When history becomes digitalized
Theresa Giakoumatou,

Introduction

Has historical study changed in the digital era? What happens when the Gutenberg period is succeeded by the internet period? Undeniably in our time the internet plays a crucial role both in communication as well as in information. What kind of changes has been affected on the discipline of history by the digitalization of information?

If we seek to determine the characteristics of the digital era, we will realize that the parameters mainly influenced are the speed and volume of information. A seminal consequence of the influence of Information Society is the acceleration of all processes, a fact that keeps users in a state of vigilance and in a permanent process of updating their knowledge, in a permanent state of alert. In the digital world, solutions of communication that up to now were inapplicable today begin to materialize.

The volume of information carried via networks is rapidly accelerating. Billions of e-mails and SMS run through our planet daily. During the recent years the messages have become more complex, transporting accompanying files mainly photographs and videos, as attachments.

A large part of this information is recorded and a percentage ends in the internet. Human history now walks hand in hand with the machines and the conjunction of human being and machine has already become centerfold in human life and experience.

Questions raised by the digitalization of information

No era has left in its wake so many visual and audio traces as ours. Should we pity the future historian who will be forced to also study the terabytes of the electronic files that are created daily? There are historians who predict the demise of historiography, while others are heralding the explosion of information as the beginning of "real" History.

One thing is certain; the model of historical writing of the past century cannot possibly serve the next one. The epistemology of History will have to change, if historians wish to continue recounting the past in a way that interests the public.
A few moments after an important event, such as the tsunami or the bomb explosions in the London Tube of the 7th July 2005, the BBC was deluged by pictures and videos sent by eye witnesses through their mobile telephones.

In the days that followed the cries of the victims of the bomb attack in the underground, sound documents henceforth, traveled as files all over the world. The stories filled the blogs (interactive electronic diaries) as many were those who wanted to share sentiments and pictures with millions of other people, unknown to them. It was of course an expression of their need for instant communication and intervention, a deep urge for participation.

History runs in madly diverse transcontinental orbits from one monitor to another as, thanks to our cell phones, we can all become participants in its recording. The

relation between transmitter and receptor has changed radically. The medium is the message, we were warned by McLuhan; however, the great challenge remains and it is no other than the establishment of a new relation with the historical contingency.

The meeting of Technologies of Information and Communication with the science of History raises a series of questions and the historians face challenges that lead them to new forms of recording history.

What new do digital sources bring?

The main advantage of the digitalization of sources is that they automatically become accessible to their remote visitors. Most of the digitalized files are organized within powerful databases, thus making it possible for information seekers to easily locate the information they look for. Ancient classical writers have moved to the internet thanks to the digitalization program "Perseus"[1] of Tufts University. This is a multimedia encyclopedia of the ancient world which gathers and interlinks the corpora of classical texts with pictures, plans, scientific articles, monographs and dictionaries, providing at the same time satisfactory search possibilities. From an interactive ground plan of Olympia one can view photographs of monuments, and then pass on with a click to the odes of Pindaros or to the description of a region by Pafsanias. The University of California at Irvine[2] has also been involved in the digitalization of classics by producing commercial digital disks with ancient texts (TLG). It is evident that the search for word collocations in the body of ancient Greek literature facilitates the study of texts.

It is well-known that from the moment a source is digitalized, it automatically changes character. From static it becomes dynamic and it is subjected to data updates, since, with the appropriate software applications, its modification becomes possible. This possibility of modification creates a series of problems for the science of History, granted that the confirmation of authenticity of a source is rendered questionable. The issues raised by the meeting of history with the digital world are examined extensively by the Centre for History and the New Media of George Mason University[3].

The fluidity of documents after their digitalization constitutes a real nightmare for historians. Nowadays a number of databases have opted to safeguard the integrity of their collections by locking them in PDF files.

However, for those who know transforming a 'locked form' file, such as PDF, to a file that can be modified, presents no challenge and can be done easily. "What locks, unlocks" whisper the residents of the internet. Mark Poster contends that digital files, because of their fluidity, will limit historians' false sense of objectivity, since there will be a turn towards the constructional approach to historical texts[4].

The more sources become available to the general public the more we attain the visions of the creators of the internet. The recent years have seen, however, a tendency to privatize document collections. Software development companies

---

[1] http://www.perseus.tufts.edu

[2] http://tlg.uci.edu

[3] http://chnm.gmu.edu

[4] Poster, M., (2004) "History in the Digital Domain", *Historein Vol 4 (2003-4)* Nefeli Publishers

have undertaken this task, by making long-term investments[5], patiently collecting maps, pictures, photographs. It is expected that issues will be raised about the safeguarding of the authenticity of historical documents. In case, then, a powerful lobby does decide to re-write the history of an area, will it be difficult to buy off the modification of important historical documents? Allegations for such approaches have already come to light[6].

