Faculty of Arts
    ***
English Department
    ***
Book and Byte: Book and Digital
Media Studies
    ****

The Memory of the Netherlands: Introducing Cultural

Heritage into the New Teaching-Learning Environment

Presented and defended for the award of the Master of Arts Degree in Book and Digital Media Studies by:

O l i v i e r N y i r u b u g a r a
<u>**Registration Number**</u>: 0549622
<u>**Course**</u>: Digital Access to Cultural Heritage

<u>**First Reader**</u>: Mr. Marcel Ras
<u>**Second Reader**</u>: Dr. Patricia Alkhoven

Academic year 2005-2006   August 2006

Table of Contents

The Memory of the Netherlands: Introducing Cultural Heritage into the New Teaching-Learning Environment

Olivier Nyirubugara
Faculty of Arts, English Department, Book and Byte: Book and Digital Media Studies, Leiden University, The Netherlands.

Abstract
Educational reforms and the pedagogical innovations that go with them have become a major preoccupation of all those involved in the educational sector and a major subject discussed by scholars worldwide. The advances in Information and Communication Technologies (ICT) and the fast-spreading phenomenon of cultural heritage digitisation are part of those innovations whose place in the New Teaching-Learning Environment needs analysing and defining. History teachers and their pupils are among those principally targeted by memory institutions when they decide to implement a digitisation project. The Memory of the Netherlands, a national programme of the National Library of the Netherlands aiming to digitise Dutch cultural heritage collections, is one of the newcomers on the educational scene and its place in the existing history teaching pedagogy needs to be studied. Should Digital History resulting from the Digitised Cultural Heritage replace or supplement conventional classrooms? Should history teachers go on with traditional textbook-based methods while their pupils are said to belong to the Internet Generation? To what extent should history teachers be facilitators or instructors? This article aims to answer these questions among others, with the educational modules of the Memory of the Netherlands serving as illustration.

Keywords: ICT in education. Pedagogical innovations. Educational reforms. Digitised cultural heritage. History teaching. Digital History. Virtual Realities. Digital Game-Based Learning.

1. Introduction

Since time immemorial, technology whether at its primitive or most advanced stage, has been affecting educational systems giving rise to new practices and new ways of transmitting and acquiring knowledge. Major technology-driven events took place and left their marks not only on educational systems but also on humanity as a whole forever. These include the move from orality to writing some four to five thousand years ago, the invention of print in the mid-15th century, and the invention of the World Wide Web (Web) in the early 1990s just to mention these which are directly connected to knowledge transmission and acquisition. The same evolution could be observed in how schools moved from the mouth-to-ear methods, religious and cultural performances in ancient civilisations to the written word-dominated classrooms, and then to the half-conventional half-digital classes, and even to paperless classrooms in some countries. Studying these changes and their impact on education implies necessarily a look at society from different perspectives, namely sociological, historical, pedagogical, political, economic, developmental, etc. because education has always been perceived as the mirror of society.

One of the changes brought by the Digital Era, the most recent stage of the Information Age which started with the invention of the Web, is the massive digitisation of cultural patrimony by many memory institutions worldwide. This is said to have solved a number of problems including the physical preservation ones and, to some extent, those related to access, though it has also provoked

long-term digital preservation worries. It is also hailed for having boosted education and research by putting primary resources within the reach of teachers and students. In that respect, the Memory of the Netherlands, known as *Het Geheugen van Nederland* (http://www.geheugenvannederland.nl), a digitisation project of the National Library of The Netherlands, has been digitising and putting online hundreds of thousands of primary resources and materials since 2000, and deriving from them educational modules, primarily for the different secondary school levels but also for the general public.

The aim of this article is thus to explore the educational potentials of the Memory of the Netherlands on the one hand, and to analyse how this new way of teaching and learning History is making its way into conventional classrooms and establishing itself as part of the New Teaching-Learning Environment, on the other hand.

2. Teaching, Learning History in the Digital Era

Dominated by the latest developments in Information and Communication Technologies (ICT) especially the Web, the 21st century teaching-learning environment is far different from what it was a decade ago, not to talk of half a century or a millennium ago. Computers and other related technologies have completely altered approaches to teaching and learning as 'they are now an integral component of human lives both inside and outside of school' (Taylor, February/March 2006).

Until a few years ago, history was still a discipline taught almost exclusively by means of narratives by the teacher with students listening and taking notes to memorise. With new technologies offering new opportunities, history began metamorphosing, to use the terms of Daniel J. Cohen et al.(2005), and historians are rethinking how they research, write, present and teach about the past taking into account the latest technological advances.

Teachers are perhaps the most challenged in this new environment. Most of them belong to a generation which is not very familiar with new technologies and have to teach another generation for which those new technologies have become part of daily life. To describe this situation, Marc Prensky, a renown American expert in Digital Game-Based Learning, calls teachers 'Digital Immigrants' and their pupils 'Digital Natives'.[1] Following the same line of thought, Jos de Haan et al.(April 2002, p.6) of the Dutch Social and Cultural Planning Bureau (*Sociaal en Cultureel Planbureau*, SCP), refer to people born after 1980 as the 'Internet Generation.'

With teachers considered as 'immigrants' in a foreign place where they have to teach 'natives' in the 'language' the latter understand and using methods compatible with their digital habits, there are good reasons to wonder whether teachers will keep their instructional or teacher-

---

[1] Marc Prensky speaking at the 'ICT and Educational Reforms' on 12 April 2006 in Veldhoven, the Netherlands.

based methods with little or no use of ICT, or whether they will have to readjust their methods to take into account the natives' desires. Addressing about one thousand Dutch secondary school teachers on this gap between teachers and students during the 12-13 April 2006 Veldhoven Conference, Prensky said that 'the current generation of teachers is teaching a generation it was not trained to teach'. Following a similar path, Moshe Barak (2006, p. 124), senior lecturer at Ben-Gurion University of the Negev, Israel, writes that 'teachers tend to teach the way they were taught'.

It is during this change in the ways we look at the heritage of the past that the Memory of the Netherlands (MNL) was launched in 2000, with secondary school history teachers and pupils as the main target audience, beside the general interested public. Its Website, http://www.geheugenvannederland.nl , which is operational since May 2003, contains 348,406 objects,[2] 250 hours of moving images and 100 hours of audio texts, all selected from 51 memory institutions including the American Memory and the British Library (Doorenbosch, 2003). Based on them, 24 educational modules have been conceived and put online, 20 of which being history lessons (Van Marle, 2006, p. 4). The MNL is not an isolated case because many Dutch museums and other memory institutions have now Web-based lessons for secondary and even primary school pupils. In this respect, *Dat Bewaren We*,[3] a joint undertaking by *Stichting voor de Nederlandse Archeologie* (Foundantion for Dutch Archaeology, SNA) and *Nederlandse Museumverenigin*g (Union of Dutch Museums, NMV) among others; the National Archives;[4] and Museum Boerhaave,[5] offer cultural heritage-oriented educational programmes to young learners. For instance, in the case of Museum Boerhaave, which preserves the heritage left by scientists in the areas of natural sciences and medicine, one lesson introduces secondary school pupils to 17th century Dutch astronomer and physicist Christiaan Huygens and his inventions and discoveries.[6] Similar lessons are offered about Antoni van Leeuwenhoek and Cornelis Solingen, two other 17th century Dutch scientists.[7]

One year before the launch of the MNL, the Dutch ministry of education launched another project known as *Onderwijs on line* [Education Online] to coordinate, encourage, and evaluate the implementation of ICT-related reforms in the educational system. In a report to the parliament about that project, then education minister [1998-2002] Hermans (March 2001, p.9) draws a global picture of the New Teaching-Learning Environment in the Netherlands as follows:

---

[2] The Memory of the Netherlands, ohttp://www.geheugenvannederland.nl/gvnnl/handler.cfm/ event/onpage/pageid/772A8B3E-61A5-11D6-8F22-0002A508D0B7/flash/1 (05 May 2005)
[3] http://www.datbewarenwe.nl/asp/page.asp? alias=datbewarenwe.nl (25 May 2006)
[4] http://www.nationaalarchief.nl/ onderwijs/introductie/ (25 May 2006)
[5] http://www.museumboerhaave.nl/onderwijs/ algemeen.html (04 June 2006)
[6] http://www.museumboerhaave.nl/onderwijs/VOORTGEZET/2defase/ANW/ christiaan.html (04 June 2006)
[7] http://www.museumboerhaave.nl/onderwijs/VOORTGEZET/2defase/ANW/leerling.html (04 June 2006).

The [2000/2001] ICT survey shows that the use of ICT increases in all sectors. It has become self-evident in the administration and management. Also teachers and pupils use more and more ICT applications. Their use is still limited to word processors and the Internet. The didactic use is still behind.[8]

Despite the intensive use of the Web by pupils, SCP's Jolijn Broekhuizen and Frank Huysmans (June 2002, p.14) note that the percentage [3 percent in 2000] of Dutch children aged 12 or older who use the Web as a source of cultural heritage-related information is still very low, though the highest in Europe. Despite this low percentage, the authors strongly believe that the Web remains the best medium to bring children and young adults in contact with cultural heritage, as they [those aged between 12-19] spent an average of 0.7 hours a week of their leisure time on the Web in the early 2000s, compared to 0.6 hours for adults [20-35 year] (Broekhuizen and Huysmans, June 2002, p.16). In its latest report on the use of the Web in Europe, the Statistical Office of the European Union (Eurostat, April 2006) confirms the prominence of Dutch students in the use of the Web for educational purposes. 74 percent of Dutch students use it regularly, which places that country in the second position after Sweden (76 percent) and before Denmark (73 percent), the lowest being the Czech Republic and Cyprus (26 percent).[9]

The above statistics reflect the way Dutch and European students acquire knowledge and confirm the assertion that their learning environment has actually changed, which is not yet fully the case for the teaching side. The statistics of the use of the MNL educational modules by history teachers are very instructive and call for more analysis, as they reflect the current transitional situation from the old teaching environment to the new ICT-dominated one. According to an internal report by MNL Educational Programme Coordinator Johanneke van Marle (2006, p.8), around 50 percent of history teachers are aware of the MNL educational modules, but only 20 percent have actually used MNL lessons at least once. 20 percent refuse to use the modules for diverse reasons including insufficient computers (15 percent), irrelevance of modules with regard to the syllabus (30 percent), lack of time to prepare lessons (20 percent), refusal to integrate ICT (5 percent) and others (25 percent).

---

[8] LMLHA Hermans (Education Minister of the Netherlands 1998-2002), *Onderwijs on line: actualisatie*, The Hague, March 2001, p. 9. http://www.minocw.nl/documenten/actualisatie.pdf (14 May 2006) '*De Ict-Monitor laat zien dat het gebruik van ict in alle sectoren toeneemt. Voor administratie en beheer is ict een vanzelfsprekendheid. Ook docenten en leerlingen maken steeds meer gebruik van ict-toepassingen. Het gebruik beperkt zich vaak nog tot tekstverwerkers en internet. Het didactisch gebruik blijft hierbij achter.*'

[9] Eurostat, *Internet Usage in EU25 in 2005* (6 April 2006)
http://epp.eurostat.cec.eu.int/pls/portal/docs/PAGE/PGP_PRD_CAT_PREREL/PGE_CAT_PREREL_YEAR_2006/PGE_CAT_PREREL_YEAR_2006_MONTH_04/4-06042006-EN-AP.PDF (10 April 2006)

These figures could be analysed in terms of 'Digital Immigrants' versus 'Digital Natives' since the average age of the more or less 3,500 Dutch history teachers is 45-50 years,[10] a generation that grew up in a totally different environment but now struggling to cope with a younger, new media-biaised generation. Peter Wester, a 60 year-old history teacher at *Carmel College* in the western city of Oldenzaal with thirty years of history teaching experience is a good illustration of the above. Wester is also the chairman of the history teachers' association (*Vereniging van docenten in geschiedenis en staatinrichting Nederland,* VGN). He sees no comparison between the three-month didactic course followed by a three-month placement he had in the 1970s and the one-year-long training future history teachers [*Leraar in Opleiding*] have now, with half of it dedicated to practical experiences in schools.[11]

The global picture of education is different in the Nordic countries. In a study entitled *E-learning Nordic 2006: Impact of ICT on Education,* carried out by E-leaning Nordic - a partnership between Finland, Sweden, Norway and Denmark - it appears that teachers too are very enthusiastic about ICT and their use during lessons. For them, ICT has ceased to be a gadget for a few interested teachers to become 'part of everyday life for all schools'(Pedersen et al., 2006, p.42).

