is a real innovation with respect to the printed catalogues and to the experiences involving the Internet until now described. This communication subsystem will help scholars and researchers (suitably authorized) publish papers and documents concerning the manuscripts in the library (privacy and copyright will be granted) or discuss hypotheses and projects of common interest.

In the authors' opinion the *Open Catalogue of Manuscripts* while spreading, promoting and producing information will put the libraries at the center of the scientific information. It will give the manuscript curators the instruments to recover the function they had in the erudition times and they progressively lost for the increasing of bureaucratic tasks: to give impulse to research and study involving scholars, researchers and students in the manuscripts' study (Fig. 1).

As can be easily seen the authors' idea accepts and extends the proposals of the *Neue Konzepte* and includes the experiences many Italian and international institutions made, so that it can appear utopian, but two Italian libraries with a great historical tradition, i.e. the Malatestiana Library in Cesena and the Lancisiana Library in Rome, accepted it and are now working at the creation of an *Open Catalogue* of their manuscripts. Just in the same way the Martyrology of Arpino (see next section) is already accessible as an *Open Catalogue* system on the Web site of the Faculty of Humanities of the University of Cassino

Figure 1.



(and is available on line at: <http://www.let.unicas.it/links/didattica/palma/martirin.html>).

THE MARTYROLOGY OF ARPINO BETWEEN RESEARCH AND TEACHING

As seen in the above section the *Open Catalogue of Manuscripts* candidates to be an useful instrument in paleographic research but in the authors' opinion it will also be a very important tool for teaching innovation and didactic research in the disciplines involved in manuscripts' analysis and study.

As an example of the above assertion the authors propose the case of the Martyrology of Arpino, that is a single manuscript kept in the church devoted to Our Lady in Arpino (a little town in Central Italy). Starting from this manuscript, in fact, a Web site with the features of an *Open Catalogue* has been set up and modular teaching plans involving a first level degree course and a master course for archivists and librarians have been developed. The disciplines that will be interested by the authors' modular design are: Medieval Latin, Latin Paleography, Codicology, Hagiography, Medieval History, Computer Graphics (especially image acquisition and editing), Word processing and Web editing.

Before analyzing the details of the project some notices have to be reported:

1. The authors are persuaded the Internet can affect the cognitive processes for the reasons reported in the first section and for the strong reduction of the time occurring from the publication of the results of a research to its translation into a common cultural legacy (i.e. its teaching). Before the Internet in fact the research precincts could be separated from the teaching ones because didactics had to transmit well-established and structured knowledge (also when new paradigms emerged, as they were filtered and analyzed by the scientific community); today the above separation is no more so clean because the information sources are no more and not only the academic ones and all new information are immediately available in the same instant they are on the Net.
2. The Web site of the Martyrology of Arpino follows a series of other experiences the authors carried out for the integration of the Internet services in the everyday teaching; approximately one year ago, in fact, they made up a Web site devoted to paleographic didactic materials where the communication among teachers and students was strengthened with the use of Distance Learning strategies and more materials than the ones used during the lessons were made available to the students.
3. With respect to the constructivistic experiences of the Scardamalia-Bereiter and Mc Linn groups reported in the first section (who used sophisticated and complex simulation environments and modular teaching programming with their students) the authors are persuaded that real and present research situations can be used, together with a careful modular teaching programming, to let students acquire a meaningful

learning, at least of the concepts and skills concerning manuscripts' study and research.

4. When the Martyrology was submitted the first time to the authors for the arrangement of a collection of the studies concerning it and for new and deep analyses, it suddenly appeared suitable for a prototype of an *Open Catalogue* because of some specific circumstances that make this case easier than the general project:
 - a. there is no need for the first section because there is no manuscript fund in the church conserving the codex;
 - b. the bibliography is made up by two papers only (the former one written in 1911, the latter one in 1999) and they could be integrally reported in the site;
 - c. the number of the students involved in the project is usually so small that they can directly use the Internet services to communicate.

The authors' teaching project emerging from the above considerations has adopted most part of the Papert's pedagogical hypotheses and Scardamalia-Bereiter and Mc Linn suggestions. Its main features are:

- the design of make up courses centered on the Martyrology for the students evidencing History and Latin gaps in their basic knowledge (many students gave in fact wrong answers to the questions concerning Medieval History and Latin in the entry test the authors proposed at the beginning of the course). The make up courses will find a valid help in the manuscript that has been used as a chronicle from XIV to XVII century because the historical events reported there have a counterpart in relevant events of that period;
- the direct participation of the students in the carrying out of the Web pages of the Martyrology (with the corresponding acquisition and editing of texts and images);
- the involvement of the students in the manuscript's descriptions (this part of the project is in progress and a first material description is already available on the Net);
- the creation of little groups of students to enhance the teacher's support and the support among peers;
- the students' transcription of the text.

The authors' experience is still at an early stage to draw any conclusion but the students show now more interest in the disciplines' themes than in previous traditional experiences.

CONCLUSIONS

If the first students' reactions to the use of the Martyrology as an *Open Catalogue* seem positive, the authors are persuaded that the adoption of the whole project in further experiences can lead to even better results. The authors think also that the methods they have adopted in the first level degree and in the master course can be exported to other courses with good results.

A question remains open and needs further research: the use of the Web technologies to transfer the research methods into everyday teaching can be generalized to other disciplinary fields?

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