Archives in the internet

The way each self respecting archaeologist has delved into his or her excavations, so historians' sine qua non is the study of archives. Databases and archives move in large numbers into the internet at constantly increasing speed[7]. The digitalization of the Library of Congress gave us the *American Memory*[8] website with more than seven million recordings of more than a hundred collections. Accessibility to the internet appears to be democratic. But problems lurk. Who selects what will be digitalized, what will be accessible to all and what to the few? Are digital records safe from ill willed actions? What are the criteria according to which the results of a search of data based records are classified?

Whereas there are sufficient printed and electronic collections of archived material at the disposal of educators in the most prominent European languages, the corresponding Greek websites still remain very few.

If an educator attempts to prepare supporting class material by seeking free material in the internet, he or she will definitely be very disappointed by the shortage of material in Greek internet pages. Although a lot of national and Community resources have been invested on the creation of environments for content management, the need for the digitalization of historical sources has not become fully understood yet. Databases remain an unknown area for Greece, and the majority of websites in Greek are limited to history recording attempts of doubtful quality. On the other hand, by simply searching in the internet the researcher will discover thousands of websites -in English- which are maintained by professors of history but also history lovers. Are we still going through our infancy in terms of internet development and use? This year in Western Europe, in the USA and in the rest of the developed world, we celebrate a decade of rapid internet growth. Greece, however, does not have a lot of reasons to celebrate. The deficit in digital strategies has nailed our country to a stalemate, as we are lagging behind in terms of internet expansion and its pedagogic applications. Have we left the safeguarding of our cultural heritage to the patriotism of Greeks?

The European Union has developed initiatives for the development of educational exchanges among its member states. The issues raised by the effort to converge educational portals are particularly complex and require careful consideration. As for technical issues the expansion of broadband networks will allow the movement of huge records and we are very close to the distribution of high resolution, real time video via the internet.

---

[5] Poster, M., (2004) "History in the Digital Domain*", Historein Vol 4 (2003-4)* Nefeli Publishers p. 23

[6] Kounadis M., (2005) Macedonian issue *Kathimerini* 3rd July 2005

[7] Rosenweig, R., (2001) "The road to Xanadu: Public and Private Pathways on the History Web", *Journal of American History* 2001, 88 (2), 548-579

[8] http://memory.loc.gov/ammem/amhome.html

The main objectives of the 2010 program[9] include a common informational space with safe broadband communications, which will comprise a variety of contents and digital services. The European collaboration will tackle the issue of interoperability of data developed nationally while also defining *metadata*. The thorny issue of intellectual rights will hopefully be regulated by a relevant directive that has been issued.

Our main objective will remain the facilitation of access to quality digital content; nevertheless, we do not seem to have developed an initiative for the digitalization of our enormous cultural reserve in our country. Similar delay is also observed in the commercial production of CD-ROMS of cultural interest. While it is common practice for museums abroad to include in their museum shops at least one such item with selections from their collections, our museum shops carry printed publications only.

We are experiencing, therefore, the paradox of owning an impressive cultural capital but having difficulties in its safeguarding in the society of knowledge. If the classical texts were rescued –although fragmentarily– thanks to the monks, our more recent cultural heritage seeks its saviors. Our ancient texts were digitalized thanks to the initiatives of American Universities -Tufts and Irvine. However there is urgent need for development of such initiatives on the Greek part, which will ensure the digitalization of our more recent texts.

Problems of history didactics

The teaching instructions for the subject call for the development of research skills. The students' educational needs are not always sufficiently catered for by the school history handbooks. These handbooks do not usually include sufficient maps with memoranda and scale. Their pictures are of poor printing quality and contain insufficient information about their origin; as a result, educators are forced to reproduce them.

Quite often the individuals grading the Pan-Hellenic examination papers are faced with surprises because of the confusion of historical concepts in student papers. Students seem to have particular difficulties with questions requiring processing of historical material. In a research conducted by the Pedagogic Institute with regard to student written examination papers in the subject of General History, published in *Kathimerini* newspaper of 16/11/02, it became apparent that students were unaware of the sources and that their answers were a word-by-word reiteration of the discourse in their history handbook. What however became obvious was that they had not been exposed to any techniques for source approach confusion and weakness of comprehension of historical terms and concepts is also observed. For example, students find it hard to formulate definitions and interpret and analyze terms, such as Cold War, Democratic Manifesto, Social Capital, which are clearly analyzed in the school handbook, thus requiring that the students synthesize data in order to produce the definition.
Complete weakness in approaching and interpreting the illustrated material and cartoon strips is also noted.
Can Technologies of Information and Communication contribute to the mitigation of these difficulties?

---

[9] http://europa.eu.int/information_society/eeurope/i2010/contact/index_en.htm

Applications of the Technologies of Information and Communication to the subject of history. The didactics of history in the society of knowledge.