Politically speaking, the New Teaching-Learning Environment lies largely within the hands of national governments and other governmental or continental bodies in charge of education, which decide on reforms and disburse funds for their implementation. For instance, in 1997, when the Web was confirming its status as a reliable and unavoidable educational tool, then Dutch education minister [1994-1998] Ritzen laid down his educational reforms strategy, and ICT –related sectors capped his priority list. In 1997, 78 million guilders [35.3 million euro] were disbursed and 100 [45.3 million euro] the following year. From 1999, 20 million guilders [9 million euro] more would be added and this additional amount was to be five times bigger in 2002. Only for 1997 and1998, a total of 272 million guilders [123.4 million euro] was set aside for ICT equipment in schools.[12] Ritzen's successor, Hermans (March 2001) also committed himself to stimulate the didactic use of ICT to improve the educational system and promised 'not to abandon schools to their fate.'[13]

---

[10] Figures of the Union of History Teachers (Vereniging van docenten in geschiedenis en staatinrichting Nederland, VGN) provided by its chairman Peter Wester during the interview with the author on 11 April 2006

[11] Author interview with Dr. S.R.E. Klein, lecture of History Teaching at Leiden Graduate School of Education (ICLON), 01 June 2006.

[12] Dutch Ministry of Education, press release dated 16-09-1997, http://www.minocw.nl/persberichten/11609(14 May 2006)

[13] LMLHA Hermans (Education Minister of the Netherlands 1998-2002), *Onderwijs on line: actualisatie*, The Hague, March 2001, p. 1. http://www.minocw.nl/documenten/actualisatie.pdf (14 May 2006) *'De komende tijd zal ik de nadruk leggen op het stimuleren van het didactisch gebruik van ict om zo het onderwijs verder te verbeteren. Ik laat de scholen hierbij niet aan hun lot over.'*

It should also be remembered that as early as 2000, the European Union laid down a kind of guidelines and timeframe for ICT-related educational reforms among its member states. The March 2000 Lisbon Summit, known as the 'dot.com summit', resulted in a plan of action, *eLearning: designing tomorrow's education (*European Commission, March 2000)*, which was to be part of a larger plan known as *eEurope Action Plan* (European Commission, June 2000) approved three months later. All these plans emphasized that all schools be connected to research networks by the end of 2002; that a ratio of 5-15 pupils per multimedia computer be achieved by 2004; that the availability of support services and educational resources on the Web, together with online learning platforms for teachers, pupils and parents, be ensured by the end of 2002; that new learning methods based on ICT be integrated in school curricula by the end of 2002; that appropriate training be provided to teachers and measures be taken to encourage teachers to make real use of digital technology in their lessons by the end of 2002.[14]

Despite these guidelines and timeframe, not much has changed in the training of future secondary school teachers. S.R.E Klein, lecturer of History Teaching at the Leiden Graduate School of Education (ICLON) says that one year is too short to properly prepare a history teacher, especially when one semester is dedicated to theoretical courses and the other to practical experience. He adds that in this one semester of theory, future history teachers are first of all equipped with the basics of history teaching including class management and pedagogy, which leaves little room to ICT-oriented methods and no room at all to digitised cultural heritage as an aid to conventional methods. Klein says that the little time reserved for ICT is devoted to telling future teachers how to train their pupils about the reliability of Web resources, and to have a critical judgement of Websites. Klein notes however, that documentaries and films are often taken into account as aids to ordinary teaching methods.[15] This sheds more light on the reason why ICT is not as present in lessons as expected and pushes to agree with Moshe Barak (2006, p. 122), that 'a considerable small number of teachers that use computers for instruction do so infrequently and unimaginatively'.

According to Jos de Haan et al. (April 2002, p.17) of the SCP, the aforementioned political efforts and commitments resulted in a situation where there is at least one PC for ten pupils, which is still the ratio at Carmel College in Oldenzaal [April 2006] and at Pieter Zeeman secondary school in the south-westernmost town of Zierikzee [May 2006]. This perhaps explains why 15 percent of history teachers refusing to use MNL modules argue that their students have insufficient computers. Despite this insufficiency or any other reason put forward by history teachers, pupils use far more

---

[14] European Commission, *eLearning Action Plan: Designing Tomorrow's Education* (March 2000) http://europa.eu/eur-lex/en/com/cnc/2001/com2001_0172en01.pdf (28 May 2006)

[15] Author interview with Dr. S.R.E. Klein, lecture of History Teaching at Leiden Graduate School of Education, 01 June 2006.

Web re/sources than books for their class assignments. An April 2006 study by Motivaction International B.V. concluded that 92 percent of 12-17year-old Dutch pupils use Web re/sources for their class assignments while only 4 percent prefer to use books.[16] The study further explains this, among other reasons, by the fact that at least 43 percent of those pupils have Internet in their bedroom, which infers the ubiquity of the Internet in Dutch households -78 percent, the highest in Europe, according to Eurostat (April 2006).

The 8 percent of pupils and certainly a large majority of history teachers - John van Jole, a history teacher at Pieter Zeeman secondary school estimates them at 90 percent - [17] who still prefer traditional methods to new ones are a characteristic sign that the transition still goes its way. This is not the case in Sweden, a country which is at a very advanced stage of the transition from the Old to the New Teaching-Learning Environment. Studying the use of ICT in a secondary school in the Swedish town of Smallville, Jens Pedersen (2004, pp.335-6), a researcher in behavioural sciences at Linköpings University in Sweden, writes that every pupil has a lap-top with connection to the Web, which certainly explains the first position of Sweden (76 percent) on Eurostat's list. The school owns the lap-tops which it lends to pupils for three years before they buy them or hand them back. In that paperless school, Pedersen goes on, textbooks are brought in just when additional information is needed and not the other way round.

The above Swedish example should perhaps inspire Dutch educational decision and policy makers in the current transitional period, which SCP's Jos de Haan and Frank Huysmans call a 'period of critical reflection about the benefits of the new technology.'[18] It is certainly after this reflection period, under which we should count the 12-13 April 2006 Veldhoven Conference, that traditional teaching methods which have become a kind of routine, will finally yield appropriate room for innovations. Emile Durkheim (1922, p.26), the father of modern sociology, sees in 'reflection' the only way to fight routines, which he considers to be an obstacle to progress in education. Those benefits which the MNL and other similar projects are intended to bring into History classrooms are highlighted in the coming section, in hopes of contributing to that ongoing reflection.

---

[16] Motivaction International, *Naïef zoekgedrag op internet*, 19 April 2006 http://www.collegenet.nl/ (21 April 2006)*'Internet is veruit favoriet bij informatie zoeken bij schoolopdrachten. 92% van de scholieren zoekt op internet en nog maar 4% zoekt informatie op in boeken van o.a. de openbare bibliotheek.'*

[17] Author interview with John van Jole, history teacher at Pieter Zeeman secondary school, 09 May 2006.

[18] J.de Haan and Frank Huysmans, *E-cultuur; een empirische verkenning*, SCP, The Hague, June 2002, p. 5 '*Inmiddels is een periode van kritische reflectie op de zegeningen van de nieuwe technologie aangebroken.*'

3. Virtual Reality in Real Classrooms

The foregoing focused on a concise description of the New Teaching-Learning Environment and the transitional character it still has in the Netherlands. This section will look more closely at the content of the MNL, the way it is trying to make its way into history classrooms and the beneficial changes it is likely to introduce.

To begin with, it should be pointed out that children, those belonging to the Internet Generation, are swimming in a sea of new media (Amy B. Jordan, 2002) and thus face more digital resources than analogue and conventional ones, a situation which has its advantages and drawbacks. Looking at the MNL from that angle, it appears that the digitisation project transformed primary re/sources and materials - most of which being 'real realities' - into digital materials, not only to make them largely accessible, but also to make them digestible to children. As a matter of fact, their brains are much more disposed to consume digital products than analogue ones as exemplified by Motivaction International's report.[19] In its initial Plan of Action, the National Library of The Netherlands stressed the fact that the MNL would bring pupils, teachers and parents in touch with history and culture in an 'attractive' and 'didactic' way (Doorenbosch[20], November 2000).

A brief stop at this point proves necessary in order to understand why, at this precise moment of history, pupils and young adults are more disposed to consume digital information than its analogue counterpart. Durkheim's treatise entitled *Education et sociologie* (posthumously published in 1922) is in itself an answer to that question. Throughout this groundbreaking work, Durkheim keeps emphasizing that education is part of society and should not be disconnected from it and its realities. He writes:

> Considered at a given time of its development, each society has an educational system which imposes itself to individuals generally with an irresistible force. It is thus vain to think that we could educate our children the way we please. There are customs with which we have to conform, and if we refrain to a large extent from doing so, they will avenge themselves on our children. Once they become adults, they will not be able to find their way among their contemporaries and will not live in harmony with them (Durkheim p.6).[21]

---

[19] Motivaction International, *Naïef zoekgedrag op internet*, 19 April 2006 http://www.collegenet.nl/ (20 April 2006): *'Scholieren vinden internet sneller en makkelijker werken dan het opzoeken van informatie in boeken.'*

[20] P.Doorenbosch was Project Manager of the Memory of the Netherlands, when he authored the MNL's Plan of Action

[21] E. Durkheim, Education et sociologie,p.6 '*Mais, en fait, chaque société considérée à un moment déterminé de son développement, a un system d'éducation qui s'impose aux individus avec une force généralement irrésistible. Il est vain de croire que nous pouvons élever nos enfants comme nous voulons. Il y a des coutumes auxquelles nous sommes tenus de nous conformer, si nous y dérogeons très gravement, elles se vengent sur nos enfants. Ceux-ci, une fois adultes, ne se trouvent pas en état de vivre au milieu de leurs contemporains, avec lesquelles ils ne sont pas en harmonie.*'

To clarify his thought, Durkheim gives examples with regard to the aims of education and how they changed throughout history, depending on the period and place under consideration. In Ancient Greece, education aimed to cultivate virtue and blind subordination to society[22] while in Rome, children were educated primarily to become 'men of action' destined for military glory.[23] Mediaeval societies emphasized Christian education, which the Renaissance was to question later to replace it by classical literature. This, on its turn, was being elbowed out by science during Durkheim's times, namely the late 19th –early 20th centuries (Durkheim , 1922, p.5). To continue in that vein, the current Digital Era should have a different educational system with different aims and different means to achieve them. SCP's De Haan and Huysmans (April 2002, p.4) write that the main aims of the current Dutch educational policy is foremost to prepare the younger generation for the Information Society and, secondly, to make it intellectually well-equipped for the labour market,[24] which Hermans (March 2001, p.5) too agrees with. There is no doubt that the aims were totally different during the early and mid-20th century, when the Dutch educational system, just like Dutch society as a whole, was religiously and politically polarised. During this period, parents had different expectations from schools and their choice would generally be motivated by the school's religious denomination, which of course has ceased to be the case (Emans and Roede, 2005, p. 1).