Technologies can certainly support the development of student skills required by the science of History. They provide them with opportunities to select sources through a variety of means of information transmission, to re-enact historical events, to make use of databases, in order to reach safe conclusions and acquaint themselves with historical thought. CD-ROMS and websites promote, to a large extent, the incorporation of visual forms both in teaching and in research. They allow the "visually prone" students to approach the past through visual re-enactments.

By using historical sources in digital form, the students study the past through discovery. At the same time, however, they need new skills for critical thought[10], new ways to evaluate visual evidence, not only with respect to their authenticity but also to the knowledge that they offer. The possibility of digitalizing pictures and sounds influences historical research as historians have already been creating new types of hypertext with visual and audio content. The internet functions as a novel place for the publication of historical work, where, however work loses its immutable nature, and acquires new possibilities for permanent updating.

Technologies facilitate us in the process of production and control of historical hypotheses, thus providing us with opportunities to approach historical investigation. Multimedia fully corresponds to the collective character of history. In the majority of lesson plans submitted to educational portals students are encouraged to delve into sources and reach their own conclusions[11].

The use of technologies may promote student collaboration while contributing to the development of historical thought[12].
The analysis of lesson plans at the Educational Portal of the Greek Ministry of Education reveals that in quite a few cases **hypertexts** have been used, which helped students look for historical sources as well as discover relations among the topics. The development of analytical and interpretative skills is supported by the hierarchic organization of hypertext. The hypertext facilitates the correlation of sources because of its non linear nature. It encourages a multidirectional reading, yet its effect on historical narration certainly needs to be studied

The multimedia nature of the internet permits the coexistence in the same source of multiple forms of representation. If we take for example a lesson plan for the conquest of Constantinople[13] we will realize that it includes hyperlinks to written texts, pictures, maps and plans. The instructions guide the students in forming their own historical path. The educator is integrated in the team of students and supports them during the research process.

[10] Giakoumatou T. IT adoption in Greek secondary humanities education. Issues and reflections. e -Learning conference 2005 "Towards a Learning Society" Brussels 19-29/5/2005
[11] Hennessy, S., et al., (2003). Pedagogic Strategies for Using ICT to Support Subject Teaching and Learning: An Analysis Across 15 Case Studies. Research Reports, No. 03/1, Faculty of Education,University of Cambridge.
[12] Brown, L., and Purvis, R., (2001). *What is the impact of multisource learning on History at key stage 3?* Technology integrated pedagogical strategies (TIPS) website case reports,http://www.educ.cam.ac.uk/TIPS/brownpur.html
[13] www.netschoolbook.gr/1453.html

Lesson plans utilizing presentation software also frequently appear in educational portals. The integration of activities of text production and presentations helps students develop historical thought, creates and promotes suitable conditions for co-learning, and strengthens creativity and imagination.

With the facilities provided **by word processing** we overcome the limitations of writing and we are facilitated in rethinking, analyzing and comprehending. Researchers use the term "bricolage"[14] to refer to the students' ability to reuse parts of digital files –an item or software, a piece of code, a text in a unique way, thereby creating a new original composition. The students develop new dexterities as they creatively integrate pieces of information in their work. This naturally presupposes preparation of activities by the teachers, so that simple cutting off and pasting of information is avoided.

The use of **information bases** in particular helps students trace trends, formulate historical hypotheses, and investigate theories[15]. The educational value of databases is multiplied if we put students in the position of those creators. Classification and categorization skills are developed in the process of base construction.

The utilization of **electronic environments of** communication, eg discussions forums, allows students to develop both their abilities in formulating arguments and their comprehension skills[16]. It allows educators to locate student misapprehensions with regard to historical thought, something that is not always easy in classroom discussions. In the electronic environments of communication, shy or reserved students are also encouraged to express their opinions, and this leads to the discovery of misapprehensions.

In case an electronic environment of communication is utilized, the students, beginning from the activity hypertext, may support the creation of a network of observations, comments, contributions, etc. This network of messages reflects the exchange of experience and knowledge among members of a school community, and constitutes a capital of knowledge for this community.

Simulations allow the dynamic handling of historical concepts and support the deeper comprehension of the significance of certain choices made by historical personalities under the influence of either their environment or situation.

---

[14] Seely Brown, J., (1999), "Learning, Working & Playing in the Digital Age: Creating Learning Ecologies." Transcription of a talk by Brown at the 1999 Conference on Higher Education of the American Association for Higher Education.
[15] Martin, D., (2003) 'Relating the general to the particular: data handling and historical learning'. *In: History, ICT and earning in the secondary school* (Haydn,T. and Counsell, C. (eds)). RoutledgeFalmer. pp. 134-151.

[16] Thompson, D., and Cole, N., (2003) .'Polychronicon - Keeping the kids on message...one school's attempt at helping sixth formstudents to engage in historical debate using ICT'. *Teaching History,* (113), pp. 38-43.
Wellman, E., and Flores, J., (2002).'Online Discourse: Expansive Possibilities in the History Classroom'. *NECC 2002: National Educational Computing Conference Proceedings (23rd),San Antonio, Texas, June 17-19.* http://www.sscnet.ucla.edu/ch-ssp/2002conf/wellman_necc.pdf

The use of **digital video** especially in projects of local history facilitates the collection of oral evidence. Especially if the collection is preceded by the study of such testimonies, then the students may develop more effectively the necessary interviewing skills[17].

The technologies of Information and Communication provide educators with tools essential for the reenactment of historical concepts by individualizing the students' educational needs. Visualization is enhanced through the utilization of Technologies since the structural concepts of historical thought can be dynamically enacted. The dynamic **conceptual maps** for example facilitate the development of historical thought because they are constructed with the students' help and allow the exploration and comprehension of complex historical terms such as social stratification, synergy of factors, social class, alternative/monetary trade. If we take one more step and approach students as producers and transformers of historical thought, then we realize that the concepts are transformed into analytical tools of interpretation of historical material. In this way, students are led to the development of a spectrum of cognitive skills.

Even traditional teaching aids such as the blackboard have been reinstated in our era. In the recent years we have seen a new type of board, the electronic interactive board. The teacher may prepare his or her lesson in an electronic file which includes different sources of media, plans, videos and sound files. The board turns into a dynamic tool, the maps, the tables of data are transformed in front of the eyes of the class, and the students can store their work or even take it home in a portable storing medium.

From theory to practice
Educators using their internet connection in the Pan-Hellenic School Network (PSN) gain, through the specialized overseas portals, access to a variety of information, historical sources and various kinds of digital archives[18]. The majority of educators –as their interviews reveal- feel that they do not allocate sufficient time and resources to the production of additional teaching material in our language.

The experience we acquired during the training programs in the use of new technologies revealed that sufficient teacher preparation contributes greatly to the success of the lesson, a claim also encountered in international bibliography[19].

---

[17] Wolfrum, M., et al., (2001).'Capturing History: How Technology Helped Middle School Students Learn History'. EdMedia 2001,World Conference on Educational Multimedia, Hypermedia &Telecommunications,Tampere, Finland, June 27.p.126.

[18] Brown, G. S., (2001) 'The Coming of the French Revolution in Multi-Media'. *History Teacher,* 34 (2), pp. 193-208.
http://www.historycooperative.org/journals/ht/34.2/brown.html
Brown, L., and Purvis, R., (2001). *What is the impact of multisource learning on History at key stage 3?* Technology integrated pedagogical strategies (TIPS) website case reports,http://www.educ.cam.ac.uk/TIPS/brownpur.html
[19] Hennessy, S., et al., (2003). Pedagogic Strategies for Using ICT to Support Subject Teaching and Learning: An Analysis Across 15 Case Studies. Research Reports, No. 03/1, Faculty of Education,University of Cambridge.

If we combine IT support of the lesson with the suitable pedagogic intervention, thus ensuring that the students do not deal with technical issues, but rather focus on the subject that they deal with, maintaining a satisfactory learning rate, then we can be sure of the success of our effort.

What has also been revealed by the processing of written exam papers is that there are certain difficulties that students face with the sources. If, therefore, we help them with the analysis and interpretation of sources by making use of a hypertext which organizes our sources, then we are on the right track.

In case we use the word processor we will have to make sure, through the activity, that our students comprehend the content of the source they are processing and do not resort to either automatic reading or copying and pasting of excerpts. An activity supporting the process of guided reading is that of adding subtitles to parts of the text as well as recording the points of particular interest for our subject. We can then ask the students to highlight the points they consider to be sufficiently supported by the soured data. The highlighting facilities the word processor provides us with, the ability it offers us to move text or to categorize arguments, facilitate the process of historical analysis.

Conclusion

A number of reports[20] that "in spite of the significant infrastructure program concerning computers in schools, their use by the students is insufficient". It is also reported that the students have made shallow use of computers and that the teachers' computer literacy is still deficient.

Certainly the obstacles are numerous. A prerequisite for the improvement of this situation is sufficient teacher training in the effective use of ICT; this, however, must be accompanied by changes in the organization of schools and in pedagogic methods. Conclusions drawn from case studies suggest that even if the technologies of Information and Communication are the cause for the change, or the means through which change is effected, the use of ICT must be closely connected to other aspects of school development[21]. As in the case of enterprises, the full dynamics of Technologies will show only if the introduction of these technologies is effectively combined with other innovations.

---

[20] OECD, 2005 Education Policy Analysis, 2004 edition
[21] Fullan, M.,2001, Leading in a culture of change, Jossey-Bass, San Fransisco, California