In that same vein, Pamela G. Taylor (February/March 2006), Associate Professor of Art Education at Virginia Commonwealth University Richmond, stresses that learners too have now different expectations of schooling than their counterparts did in the past. She attributes this to the amount of information available to them on the Web and the speed with which they make discoveries with technology.

At the university levels too, the debate is already open about whether libraries should go digital since the Internet Generation is already there. In an article about the library of the University of Texas at Austin, Rachel Deahl (September 07, 2005) writes that tens of thousands of volumes of printed text have been dispatched among other libraries to be replaced by electronic versions. She notes that undergraduate, college and university libraries across the US 'are going digital in hopes of

---

[22] Unlike Durkheim, Mark Griffith (2001, pp. 23-4), professor of classics at the University of California Berkley, makes the distinction between educational aims in Sparta and Athens. While Spartans emphasized 'rigid militarism designed to produce brave but (blindly conformist) sons and daughters of the fatherland', Athenians prioritised 'the open-minded cultural experimentation […] of liberalism, […] arts and free expression, and […] all kinds of intellectual expressions'.

[23] Anthony Corbeill (2001, pp. 261-7), professor of Classics at the University of Kansas, complements Durkheim saying that the other aims of education in Rome were 'citizen training', democratisation of the population, social reproduction, oratorical perfection.

[24] J. de Haan, Frank Huysmans and M.M.V Jan Steyaert, *Van huis uit digitaal* (The Hague: SCP, April 2002),p.4, '*Een van de doelstellingen van het onderwijsbeleid is het voorbereiden van jongeren op de informatiesamenleving. Daarnaast wil het onderwijs vaardigheden bijbrengen die aansluiten op de vraag van de arbeidsmarkt.*'

keeping today's students—who are more comfortable using the Internet than the card catalogue for their academic needs.'

The MNL is thus part of the new means to achieve the new goals of the new educational system and a response to Digital Era learners' expectations. The ongoing reflection should focus on the appropriate pedagogy that would smoothly accommodate the new methods and means into that system. The introduction of the MNL educational modules on their homepage suggests what the first steps would be in this integration of digital resources. It presents those modules as helping teachers in classic classrooms introduce a theme or an issue, illustrate a phenomenon, and as serving as subjects for discussions and research.[25]

But then, bringing these 'virtual realities' into history classrooms and how they would cohabitate with the age-old methods primarily based on conventional textbooks, should be carefully considered. Peshe Kuriloff (October / November 2005), associate professor of English at the University of Pennsylvania, does not perceive the current reluctance of teachers to quickly adopt e-pedagogy as a big problem and considers the most essential to be the fact that 'the message educators are getting from it rings loud and clear'. It would indeed be ideal if primary re/sources, museum items and historical sites could easily and cheaply be accessed in their physical form on the one hand, and if the 'Internet Generation' would be motivated to learn that way, on the other hand. However, those primary resources and materials could never permit the interactivity, malleability, and flexibility permitted by digital media.

Veteran teacher Wester sees in the MNL and other similar projects a good solution to the problem of access to primary resources. According to him, for a pupil to view and consult physically certain primary materials, s/he has to travel from Oldenzaal, a small town bordering Germany, to the Hague-based National Archives, which is a three hour-train-trip, the Regional Archives in Zwolle or to bigger libraries far from home, which is not an ideal situation. For instance, Wester remembers with satisfaction the 'astonishing essays' of his pupils who were working on an assignment about the 16th-17th century sea piracy with a strong recommendation of the MNL as the main source.[26]

---

[25] The Memory of the Netherlands, http://www.geheugenvannederland.nl/onderwijs/ docenten/ideeenintro.html (09 April 2006) '*De bronnen van Het Geheugen van Nederland kunnen in het klassikale onderwijs bijvoorbeeld door de docent gebruikt worden als introductie op een thema, kennismaking met een problematiek of illustratie van een verschijnsel. Het beeldmateriaal kan een aanzet zijn tot een klassendiscussie, of het basismateriaal vormen voor een onderzoeksopdracht, presentatie of project.*'

[26] Examples of MNL's URLs about sea piracy:
http://www.geheugenvannederland.nl/gvn/search/titelpresentatie.xsp?recordid=111&onlineid=OHR01_0111&dbcode=OHR01 ;
http://www.geheugenvannederland.nl/gvn/search/titelpresentatie.xsp?recordid=C786&onlineid=ZZM01_006473&dbcode=ZZM01;
http://www.geheugenvannederland.nl/gvn/search/titelpresentatie.xsp?recordid=C828&onlineid=ZZM01_BRK000070&dbcode=ZZM01 .

Let us suppose that access to primary materials would not be a problem. Would museums and archives allow history teachers to make copies of those precious and generally fragile resources for their pupils to have a closer look at them outside the museum? A secondary school history teacher wanting to support his/her lesson about the mid-19th century industrial revolution that started in the south-easternmost town of Maastricht with Petrus Regout, would have to take the whole class to the different sites and museums scattered in many parts of the Netherlands, where the relics of Regout's ceramic industry can still be found. At first sight, that sort of experience would most likely make a strong impression on the learners' minds, but those willing to check or use one particular detail or information at a later time for their assignments would be embarrassed.

Considering the MNL's *Maastricht Aardewerk,* a module entirely dedicated to the beginning of the industrial revolution with Regout founding a ceramic industry and all related developments - such as social and labour conditions of that time and the creation of the first labour unions - the same teacher would find it more practical, less expensive and more timesaving than repeated excursions to historic sites and museums. It is more practical because an overhead or portable projector would allow pupils to watch the images during the lesson. Pupils would also watch the objects at any time and in any other place from behind the PC screen, with the possibility to zoom in and out in many cases. This is to say that one particular object would be virtually multiplied by the number of screens being used, with image quality close to the original. In the case of unique written materials or pictures like those of Queen Wilhelmina's exile which exist just in a few –if not one - extremely fragile copies each, the MNL offers the opportunity of digitally multiplying them and, unlike the original, the possibility of zooming them in (and out) for a closer and clearer observation, which considerably supports immediate teaching needs (Hazen et al. 1998, p.6). It is less expensive because the MNL charges no access or subscription fees nor does it require any travel expenses. It is timesaving, because the hours spent of the way to and from those historic sites and museums would be used for something else. Also, pupils wishing to check or use one detail or another for their class assignments would go back to the MNL module from their bedroom, their work desk, the school library or from anywhere else instead of re-planning another excursion.

To go on with the *Maastricht Aardewerk* module, I would like to stress another advantage of it over the historic sites and museums preserving the heritage of the industrial revolution, notably the fact that the module was specifically designed by educational professionals to support and explain the images. For that, a general introductory background about the period preceding the industrial revolution is given, the causes of the revolution itself are explained and their impact is presented in very simple terms supported by the images of Regout himself, his employees, his factory and then the ceramic products he made. This is to say that the modules have the advantage of being specifically designed for educational purposes, while the physical memory institutions where the

physical items are preserved cater for all sorts of visitors, including tourists, the elderly, etc who visit the institutions to satisfy their curiosity and not necessarily to study the history hidden behind the objects.

The other advantage is that the modules can be improved, modified, and updated if this is reflected in the feedbacks from users. Very regrettably, as Van Marle (2006, p. 5) observes, almost nobody is willing to send an evaluation feedback, [27] which is perhaps another sign of the transitional and reflection period.

The above scenarios aim to demonstrate that the past as we used to see and read it in history textbooks, archives, museums and historic sites has not changed but that the way it is presented and brought back to life is different. This is what Brendan Calandra and John Lee (2005, p.324) of the Georgia State University term 'Digital History', which they define as 'the study of the past using a variety of electronically reproduced primary sources, images, and artefacts as well as the constructed historical narratives, accounts, or presentations that result from digital historical inquiry.' In the early years of the Information Age, media philosopher Marshall McLuhan prophesied that the new electr[on]ic culture would force the new media to do the work of the old (McLuhan and Quintin, 2001, p. 81), and that is what is happening with History entering slowly but surely classrooms not via the old medium-the book- but via the new one-the Web.

Looked at from this perspective, the MNL contains excellent Digital History Resources (DHRs) from where 'digital natives' could quench their thirst and acquaint themselves about their country's heritage in a more attractive, more practical and timesaving way. But for that, there is an urgent need to have 'digital teachers' who would take full advantage of DHRs. According to the European Union's *eLearning Action Plan: Designing Tomorrow's Education*, those teachers should be around by now, since end of 2002 had been set as the deadline for equipping all teachers with appropriate ICT-skills and training so that they can make real use of digital technology in their lessons (European Commission, March 2000, p.3). But, as noted above, ICT-driven history teaching methods and DHRs are not yet on the agenda of some graduate schools of education. Klein says that the current one-year programme would have to be extended to 3-5 years so that future history teachers can be trained in ICT-driven methods and DHRs.[28]

Here is another illustrative example of a secondary school pupil studying Queen Wilhelmina's reign. By self-studying it or by using the MNL for his/her class assignment from home - because

---

[27] J.van Marle, *Rapport van de evaluatie van het gebruik van de digitale lessen* (The Hague:2006)[MNL Internal and unpublished report] p. 5 '*We publiceerden evaluatieformulieren op de site van Het geheugen van Nederland met een verzoek om na gebruik vooral te evalueren. Voor de aanpak bleek geen animo bestaan. Bijna niemand leverde een evaluatie in. Het roer moest om.*'

[28] Author interview with Dr. S.R.E. Klein, lecture of History Teaching at Leiden Graduate School of Education (ICLON), 01 June 2006.

most pupils surf the Web more at home than at school[29]- s/he would have in a couple of minutes the basics about the *Moeder des Nederlanden* who reigned during the two World Wars. In a lesson entitled *Koninklijke Post* (Royal Function), s/he would be offered a quick general introduction to the Dutch Monarchy in text, sound, and images. S/he would then be told how Queen Wilhelmina was crowned while still young (18 years), how she commanded the Dutch Army from her English exile during World War II, how she triumphantly returned home in July 1945 and how she abdicated in 1948 with an 'Accomplished Mission' sentiment. All this in a colourful and dynamic environment which would keep him/her engaged better than any 300-page or so, monotonous and silent history (text)book would do.

Moreover, each of the subdivisions of the lesson has a series of three multiple-choice questions, with automatic correction and marking. This kind of 'learn-and-test-what-you-have-learned' method cements the learned matter as the pupil can not only associate images with facts, dates and names, but also test what s/he has just learned and get the mark for it. The 'wrong answer' or 'good answer' message that pops up after each click on the chosen answer enables the pupil to strike the iron when it is still hot by correcting immediately any misunderstanding before s/he forgets what the quiz was all about.

The above should not be perceived as a call for the drop of history (text)books. On the contrary, the study of the more or less 50-minute-long module is likely to provoke the curiosity of the learner who could then decide to read one particular book to deepen his/her knowledge. Thus, the MNL modules could do some 'publicity' for history books, but for that, a kind of further-reading bibliography and related/relevant links should be added at the end of each module, to inform pupils that the MNL is not the end but the beginning and the path to other mines of knowledge. To use Prensky's thought about 'search' and 'research' with research being the use of more than one search and more than one source (Veldhoven Conference, 12 April 2006), one reliable source should be itself a source to other reliable sources, which is one important aspect of historical research.

Educational technophobe Gertrude Himmelfarb (14 December 1996), professor emeritus of history at the Graduate School of the City University of New York, perceives television, radio, movies and Digital History as taking learners away from the book and considers the Web to be more bad than good, and students learning with them to be 'miseducated'. She notes, and that is the conclusion Motivaction International came to ten years later (Motivaction, 19 April 2006), that

---

[29]J.de Haan, Frank Huysmans and M.M.V Jan Steyaert, *Van huis uit digitaal*(The Hague: April 2002), pp.6-7 '*In de SCP-rapportage Jeugde 2000 is erop gewezen dat leerlingen in het voortgezet onderwijs thuis veel vaker achter de pc zitten dan op school.In het schooljaar 1999/2000 bleek slechts 49% van de scholieren op school wel eens achter een pc te zitten, terwijl 85% dit thuis deed.*'

students surfing the Web want to satisfy their curiosity with a minimum of effort and often have no patience to think and study the old-fashioned way.

Himmelfarb's hostility to the Web and its integration into history teaching strikingly resembles Plato's vehement opposition to writing and its use by educators and learners. Putting his arguments in Socrates' mouth, Plato asserted that writing would create forgetfulness in the souls of learners who would no longer use their memory.[30] More interestingly, Plato warned his times' teachers that by transmitting knowledge through writing, they would give their disciples 'not truth, but only the resemblance of truth', which is close to what is known as 'virtual realities'. Despite this hostility, his *Phaedrus* was put and circulated in writing which it fought, just like Himmelfarb's article *A neo-luddite on the internet* ended up online, where it is accessible from everywhere.

Discussing another phenomenon of the Digital Era –multimedia encyclopaedia- which is also making its way into history classrooms, Jay David Bolter (1991, pp.97-8), writes that readers will no longer be reading about the French Revolution but instead, they will be [virtually] visiting Paris in 1789 . This is exactly what pupils experience when they jump back into the early and mid-1900s with the history of Queen Wilhelmina's reign or with the unprecedented building of the *Afsluitdijk* [the Closure Dike or the Barrier Dam], the dike that modified the history, geography, and economy of the Low Countries by transforming the hazardous Southern Sea into the *Ijsselmeer* [Ijssel Lake], thereby claiming some arable and habitable lands from the sea. The numerous images of the 1927-1932 undertaking and the lesson derived from them put viewers in a situation where they have the impression of having physically taken part in the undertaking.

The aspect that makes DHRs more attractive for nowadays' pupils is doubtless the emphasis on images, still or moving, which need just a few paragraphs in text and/or sound to be almost self-sufficient. Most history (text)books are predominantly text-based and have a limited number of images because publishers have to clear the rights from museums, libraries, archives or other bodies, and because they have a typography and layout that impose a limited number of photos per page and/or per book. In addition, even if they had all these pictures, they could not present them in a dynamic way, unless they sell their books on CD-ROM or DVD or publish them online, which is the direction educational publishers are envisaging to take to remain competitive. While putting in place the MNL and its educational modules, the National Library of the Netherlands intended to fill the gap of digital educational materials that educational publishers were not keen on filling because of the uncertainty of the market (Doorenbosch, November 2000). Giuseppe Vitiello (March 2001), director of the Electronic Publishing, Books and Archives Project of the Council of Europe, notes that educational and cultural publishers went on with traditional analogue formats and media

---

[30] Plato, *Phaedrus* (Translated by B. Jowett) http://ccat.sas.upenn.edu/jod/texts/phaedrus.html (28 April 2006)

because, unlike academic and professional publications, the electronic ones did not conquer the market.

In recent years, educational publishers have been offering history textbooks not only with as many pictures as possible but also with an interactive DVD offering more dynamic information (e.g. *Sfinx 2nd edition*, Utrecht/Zutphen: Thieme-Meulenhoff, 2003). This type of history textbooks with digital supplements tailored to the existing analogue book is still very attractive for teachers who are not required to suddenly abandon their long-used methods while using digital resources. Moreover, now that the market is becoming more and more certain and promising, educational publishers are planning to offer digital and online materials to support or supplement traditional materials. In this regard, it is worth noting that the study by Motivaction International was ordered by Malmberg, a 's-Hertogenbosch-based educational publisher, prior to the launch of its online library scheduled for August 2006. The idea behind that library is to help pupils have reliable information sources using *Winkler Prins Encarta* encyclopaedia and *Wereldatlas en Prisma* dictionaries (Motivaction, 19 April 2006).

By the same token, a new phenomenon made possible by technological progress and necessary by the New Teaching-Learning Environment, is the *Teleblik* project (www.teleblik.nl) launched by Education Minister Van der Hoeven on 18 April 2006 in The Hague (*Metro*, 19 April 2006, p.2). Etymologically meaning 'a glance back into the past', *Teleblik* is an audiovisual database for education. It aims to put at the disposal of teachers and pupils all image and sound archives of Dutch television and radio stations, which once again proves McLuhan right that the new medium-the Web- is doing the job of the old-television and radio. At the start, 2,000 hours of programmes were already online; 6,000 hours will be online by the end of 2006 and 4,000 more in 2007. Relating principally to History and Geography among other disciplines, the archives are not only freely accessible from school or home but also they are highly flexible and interactive as the copy-and-paste functionalities for instance are possible to enable teachers to build their own PowerPoint presentations.

From the above examples, it may be deduced that 'virtual realities' are becoming more and more indispensable as they allow more visual experience to learners, which greatly contributes to retention and understanding of the learned matter. Referring to a study by psychologist and non-verbal communication expert Albert Mehrabian about the elements facilitating history teaching, Larry J. Easley (1998, p.68) writes that 7 percent of the successful communication between teachers and students comes from the spoken word, whereas 55 percent comes from visual elements, the rest [38 percent] coming from the teacher's body language and tone employed in the delivery of the words. This of course does not mean that the spoken or written word should be neglected or replaced by images since in most cases teachers make allusion to DHRs orally or in writing. They also have

to put those images verbally in their context and connect them to the syllabus if necessary. Wester confirms this saying that a painting or any other image of the past whether virtual or real, will most likely not make much sense to pupils until the teacher places it orally or in writing in its context.

Bringing Web-based sources like the MNL or *Teleblik* in history classrooms proves to be a necessity but, during the reflection period, it would be a big mistake to content ourselves with this assertion and ignore that the Web is a double-edged sword. The Web, if used inappropriately, which most pupils still do (Motivaction, 19 April 2006), could spoil the ideas and ideals underlying the New Teaching-Learning Environment. The Web is not controlled by any institution and pupils can surf it far from their teachers or parents. What they find there does not necessarily come from reliable sources, which the coming section discusses.

4. The Other Side of the Medal

Telling pupils to use the Web and its resources should normally imply telling them not necessarily where to go to look for those resources but, above all, how to deal with them. It also means that pupils should be able to judge their sources and distinguish between reliable and non-reliable ones instead of blindly copying entire paragraphs from the first article they come across, wrongly thinking that Google or any other search engine has ordered hits according to their relevance and reliability.

The Web has become all and everything: a school with the fast spreading distance-learning phenomenon among others; a publishing tool; a shopping tool; a tourist's tool with virtual visits of historical sites and museums; a broadcasting tool; a 'library' with millions of books (full-texts or excerpts) and all other sorts of documents; etc. The Web as a 'library', not as an 'e-library', is rather a chaotic anarchy put online, where inexperienced surfers, among whom pupils, could be drowned, to use Pedersen's terms (Pedersen, 2004, p. 334). To keep on with this analogy between the Web and the conventional library, Jeffrey G. Barlow of the Pacific University's Department of History notes that unlike the materials in conventional libraries, the content of the Web does not go through a filtering mechanism. Barlow writes:

> The library, though it too has pitfalls for the untutored, is quite different from the Internet. Most of the works found in a library have been filtered by multiple levels of authority. Somebody thought them worth writing; others thought them worth editing and publishing; then a professional librarian found them worth collecting and cataloguing; frequently a professor thought them worth assigning. The student goes to them with considerable confidence, though perhaps unaware of the reasons of that confidence (Barlow 1998, p. 206).

James William Brodman (February 2000) of the University of Central Arkansas follows the same reasoning and adds that the Web and its search engines have just the ability to locate resources but not the one to discriminate among them. As for Himmelfarb (14 December 1996), she states that 'the constant exposure to a myriad of texts, sounds and images that often are only tangentially related to each other is hardly conducive to the cultivation of logical, rational, systematic habits of thought.' She concludes with a rather strong argument deserving in-depth analysis during this reflection period. She writes:

> Like post-modernism, the Internet does not distinguish between the true and the false, the important and the trivial, the enduring and the ephemeral. The search for a name or phrase or subject will produce a comic strip or advertising slogan as readily as a quotation from the Bible or Shakespeare. Every source appearing on the screen has the same weight and credibility as every other; no authority is 'privileged' over any other (Himmelfarb 14 December 1996).

The fears of Barlow, Brodman and above all Himmelfarb are confirmed by the aforementioned Motivaction International's study (19 April 2006) about the use of the Web by Dutch secondary school pupils. Among the 92 percent who use Web-based resources for their class assignments mostly in History, Geography and the Dutch Language, 82 percent never check the veracity of the information they find on the Web, mostly because, the study quotes pupils, any information on the Web is ipso facto veridical and trustful.

Beside the above, psychologists and educational professionals researching the impact of 'virtual realities' still have worries about their effects on children in the long run. For instance Kaveri Subrahmanyam et al. (2002, p. 20) fear that children who grow mostly with simulated realities could later be unable to distinguish between what is virtual and what is not. This aspect too deserves much attention during the reflection period and answers should be found whether Digital History should be a supplement to or a replacement of conventional history classrooms. The coming section is a contribution to the supplement-versus-replacement debate, with regard to the MNL educational modules.

5. Digital History: Supplement or Replacement?

Answering this question is also addressing the question whether pupils should learn from or with technology, or whether ICT should substitute for teachers. It is true that virtual secondary schools are proliferating in vast countries like the United States and Australia, where pupils have to travel long distances before they can reach their schools. Niki Davis and Dale S. Niederhauser (2005, p.

249) of the Centre for Technology in Learning and Teaching at Iowa State University write that in the Unites States, 15 percent of secondary school pupils had engaged in distance learning in school year 2002-2003, and that the percentage was expected to increase the following school year.

The above case is a typical example of how ICT can replace teachers and Digital History its conventional counterpart. As Durkheim (1922, p.11) suggests, each educational system is modelled on each country's social specificities and needs, to which geographic constraints could be added. In a country like the Netherlands, where the home-to-school distance is not a preoccupation, virtual schooling at the primary or secondary school levels would not appear on the priority list of educational policy makers. Instead, during the reflection period, educationalists and policy makers should discuss the cohabitation in real classes of Digital History and 'conventional methods.'

Given the average ratio of one computer for ten students not even in classrooms but rather in the computer rooms or the library, it would be unthinkable to envisage a digital-only classroom as it is almost the case in Sweden, where the government is implementing a strategy it calls 'inquiry pedagogy with the computer as a tool' and considers the Web 'as a vast textbook from which students are expected to collect data and make reports or presentations.'[31] While attending a history class at the Smallville secondary school, Pedersen (2004, pp.336-7) realised that the first reflex any pupil had after entering the classroom was to connect their lap-tops to the Web. Then, during the lesson, the teacher would walk around, answering questions, giving advice, sending useful links to the pupils and occasionally suggesting books. More interestingly, knowing every body's assigned topics, pupils would exchange relevant links among themselves. The Smallville case, where digital resources including Digital History are the basis of the educational system and 'conventional means' an occasional supplement, is another model that resulted from a political choice and commitment, because, as observed above, any innovation depends greatly on policy and decision makers.

The Dutch educational situation is the other way round: ICT and the Web are not largely and generally used to support history lessons, especially on the part of teachers. The first and foremost reason is that History teachers were and are still being trained based on conventional resources.[32] This explains why digital resources have not yet conquered many of them who still feel comfortable with textbooks and related/attached digital surrogates (CD-ROM/DVDs) as the basis of their teachings. Van Jole says for instance that textbooks like *Sfinx* or *Sprekend Verleden* and their accompanying DVDs with audio, still and moving images, are at this moment 'irreplaceable' by any Digital History database. He argues that half of the work has already been done for teachers as the

---

[31] J.Pedersen, *Project Work in the Paperless School: A Case Study in a Swedish Upper Secondary Class*, in *Education and Information Technologies*, 9:4 (2004) p. 333. Pedersen quoting government paper *Lärandets vertyg* (Tools for Learning) (Utbildningsdepartementet, 1997/1998:176)

[32] Author interview with Dr. S.R.E. Klein, lecture of History Teaching at Leiden Graduate School of Education, 01 June 2006.

book is structured in such a way that there are logical connections among the different units, which is not the case for most Web-based DHRs. Teachers would need both time and advanced skills to create these connections themselves, which most of them do not have. 'If we can use books why should we bother about using something else, which even requires sophisticated knowledge, skills and much time?' Van Jole wonders.[33]

At this point, there is ground to wonder how the MNL's ambitions of helping history teachers introduce a subject, illustrate a lesson, or serving as a discussion subject would be achieved if teachers do not have time and skills necessary for the integration of digital resources in their teachings. As a result, teachers are leaving the choice to pupils who have then to decide which resources and materials to use for their assignments. In an assignment for a course known as *Maatschappijleer* [Sociology] about youth culture between 1975 and 1985, Van Jole asked his pupils to comment and/or criticize the ideal, normative, and material theories they had studied during the textbook-based instructional phase, and present a work that looked at those theories from the socio-cultural, or socio-legal, or socio-economic perspectives. Pupils had to present their final work in a format of their choice. Van Jole says that 80 percent of pupils made 'impressive' PowerPoint presentations including pictures, audio, and video materials downloaded from the Web and reflecting the youth culture of the period under consideration. He says the sources they used were not his major concern but rather the relevance of the downloaded materials to the assignment. 20 percent of the pupils preferred to present their final works in the traditional, analogue way. Van Jole, who says he too sometimes uses PowerPoint presentations for his classes, organises this kind of exercise a few times a year but recognises that pupils enjoy it.

For the time being, the only way of taking advantage of the MNL and other DHRs on the part of history teachers is just to mention them during the lesson and to recommend them for a given assignment as exemplified by Wester's case. Beside that, only inquisitive pupils taking the initiative to instruct themselves personally as substantiated by Van Jole's assignment, stand a greater chance of coming across the MNL and other DHRs. In the latter case, the MNL needs to make its materials malleable and flexible enough, if it is to be used by pupils for their assignments, as section 8 on issues and perspectives will show. It is obvious that if pupils would come across the MNL accidentally, they would not get the maximum from it, first because nobody has demonstrated whatsoever about it to motivate them, second because they know that Google will do every thing for them, and that is the explanation for the heartening percentage (82 percent) of pupils who ignore or neglect the notion of reliability of online information and resources.

Unlike the Smallville case where teachers send links to their pupils electronically, Dutch history teachers occasionally use or recommend DHRs. Therefore, at this stage, DHRs can not yet be

---

[33] Author interview with John van Jole, history teacher at Pieter Zeeman secondary school in Zierikzee, 09 May, 2006.

fully called supplements to conventional history. Films and documentaries could be confidently called supplements because they are frequently used to support History classes. The idea to make Digital History a supplement to Conventional History is there and is substantiated by laudable initiatives like the MNL and *Teleblik* among many others, but at the consumption point initiatives and reactions are taking much time to show up, which allows only partially the use of those resources.

In this respect, the first initiatives should target history teachers, because the success of future innovations rests mostly on their shoulders**.** Faced with the need to explore the potentials of DHRs, Van Jole and his colleagues have requested Pieter Zeeman school administration to find a way some teachers could be given time and skills to build digital lessons or harmonise them with conventional methods at the school level. In this regard, Hermans (March 2001, p.15) recognises that the Swedish teacher ICT competence enhancement programme known as ITiS [Information Technology in School] is an inspiring example for the Dutch educational system. The 1999-2002 ITiS project was a national programme for ICT in schools and for school development, which covered all schools nationwide, that is 'pre-school classes, compulsory schools and upper secondary schools'. To go on with the Swedish case, responsibilities for ICT-driven innovations are shared. The role of municipalities for instance is 'to provide accessibility to computers and the Internet in schools as well as to ensure that educationalists are highly skilled in using ICT as a pedagogical tool'(Tiger Leap Foundation, August 2003).

In the meantime, things go on the old way with history teachers meeting under the leadership of the section leader [*sectieleider*] at the beginning of the school year to fix what the syllabus will be like for that year, so to avoid duplication of work. It is then left to each and every teacher to decide which re/sources to use and recommend to pupils, and which teaching methods to use. This means that the pupils of technophobic or ICT-hesitant teachers will have little or no chance to hear of the MNL, *Teleblik* and other valuable DHRs, just because the teachers are ICT-illiterate or technophobic. This is another point worth reflecting on if the goal of preparing children for the Information Society is to be achieved.

One way of understanding some history teachers' technophobia is the intimidating and challenging character of the new technology, especially the Web, but this, as Easley (1998, p.70) suggests, should not prevent pupils from benefiting from a wider variety of audio and visual materials that any modern history classroom should offer. McCormack and Jones (1998, pp. 22-3) support this point and note that for there to be real technology-driven innovations, both students and teachers should feel comfortable with the new environment of the Web.

During his presentation at the Veldhoven Conference on ICT and Educational Reforms, Prensky told the attendance what he thought to be the keys to a successful educational system. The

first key was 'understanding the students', the second 'generating engagement' and the third 'dealing with change', the remaining two being 'sharing success' and 'mutual respect'. Actually the first three keys are inter-connected as understanding how students want to learn will necessarily generate changes in the teacher's methods, and those changes taking into account learners' desires will necessarily increase their motivation. Implicitly addressing himself to technophobes, Prensky advised them not to waste their time learning how to use new technologies but, at least, to teach students how to do 'research' rather than simple 'search', to detect 'truth' as opposed to 'manipulation' etc., when they are dealing with the Web. Once again, all these gymnastics would be minimised if only teachers would inform their students of the existing authoritative DHRs, where preoccupations relating to reliability, authenticity and veracity do not exist.

Educator and technology consultant Deneen Frazier Bowen (December 2005/January 2006), another fervent partisan of technology-driven innovations, suggests teachers to ask one elementary question to their students to know whether they are comfortable with their methods or not. That way, she goes on, the current palpable discontent of the younger generation would be appeased. Asking pupils directly which way they would like to learn is one way, another being just observing them and how they interact with sources of information and knowledge, and then drawing logical conclusions which will doubtless move teachers from their position as 'instructors' to the one as 'facilitators' as the coming shows.

6. Teaching: Instructing or Facilitating?

In his definition of education, Durkheim (1922, p.7) identifies three essential components of any educational system, namely a generation of adults, a generation of younger people, and an action exercised by the former on the latter. He refrains from discussing or defining what action the older generation has to exercise on the younger one because that action is to be defined by society and technological, economical, political, etc. developments within that society, the same factors that define educational aims as discussed above.

With regard to History classes, teachers are little by little moving from their previous situation of instructors, those who know and impart knowledge to the younger generation without necessarily taking into account their individual needs or intellectual levels. This instruction approach, which R.F. Dearden (2000, p. 271) refers to as 'teaching by telling' as opposed to 'teaching by letting pupils discover', does not favour the introduction of DHRs such as the MNL, because then, the teacher would not be able to control all the re/sources pupils would be consulting to discover or complement what they learn. Also called teacher-centred approach, this method, which many history teachers keep using, is described by Easley (1998, p.66) as minimising the role of the learner and ignoring his/her individual needs.

Veteran history teacher Wester sees things differently. He believes that a history teacher should instruct students about the past and encourage them to further discover and complement it themselves from books, the Web and other re/sources. But, knowing the danger of sending pupils into the Web anarchy, Wester says he himself first tells his pupils a number of reliable sources such as the MNL and the reference portals for secondary education such as *School Bibliotheek* (School Library, www.schoolbibliotheek.nl) and *Kennisnet* (www.kennisnet.nl). These are actually close to conventional libraries as there is always an institution behind them which filters, organises, indexes, catalogues the content and, above all, guarantees reliability.

The opposite approach, the one compatible with and favouring the New Teaching-Learning Environment, is the 'learning-by-discovery approach' or 'student-centred approach'. This method puts the teacher in the facilitating, guiding or coaching position and the learner in the discovering one. The pupil, Dearden (2000, pp. 281-2) writes, moves from the receptive position where s/he is a passive learner and has to follow a learning pace determined by the instructor. Dearden adds that the most positive aspect of the learning-by-discovery method is that pupils 'learn how to learn'. Hermans (March 2001, p. 1) too noted that the 1999-2000 ICT survey in Dutch schools had concluded that new technologies were being used more in schools implementing the student-centred methods than in those which kept the traditional teacher-centred ones.[34]

Considering the great autonomy that learners are experiencing in the new environment, Kuriloff (October/November 2005), director of communications, policy and planning at Philadelphia College of Education, asserts that the role of teachers will inevitably change to become the one of facilitating class discussions electronically by writing observations, questions, and directions rather than speaking to learners. Kuriloff advocates the redefinition of the authority of the teacher not as the one who knows and imparts knowledge, but as the one who engages learners and guides them collaboratively through the learning experiences designed into the course. The educational and pedagogical 'revolution' that is brewing at Pieter Zeeman secondary school proves Kuriloff totally right. Starting from the September 2006 class resumption, the instructional phase in that school will be reduced from 50 to 20 minutes, after which pupils will be free to do whatever they think is useful for their learning. This may include reading in the library, asking questions not necessarily to the teacher of that course but also to any other teacher the pupil thinks might help, browsing the Web, etc. During that time, teachers will be around to help solve problems and answer questions, which facilitating is all about. Very importantly, the school is breaking all the walls separating classrooms during the 2006 summer holydays so that pupils can move more freely to the place they want to go

---

[34] LMLHA Hermans [Education Minister of the Netherlands 1998-2002], *Onderwijs on line: actualisatie*, The Hague, March 2001, p.1. http://www.minocw.nl/documenten/actualisatie.pdf (15 May 2006) *'Uit de monitor blijkt dat meer van ict gebruik wordt gemaakt op scholen die meer leerlinggestuurd onderwijs verzorgen en dat de inzet van ict beter tot zijn recht komt in vernieuwde leersituaties.'*

to.[35] This means the end of the four-walled classroom and the move from the traditional teaching-learning environment to what Dutch educational and ICT didactics author John Bronkhorst (Brouwer et al. 2006, p. 17) terms *Het Nieuwe Leren* [New ways of learning]. According to Bronkhorst, there are times when society imposes strict discipline and code of conduct to learners and times when learners are granted more freedom to determine their learning style and pace (Brouwer et al. 2006, p. 11).

In the aforementioned example of Wester assigning his pupils to write essays on sea piracy, his facilitating and guiding role limited itself to telling pupils where valuable and reliable information about that subject could be found, but yet led to immediate positive results. Wester's method is half instructional and half pupil-centred and has more than one advantage: Wester made sure he imparted what he thought necessary to impart and then encouraged his pupils to dig further and deeper using reliable DHRs. He did not name specifically any lesson or article to read from the MNL, which means that pupils visited the various materials about that subject and took out what they thought was relevant for their essays. This kind of experience may be a precondition to retention and assimilation of the learned matter (Winch and Gingell, 1999, p. 91) as pupils make themselves decisions about what data and information to use or skip, instead of relying exclusively on the notes taken during the instructional phase that preceded the assignment. Thus, part of the final knowledge they acquired about sea piracy came from the teacher's mouth [instruction] and the other part came as a result of pupils' personal efforts [learn-by-discovery].

It may be deduced that the first step in this new facilitating role of the teacher is to train pupils to do research in new ways to deal with the electronic age, as Leslie Gene Hunter (1998, p.110) suggests. To train pupils to judge and analyse the sources offered by electronic tools means to forge in them the spirit of critical thinking so that they can be analytically reflective, and formulate plausible hypotheses and conclusions, to use the words of Pamela G.Taylor (February/March 2006). If this step were appropriately taken, the above-mentioned fears and worries put into figures by the Motivaction International's study would no longer have reasons to exist, because pupils would safely swim in that sea called the Web instead of drowning in it. And even if they would accidentally drown, rescuers [teachers] would not be far.

One other reason mentioned by pupils as to why they do not check the veracity and reliability of their sources was that they have no time for that (Motivaction, 19 April 2006). To use Prensky's terms, teachers in their new coaching role should teach their pupils not how to 'search' on the Web but how to do 're-search', defining the latter word as searching and checking more than once and more than one source (Veldhoven Conference, 12 April 2006). The MNL, *Teleblik* and other

---

[35] Author interview with John van Jole, 09 May 2006.

authoritative DHRs make the facilitating task easier as the teachers' role is reduced first to informing pupils of the existence of those re/sources each time that a lesson has a close connection with them and, second, to using them during their history classes when they think they may add some value and understanding. But then the issue of necessary skills and time will first have to be addressed. In this regard, Hermans (March 2001, p.2) lists five sine qua non conditions for an efficient implementation of ICT-driven innovations. These are school's purchasing power; availability of computers; connection to *Kennisnet* - the main schools' portal -; teachers' ICT skill enhancement; and educational programmes.[36] It is of vital importance to mention useful sources (URLs) whenever a lesson or class assignment calls for it, because pupils, as the defenders of the student-centred methods would say, are naturally curious and will carry out their own learning either at school or at home (Winch and Gingell,1999, p.19).

To come back to the reflection period and the issues which need to be settled before a definitive and generally accepted pedagogy is set up, it is worth discussing the best method that would help achieve the current Information Society-oriented aims of education. Neither the instruction approach nor the learn-by-discovery one can on their own and single-handedly allow achieving those goals. The teacher as spoon-feeder or instructor deciding on the content of his/her lesson and imparting knowledge, would most likely ignore or neglect any effort pupils could make using the Web, for instance. The teacher as a simple facilitator, who does not impose his/her will and choices to pupils may refrain from delivering some precious and valuable knowledge s/he has for fear s/he would breach pupils' learning freedom, style and desires. The best method, the one suited for the Digital Age, seems to be the one combining the two, with the teacher deciding to which extent s/he would wear his/her instructor's vest or his/her facilitator's one, depending on the lesson and the availability of external digital re/sources, namely the MNL, *Teleblik* or the like.

Dearden (2000, p. 281) advices teachers to make no exclusive choice between the two approaches and considers those teachers varying their methods according to circumstances to be 'intelligent' as opposed to 'doctrinaire' ones. As for Manolis Wallace (2004, p. 272) of the Department of Computer Science of the University of Athens, he perceives the Web as a valuable aid for teachers as it allows them to locate appropriate material to use next to the main instructive textbook. By combining the two, teachers would fetch from the Web, which is also the source from which their pupils fetch, and thereby assign themselves the function of facilitators and guides; they

---

[36] LMLHA Hermans [Education Minister of the Netherlands 1998-2002], *Onderwijs on line: actualisatie* (The Hague: March 2001), p.2. http://www.minocw.nl/documenten/actualisatie.pdf (15 May 2006) *'Over de stand van zaken rond de noodzakelijke (basis)condities voor de invoering en implementatie van ict op de scholen, zoals de koopkracht van de scholen, de beschikbaarheid van computers, de aansluiting op kennisnet, de ict-vaardigheden van leraren, en de methoden en educatieve programmatuur, wordt u geïnformeerd in deze actualisatie.'*

would also take the best they can get from conventional re/sources which would still make of them instructors.

Klein notes that when they come to the Leiden Graduate School of Education, future history teachers tend to be more instructors than facilitators, because they want to have full control of the teaching-learning process. He goes on to say that the School does not oppose that attitude but rather encourages its combination with the pupil-centred approach, which is a matter of 'making good choices'.[37] The announced pedagogical innovations at Pieter Zeeman school will certainly lead to instructive conclusions about whether teachers have to follow a pre-determined timeframe for each of their instructing (20 minutes) and facilitating (30 minutes) roles.

7. Playful Learning

For ages, play has been perceived as opposed to work, as something designed to help people relax and recover from physical or intellectual effort. The logic was that play would come when work was finished. A teacher would for instance tell his/her pupils: 'this is not time to play, it is time to work'. Contrary to secondary education, kindergartens and primary schools have play and singing in the heart of their teaching methods, but then games and songs are other ways of transmitting basic knowledge. This is to say that play or game is not necessarily incompatible with learning, even at the secondary school level.

The reality of the Digital Era is that secondary school pupils, those aged between 12-17, are among the greatest users of computer/video/online games and researchers are unanimous that those games are the first motivating and captivating activity of this age for children. Since those games are now dominating the youth culture, as Patricia Deubel (January 2006) of the Graduate School of Education at Capella University notes, it is inevitable that that same technology will penetrate the educational system. *Kennisnet*, has already launched its educational gaming Webpage (http://gaming.kennisnet.nl/) where cultural heritage-inspired learning games such as *Werken als Rembrandt* [Working as Rembrandt][38] can be found beside modern ones such as *MonsterMedia*.[39]

In their research on the learning cycle, Henry Ellington et al. (1993, pp.24-5) identify four main steps, notably wanting; doing; feed-back; and digesting. Among these, 'wanting' or 'motivation', which is the beginning and the basis of learning, and 'digesting' – that is sorting out what is important in what is being learned – are the most essential and decisive. When there is no motivation, there will be no learning at all, and even when there is motivation, learning will be useless or even toxic if the learner cannot make sense of the learned matter. Thus, only the two steps

---

[37] Author interview with Dr. S.R.E. Klein, lecture of History Teaching at Leiden Graduate School of Education, 01 June 2006.
[38] http://gaming.kennisnet.nl/voorbeelden/rembrandt400 (28 May 2006)
[39] http://gaming.kennisnet.nl/voorbeelden/monstermedia (28 May 2006)

will be discussed with regard to the MNL potentials of turning cultural heritage into educational digital games.

So far, the MNL has a series of games designed for the general public[40] and others specifically designed for learners under the module entitled *Portrettenspel* [Portraits Game]. This consists in testing the learner's visual capabilities and skills by showing him/her two or more 17th century paintings and asking him/her to distinguish between them. In one sub-game, the learner shoots at the portrait with a mortar following instructions given in the beginning. One of the positive aspects of this game is that the learner is asked to have a quick and simultaneous look at the portraits, keeping in mind the instructions given in the beginning, and to shoot after having made his/her quick judgement on the portrait to shoot on. During all this time, s/he has to keep an eye on the chronometer which accords only forty seconds. This game requires a divided visual attention as the learner does many things at the same time, which Subrahmanyam et al. (2002, p.12) hail as it helps the learner develop the skill of keeping track of a lot of different things at the same time. By doing so repeatedly, s/he learns how to quickly study a historic painting or any other primary material involved in the game without even realising that s/he is doing so. Also, at the end of the game, the learner will have visited and revisited the *Mauritshuis* and the *Rijksmuseum*, just by playing.

To come back to the first and most essential step of the learning cycle – motivation – it is doubtless that digital games have a tremendous capacity to motivate young learners, just because they are fun. Deubel (January 2006) would even say that digital games can be used to teach almost any subject or skill provided that they are used correctly. Prensky told teachers at the Veldhoven Conference that there was about 50 educational games known as Digital Game-Based Learning (DGBL) worldwide in 2001, when he was writing his *Digital Game-Based Learning*, and about the double five years later, when he was writing *Do not Bother Me Mom- I am Learning!*(March 2006).

As for digestion, the second most important step in the learning cycle, it will be discussed using a fictitious example of a DGBL that could be conceived and designed from the lesson on the *Afsluitdijk*. This would be in the form of puzzle, with the learners re-building the big as well as the subsequent small dikes in the former Southern Sea. In the process, they would be drawing the new map of the Netherlands, with the province of Flevoland and other plots of land emerging from the former Southern Sea. The digestion step in this scenario would consist in enabling the learner to realise that the *Afsluitdijk* was not built to serve as a bridge between the two banks of the Southern Sea but to block waters from inundating inland areas and to recover arable and habitable lands. To emphasize this role of the *Afsluitdijk*, the game designers would conceive it in such a way that any mistake in the virtual re-building would result in inundation. This game would exactly fall within the theme assigned to the *Afsluitdijk* lesson, namely – why and how the dike was built and which

---

[40] http://www.kb.nl/coop/geheugen/ extra/spellen/index.html (31 May 2006)

consequences it led to.[41] It would not be very different from *Het Virtueel Zoetermeer-spel* [The Virtual Zoetermeer Game][42] offered by *Kennisnet*. This game takes the 12-16 year old player back to the 1960s, when the central western city of Zoetermeer was still a village, and consists in expanding that village into its current size as a modern city.

The *Food-Force* game,[43] which has a link on *Kennisnet* gaming Webpage, is an example of how DGBLs can also be used to convey specific messages to the young generation. That particular DGBL pleads for the cause of the United Nations World Food Programme and brings children in touch with humanitarian hardships. This proves that realities of the present or the past can not only be put online but also be turned into DGBLs to make them attractive and facilitate the young generation's experience, which is the main aim of educational games (Kilii, 2005, p.184).

To be enjoyable and efficient, these games need to be designed according to the levels and skills of the target audience and their challenges need to become more and more difficult as the learner's skills increase (Kiili, 2005, p. 187). This means that one game could be presented differently depending on the expected user's level.

At this stage of the Digital Era, DGBLs are still thought of more as leisure time tools than serious learning tools. We should keep in mind however, that not all video/computer/online games are learning tools (Rude-Parkins et al. December 2005/ January 2006), but that the few DGBLs now available are essential part of the new learning environment, and that their role as learning tools is expected to increase drastically in the coming years (Prensky, Veldhoven Conference, 12 April 2006). Putting digitised cultural heritage within the reach of young learners through educational modules is one efficient way, but applying the techniques of gaming and simulation would increase the chance of capturing their attention for extended periods of time (Rude-Parkins et al. December 2005/ January 2006) and would facilitate the digestion process.

In their study *Teenager life online*, Amanda Lenhart et al. (June 2001) found that fun was the second reason why teenagers browsed the Web in the US (84 percent of teenagers) after e-mail receiving and sending (92 percent). 66 percent surfed for gaming. Assuming that statistics in other western countries are not very different from the aforementioned ones, there are good reasons to believe that turning Digitised Cultural Heritage into as many DGBLs as possible would result in the increase of the low percentage – 3 percent (Broekhuizen and Huysmans, June 2002, p.14) – of pupils consulting the Web for cultural heritage-related information. The other important point is that

---

[41] The Memory of the Netherlands,http://onderwijs.kb.nl/afsluitdijk/Docentenhandleiding.doc (05 May 2006) '*Gekozen is voor een thema -waarom en hoe werd de Afsluitdijk aangelegd en welke gevolgen had dat- maar tegelijkertijd voor een mogelijkheid om eens behoorlijk te oefenen met schilderijen, tekeningen, foto's en herdenkingsborden als bron*'

[42] http://gaming.kennisnet.nl/voor_beelden/virtueel_zoetermeer (28 May 2006)
[43] http://www.food-force.com/index.php/game/ (28 May 2006)

gaming and learning are said to have common attributes, and that game designers and software developers could further enhance those attributes (Schrader et al. February/March 2006).

Commercial publishers, especially those operating in children's and youth educational books, are already exploiting this exploding market of DGBLs and other learning devices. For instance, Touchn Fun Interactive Ltd. brought its novelty –*Touch n Talk Multi-Language Learning System* – a sort of funny doll, to the 27-30 March 2006 Bologna International Children's Book Fair, and presented it under the slogan 'The words and pictures in the book come to life with Touchn Talk.' This means that the publisher's intention is to use fun to teach languages. Thinking that they are playing with the toy, the users will end up speaking many languages without even realising it. The system has versions for 4-7 year old children, 8-15 year, and so on.

Presented under another form – the DGBL one –the MNL resources would have to follow the lines drawn by DGBL experts, and select resources that would be best suited for action, adventure, fighting, puzzle, role-playing, simulation, sports, and strategy, the game types that have so far proved to be the most attractive and successful (Deubel, January 2006). It is through fun, which Prensky explains as 'the act of mastering a problem mentally' (Veldhoven Conference, 12 April 2006), that nowadays' young learners easily acquire and digest knowledge.

8. Issues and Perspectives

This section aims to discuss some crucial issues which, if properly addressed, would contribute to the success of the MNL and any other Digital History databases that are meant to have their place in the New Teaching-Learning Environment.

8.1. Publicity

One of the initial steps to be taken before implementing any digitisation project is to identify the audience. The MNL targets the general public and more specifically secondary school teachers and pupils. Stopping here without thinking out in advance how this audience will be made aware of the MNL and its potentials would be a mistake, because, the Web only facilitates the distribution of cultural heritage but does not guarantee that it is being used widely, deeply, well-or at all (Cohen et al., November 2005). Van Marle's report reveals that about 50 percent of history teachers are unaware of the existence of the MNL, and these could not be blamed for not using DHRs intended to supplement their conventional methods.

One way Broekhuizen and Huysmans (June 2002, pp.13-5) suggest is to use the older mass media, which are still the most used for information about culture in the Netherlands. They write that 35 percent of Dutch people keep themselves updated about cultural developments by reading news papers, while 25 percent rely on television. An advertisement in popular and free dailies like *Metro*

or *Spits* would inform a large number of teachers, pupils, parents and the general public about the existence of the MNL on the one hand, and about the novelties as they come in, on the other hand.

Another approach to publicity, which Cohen et al. (November 2005) consider to be the most efficient, is to find out where the target community congregates. For instance, the Veldhoven Conference would be a great opportunity to reach about 1,000 secondary school teachers at once. To be more specific with history teachers, *Kleio,*[44] the magazine of the secondary school history teachers' union (VGN) which appears eight times a year, would be a good tool to keep history teachers updated. An advertisement with a hyperlink in its online and print versions beside the one already on the VGN homepage[45] would increase the chances of making the more or less 3,500 Dutch history teachers aware of the MNL.

Cohen et al. (November 2005) also note that consulting with the operators of other Websites targeting the same audience for eventual reciprocal hyperlinks would be beneficial both to the learners and the cultural institutions, whose goal is to reach the largest public possible. In this respect, a link on *Kennisnet*,[46] a school portal with at least 17 million views and 45 million hits a week, would help reach millions of users[47] (Stichting Kennisnet, 2005, p.3). By placing a link on *Kennisnet,* the MNL would also increase its chances of drawing teachers' attention as *Kennisnet* director Toine Maes (Stichting Kennisnet, 2005, p.3) notes that *Kennisnet* is particularly popular among the teaching staff. Broekhuizen and Huysmans (June 2002, p. 15) align themselves behind that idea and advice cultural institutions to have as many internal and external hyperlinks as possible, which backs the above-mentioned argument that the MNL would not be an end in itself.

8.2. Flexibility

In their list of seven merits of the Web, Cohen et al. (November 2005) mention 'flexibility' in the third position behind 'capacity', and 'accessibility', and before 'diversity', 'manipulability', 'interactivity', and 'hypertexuality'. Flexibility and manipulability being close to each other, I will deal with them together using the MNL as illustration.

First of all, it is widely accepted and proven that reading from paper is still far more popular than reading onscreen, and that most electronically published resources are printed out for a comfortable reading (Borgman, 2000, p.83).The MNL's mission being to digitise and make available on the Web collections from archives, museums and libraries,[48] which is a way of electronically (re-)publishing, those digitised resources should be printable if they are intended to attract the largest number of readers. A hyperlink to a printable version would help teachers who could then

---

[44] http://www.vgnkleio.nl/index.php?option=com_content&task=blogcategory&id=4 2&Itemid=58 (03 May 2006)
[45] http://www.vgnkleio.nl/ (03 May 2006)
[46] http://kennisnet.nl/ (28 May 2006)
[47] In its *Annual Plan 2005,* Kennisnet reports that 750,000 unique visits per week were registered in 2004.
[48] The Memory of the Netherlands, http://www.geheugenvannederland.nl/gvnNL/handler.cfm/ event/onpage/pageID/1F06684C-6721-11D6-8F22-0002A508D0B7 (05 May 2006)*'Het programma wil de (verborgen) collecties van archieven, musea en bibliotheken digitaliseren en beschikbaar stellen op Internet.'*

comfortably read and annotate the printed materials even on the train or bus on their way to school. McCormack and David Jones (1998, p. 148) go further to assert that even learners appreciate a system more if it is flexible, when for example they can print parts of it and are free to peruse the materials at will.

Let us take one example to illustrate the above. The *Afsluitdijk* module offers an impressive lesson about the building of the dike, its consequences, and even the motive of its building through then public works minister Lely's speech both in text and audio. This module remains static in the sense that no other functionality is possible but clicking on backward/forward and downward/upward arrows. The user can neither zoom in or out, nor print or save the lesson or part of it, while the copyright declaration permits it under certain conditions.[49]

Moreover, unlike the *Teleblik* project, most MNL materials, especially audio and video ones are in Macromedia Shockwave Player format and can thus not be saved, which does not permit teachers and pupils to use them offline, for instance in a PowerPoint presentation. *Teleblik*'s strategy of having its materials in the user-friendlier Media Player format and giving logins and passwords to teachers and pupils so that they can use, download, edit or otherwise manipulate the materials while limiting illegal use, could perhaps inspire the MNL, since both have the mission to put the past and its heritage at the disposal of teachers and learners via the Web. That way, teachers would even build their own archives which they would copy on CD-ROM, USB key or any other portable drive (Sicilia, 1998, pp. 79-80) they would use for their classes without any worry about Internet connection or technical problems.

As already noted above, some ICT-enthusiastic history teachers have started giving their lessons in the form of PowerPoint presentations and at the same time encouraging pupils to present their assignments in that format. This has the advantage that each pupil does not need a PC on their desk, because an overhead or a portable projector, which many classes can even share, can be enough. In the case of *Teleblik* materials, where flexibility and manipulability are guaranteed, teachers and pupils can make PowerPoint presentations from different pieces. The project even gives online instructions on how to edit, copy-and-paste materials into a PowerPoint presentation, how to leave one material and move to another without closing it, etc,[50] which makes the task less challenging and even attractive. It would be great if teachers and pupils could be able to cut Lely's speech or its excerpts from the MNL and paste it beside materials taken from *Teleblik* or from elsewhere in their presentations, instead of having to stop the presentation and browse the MNL until

---

[49] The Memory of the Netherlands, http://www.geheugenvannederland.nl/gvnNL/ (19 April 2006) handler.cfm/event/onpage/pageID/71C68D13-6744-11D6-8F22-0002A508D0B7 (05 May 2006) '…4.*Onderzoekers, studenten en andere geïnteresseerden mogen een digitale kopie van de tekst of digitale afbeelding voor eigen onderzoek of studie opslaan op een digitale informatiedrager. 5. Onderzoekers, studenten en andere geïnteresseerden mogen een papieren afdruk maken van de tekst of digitale afbeelding voor eigen onderzoek of studie.*'

[50] http://vo.teleblik.nl/docentenhandleiding (12 May 2006)

they reach the needed material, and then wait until the needed excerpt comes. What if there is no Internet connection or if any other technical problem would occur at the very moment when the teacher is giving the lesson or the pupil the presentation? This is the other side of the Web, which Cohen et al. (November 2005) call 'the hazards of the Internet' and summarise in five points, namely 'quality', 'durability', 'readability'-meaning that onscreen reading is still uncomfortable- 'passivity', and 'inaccessibility'- that is, connection or technical problems could hinder the access to the materials.

I would like to end with another case inspired by Smallville pupils exchanging links for their assignments. Lenhart et al. (June 2001) note that 94 percent of American teenagers use the Web including e-mail and instant messaging to communicate among themselves. It would be quite normal for them to discuss or even exchange views about each other's assignment. The point here is that none of the MNL's modules has a direct Universal Resource Locator (URL), which means that the pupil will first go to the homepage, then to 'education', then, then etc. and it is known that pupils' patience is not that much (Himmelfarb, 19 December 1996 and Motivaction 19 April 2006). The reader of this article will have realised that none of the MNL modules which serve as examples (*Afsluitdijk, Koninklijke Post, Maastricht Aardewerk*) is accompanied by their URLs, simply because they do not exist. A pupil would be keen to click on a direct link like www.MNLhomepage.nl/ education/afsluitdijklesson.html with a keyword –*Afsluitdijk* – in the URL, instead of having to go through three or four stages. Moreover, teachers like the Smallville ones, could send their pupils links to specific lessons. The same is most likely to be done in Pieter Zeeman' s new pedagogical environment in which a teacher will have to write down the different steps to take before reaching any lesson, simply because there is no direct and easy path to the material.

9. Conclusion

Introducing digital resources in general and Digital History Resources in particular in conventional classrooms as a result of the ongoing digital revolution proves logical and necessary, since life itself and society are digitizing and globalizing themselves. Education being the mirror reflecting the level of technological, economic, and social developments in any society, it has to benefit from and reflect those social and technological realities. ICT plays a central and vital role in the Information Society, and education policy makers have the duty to prepare children for that society through education.

The MNL, which served as illustration throughout this article, *Kennisnet, Teleblik,* just to mention a few, are products of the Digital Era and their educational values and potentials are designed not to replace the existing conventional history classrooms but to supplement them by offering teachers and pupils primary resources at no cost. This may be compared to the use of a car, which is a product of industrial, scientific and technological developments, but which does not

prevent people from walking or riding a bicycle. To go on with that analogy, there are many instances where traditional sources – analogue books, museums, archives, historic sites – need necessarily to be used or visited in their physical forms. Similarly, there are many instances where people cannot use their cars and have to walk. The role of the History teacher is thus much more to mould the learners' mind in such a way that they know when, how and why they use this or that resource.

The foregoing has not only demonstrated how the MNL and other DHRs are making their way into conventional classrooms, the novelties they are bringing or promising to bring, the obstacles they are encountering, the redefinition of the new roles both teachers and pupils are expected to play, but also the reluctance that still characterises the process, which is a sign of the transitional and reflection period that precedes any major innovation. It is during that period that questions about the new roles of teachers and pupils and about the cohabitation of digital and conventional resources will be answered. In the meantime, the choice is left to teachers and learners to figure out how to supplement their conventional textbooks either by using the Web, computer games or other means.

References
- Barak, M., 'Instructional principles for fostering learning with ICT: teachers' perspectives as learners and instructor*', Education and Information Technologies*, 11 (2006), 121-135

-Barlow, J.G., 'Historical Research and Electronic Evidence. Problems and Promises', D.A. Trinkle, *Writing, Teaching, and Researching History in the Electronic Age: Historians and Computers* (New York: M.E. Sharpe,1998), 194-225.

-Bolter, J.D., *Writing Space: The Computer, Hypertext, and the History of Writing* (Hillsdale: Lawrence Erlbaum and Associates, 1991)

-Borgman, C.L., *From Gutenberg to the Global Information Infrastructure. Access to Information in the Networked World* (Cambridge: The MIT Press, 2000).

-Bowen, D.F., 'Taking a Journey with Today's Digital Kids: An Interview with Deneen Frazier Bowen', *Innovate: Journal of online education, Vol.2, Issue 2* (December 2005/ January 2006) http://www.innovateonline.info/index.php?view=article&id=230

-Brodman, J.W., 'E-Publishing: Prospects, Promises, and Pitfalls', *Perspectives* (February 2000) http://www.historians.org/perspectives/issues/2000/0002/0002vie1.cfm?pv=y

-Broekhuizen, J.and Frank Huysmans, *Cultuur op het Web* (The Hague: SCP, June 2002).

-Brouwer, T. et al., *Het nieuwe leren* (Baarn: Bekadidact, 2006).

-Calandra, B., John Lee., 'The digital history and pedagogy project: Creating and interpretative/pedagogical historical website', *The Internet and Higher Education* 8. (2005), 323-333.

-Cohen, D.J., Roy Rosenzweig and Barbara Fried, *Digital History: A Guide to Gathering, Preserving, and Presenting the Past on the Web* (November 2005) http://chnm.gmu.edu/digitalhistory/

- Corbeill, A., *'Education in the Roman Republic: Creating Traditions'*, Y.L.Too, *Education in Greek and Roman Antiquity* (Leiden: Brill, 2001), 261-288

-Davis, N.and Dale S. Niederhauser, 'Socio-Cultural Analysis of Two Cases of Distance Learning in Secondary Education', *Education and Information Technologies*, 10:3. (2005), 249-262.

- Deahl, R., 'Students Just Say 'No' to Library Books, and Librarians Listen: Stacks Are Going Digital', *The Book Standard* (September 07, 2005)
http://www.bookstandard.com/bookstandard/news/author/article_display.jsp?vnu_content_id=1001055493

-Dearden, R.F.,'Instruction and Learning by Discovery', Paul H. Hirst and Patricia White, *Philosophy of Education Vol. IV, Problems of Educational Content and Practices* (London: Routledge, 2000), 268-283.

-Deubel, P., 'Game On!', *Technology Horizons in Education* (January 2006)
http://thejournal.com/articles/17788

-Doorenbosch, P.,*Gedigitaliseerd erfgoed voor breed publiek en onderwijs: Het Geheugen van Nederland* (The Hague:2003).

- ---------, *Het Geheugen van Nederland: plan van aanpak* (The Hague: November 2000).

-Durkheim, E., *Education et sociologie* (1922)
http://classiques.uqac.ca/classiques/Durkheimemile/education_socio/education_socio.html

-Easley, L.J., 'The Enhanced Lecture: A Bridge to Interactive Teaching', D.A. Trinkle, *Writing, Teaching, and Researching History in the Electronic Age: Historians and Computers* (New York: M.E. Sharpe,1998), 65-72.

- Ellington, H., et al., *Handbook of Educational Technology, Third Edition* (London: Kogan Page, 1993).

-Emans, B. and Ewoud Roede, *Hoe katholiek zijn katholieke scholen? Specifiek katholieke accenten in beleid, praktijken en activiteiten op katholieke scholen* (Amsterdam: SCO-Kohnstamm Instituut, 2005)

-Eurostat, *Internet Usage in EU25 in 2005* (6 April 2006)
http://epp.eurostat.cec.eu.int/pls/portal/docs/PAGE/PGP_PRD_CAT_PREREL/PGE_CAT_PREREL_YEAR_2006/PGE_CAT_PREREL_YEAR_2006_MONTH_04/4-06042006-EN-AP.PDF

- European Commission, *eLearning Action Plan: Designing Tomorrow's Education* (March 2000)
http://europa.eu/eur-lex/en/com/cnc/2001/com20010 172en01.pdf

- --------- , *eEurope Action Plan* (June 2000)*,*
http://europa.eu.int/informationsociety/eeurope/2002/action_plan/pdf/actionplan_en.pdf

- Griffith, M., ' "Public" and "Private" in Early Greek Institutions of Education', Y.L. Too (2001) *Education in Greek and Roman Antiquity* (Leiden: Brill, 2001), 23-84

-Haan, J.de, Frank Huysmans and M.M.V Jan Steyaert, *Van huis uit digitaal* (The Hague: SCP, April, 2002).

-Haan, J. de and Frank Huysmans, *E-cultuur; een empirische verkenning*(The Hague: SCP, June 2002)

-Hermans, LMLHA.*, Onderwijs on line: actualisatie* (The Hague: March 2001)
http://www.minocw.nl/documenten/actualisatie.pdf

-Himmelfarb**,** G., 'A neo-luddite on the internet', *Prospect Magazine* (14 December 1996)
http://www.prospect-magazine.co.uk/articledetails.php?accepted=1&id=5096

-Hunter, L.G., 'The Future of Teaching History Research : Methods Classes in the Electronic Age', D.A. Trinkle, *Writing, Teaching, and Researching History in the Electronic Age: Historians and Computers* (New York: M.E. Sharpe, 1998),110-128.

-Kiili, K., 'Content Creation challenges and flow experience in educational games: The IT-Emperor case', *The Internet and Higher Education 8*. (2005), 183-198.

- Kuriloff, P., 'Breaking the Barriers of Time and Space: More Effective Teaching Using e-Pedagogy', *Innovate. Journal of Online Education, Volume 2, issue 1*(October / November 2005) http://www.innovateonline.info/index.php?view=article&id=64

-Lenhart, A., Lee Rainie, Oliver Lewis, *Teenager life online* (Washington DC.: June 2001) http://www.pewinternet.org/pdfs/PIP_Teens_Report.pdf

-Marle, J.van , *Rapport van de evaluatie van het gebruik van de digitale lessen* (The Hague:2006) [Internal report of the Memory of the Netherlands]

-McCormack, C. and David Jones, *Building a Web-Based Education System* (New York: John Wiley & Sons, Inc.,1998)

-*Metro*, Wednesday 19 April 2006

-Ministry of Education of the Netherlands, press release dated 16-09-1997, http://www.minocw.nl/persberichten/11609

-Motivaction International, *Naïef zoekgedrag op internet* (19 April 2006) http://www.collegenet.nl/

-Pedersen , J., 'Project Work in the Paperless School: A Case Study in a Swedish Upper Secondary Class', *Education and Information Technologies*, 9:4. (2004), 333-343

- Pedersen, S. G. et al. (eds) , *E-learning Nordic 2006: Impact of ICT on Education* (Copenhagen: Ramboll Management, 2006)

-Plato, *Phaedrus* (Translated by B. Jowett) http://ccat.sas.upenn.edu/jod/texts/phaedrus.html

-Rude-Parkins, C., Karen Hughes miller, Karen Ferguson and Robert Bauer, 'Applying Gaming and Simulation Techniques to the Design of Online Instruction', *Innovate. Journal of Online Education, Volume 2, issue 2*. . (December 2005/ January 2006) http://www.innovateonline.info/index.php?view=article&id=70&action=article

-Schrader , P.G., Dongping Zheng and Michael Young, 'Teachers' Perceptions of Video Games: MMOGs and the Future of Preservice Teacher Education', *Innovate. Journal of Online Education, Volume 2, issue 1* (February/March 2006) http://www.innovateonline.info/index.php?view=article&id=125

-Sicilia, D.B., 'Options and Gopherholes: Reconsidering Choice in the Technology-Rich History Classroom', D.A. Trinkle, *Writing, Teaching, and Researching History in the Electronic Age: Historians and Computers (*New York: M.E Sharpe,1998), 73-82.

-Stichting Kennisnet, *Annual Plan 2005* (2005*)* http://corporate.kennisnet.nl/publicaties/jaarplan

-Subrahmanyam, K. et al., 'The Impact of Computer Use on Children's and Adolescents' Development', L. C. Sandra, et al., *Children in the Digital Age. Influences of Electronic Media on Development* (Westport: Praeger, 2002), pp3-29.

-Taylor, P.G., 'Critical Thinking in and through Interactive Computer Hypertext and Art Education', *Innovate. Journal of Online Education,Volume 2, issue 3* (February/March 2006) http://www.innovateonline.info/index.php?view=article&id=41

- Tiger Leap Foundation, *Sweden*. (August 2003) http://www.tiigrihype.ee/mujal/ rootsi.doc

-Vitiello, G., 'A European Policy for Electronic Publishing', *The Journal of Electronic Publishing*. (March 2001) http://www.press.umich.edu/jep/06-03/vitiello.html

-Wallace, M. et al., 'Electronic Roads in Historical Documents: A Student Oriented Approach', *Education and Information Technologies*, 9:3. (2004), 271-289.

-Winch, C. and John Gingell, *Key Concepts in the Philosophy of Education* (London: Routledge,1999)

Appendices

I. Major findings of this research

1. The Teaching-Learning Environment in the Netherlands is changing as a result of advances in ICT and their use by pupils and teachers.

2. The Teaching side is still ICT-hesitant as History teachers use less ICT and digital resources for their history classes.

3. The Learning side appears to be enthusiastic in using digital resources especially for their assignments, but much still needs to be done to train learners about basic notions such as veracity, reliability and authenticity of digital sources.

4. History teachers have ceased to be exclusively instructors to become to some extent instructors-facilitators, but the lack of time and advanced ICT-related skills is still an obstacle.

5. It is obvious that pupils are disposed and willing to use digital resources. For that reason, the Memory of the Netherlands and its educational modules need to be more flexible and malleable.

6. The Memory of the Netherlands could attract many more users if the target audience were made aware of its existence using for instance mass media and reciprocal linking.

7. The Memory of the Netherlands would be much more attractive for younger users if more Digital Games were designed from the existing materials.

II. Acknowledgements

III. Abbreviations

- **CD-ROM** : Compact Disk Read-Only Memory
- **DGBL** : Digital Game-Based Learning
- **DHR** : Digital History Resources
- **DVD**: Digital Versatile Disk
- **ICLON** : Leiden Graduate School of Education (*Interfacultair Centrum Leraaropleiding Onderwijsontwikkeling en Nascholing*)
- **ICT** : Information and Communication Technology
- **ITiS** : Information Technology in School
- **MNL** : Memory of the Netherlands *(Het Geheugen van Nederland)*
- **PC** : Personal Computer
- **SCP** : Social and Cultural Planning Bureau (*Sociaal en Cultureel Planbureau*)
- **URL** : Universal Resource Locator
- **USB** : Universal Serial Bus
- **VGN** : Union of Dutch History Teachers *(Vereniging van docenten in geschiedenis en staatinrichting Nederland)*