

The Maerlant Project
Using Hypermedia for Reading Medieval Sources in History Classes

Raf De Keyser, Kathleen Rogiers & Fred Truyen
(Catholic University of Louvain/Leuven)

Context

In secondary education a communication metaphor in which the transfer of information occupies the centre stage often seems to be predominant, for example "in school children are taught more about numbers and grammar than about thinking".¹ The way in which knowledge can be generated, the relationship between scientific knowledge and everyday life and the doubts and uncertainties connected with research, are dimensions scholars are rarely confronted with. Rather than to pass on established factual contents, education should be aimed at providing tools and creating an environment for "helping learners interpret the **multiple perspectives** of the world in creating their own world view."²

The **discussion character of our knowledge about the past**³ should be a point of particular interest in history education. In the search for causes and explanations of historical processes, it is the individual historian who determines the viewpoint. Moreover, the knowledge of the past is limited because of lack of evidence and the inadequacy of the traces the past has left behind. The document *Historical Formation. Design of vision* which formed the starting point of national standards for history education in Flanders is based on these constructivist ideas.

The same document helped set the basic principle of the Maerlant-cd-rom. This digital learning environment should help pupils to read, analyse, investigate and interpret historical sources and to structure historical information within its frame of reference. The chaotic supply of facts from the past should be arranged into a well-structured unity.⁴ In this **frame of reference** two levels of information can be distinguished: descriptive information (knowledge of and insight into historical reality) and procedural information (skills to attain knowledge and insight and to evaluate its validity).⁵ All descriptive or explanatory information can be subdivided into three historical dimensions: time, space and the social dimension (socio-economic, socio-political and socio-cultural conditions of life).⁶ The purpose of the Maerlant concept was to learn historical and procedural concepts, to apply procedures (historical method) and to develop interpretations (historical synthesis). In addition to these historical skills students should be able to improve their global reading skills (detect possible shortcomings in their reading strategy, improve their reading process and apply new insights to different information sources).

¹ S. Papert, "A word for learning" in Y. Kafai en M. Resnick (ed.), *Constructionism in practice. Designing, thinking and learning in a digital world*, Mahwah-New Jersey, 1996, 11.

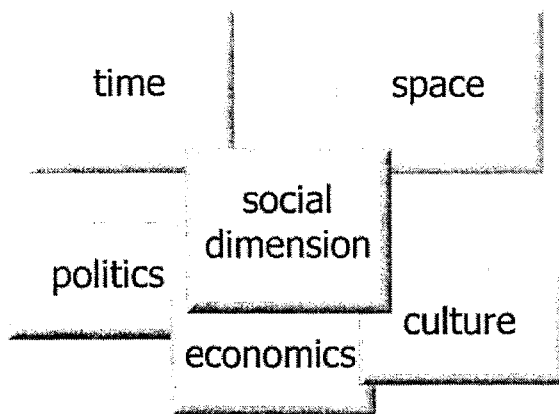
² D. H. Jonassen, "Objectivism versus constructivism: do we need a new philosophical paradigm?" in *Educational Technology, Research and Development*, Vol. 39, No 3 (1991), 5-14.

³ C. Lorenz, *De constructie van het verleden*, Amsterdam, 1998, 37.

⁴ R. De Keyser and P. Vandepitte (ed.), *Historical formation. Design of vision*, Brussels, 1998, 6.

⁵ R. De Keyser, *Historical formation*, 17.

⁶ R. De Keyser, *Historical formation*, 18.



'History'. Structure in depth

A **hypermedia** environment offered some advantages in trying to achieve the key objectives of this project: diversity of information, non-linear reading, individualized reading, sophistication of concepts by using them in different contexts, development of different solutions for the same problem. Multiple layers of information can be superimposed on the same material, offering a wide range of viewpoints. By doing so highly analyzed material can be presented in a new way.⁷

Concept

The purpose of the Maerlant concept is the development of a critical attitude towards information, in this case historical information. In other words, which strategies can, by means of digital aids, stimulate reflection on information? The sources of our historical knowledge are the raw material for the Maerlant concept. These sources are being investigated in a scientific manner, according to the procedures of historical criticism and historical synthesis (the 'historical method'). Through studying these traces of the past, the reader covers a learning route that is focused on reflecting upon historical information, that is analysing, interpreting, explaining and understanding a historical problem.

This systematic way of reading covers three steps: firstly a descriptive reading, secondly a contextual and interpretative approach and finally an explanatory and comprehensive phase. The Maerlant concept organizes and accompanies this reading by means of a digital learning environment through offering information about the source material in three levels or layers:

1) Descriptive level:

What is the literal meaning of the information (textual or visual) presented? How is the information structured? Hyperlinks help the reader to explore this first, descriptive reading phase.

2) Contextual level:

What is the historical context of the source material that has to be taken into consideration? Only

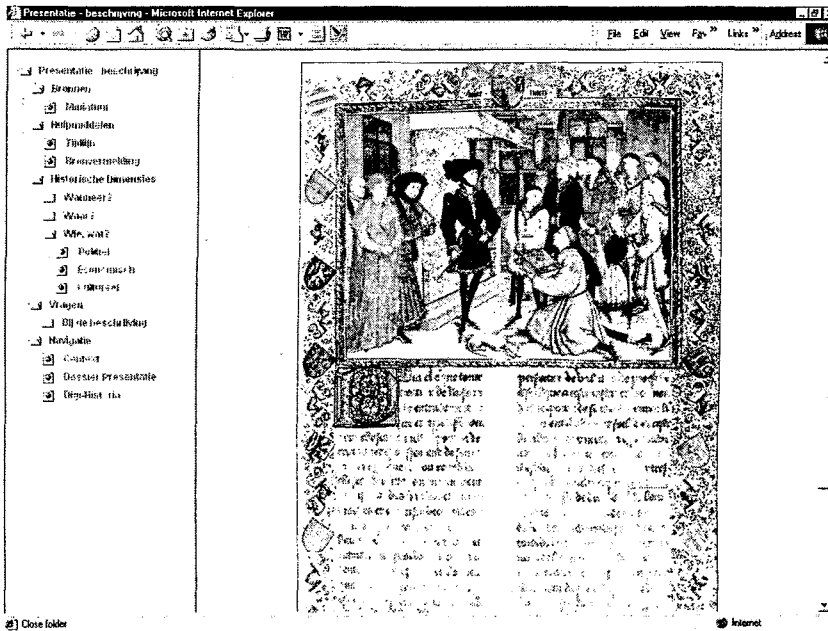
⁷ R. De Keyser, K. Rogiers and F. Truyen, *The Maerlant project on computer-assisted learning of historical skills. Can hypertext supersede programmed instruction?* <http://www.hd.uib.no/AcoHum/abs/>

via a proper understanding of the context can one come to a precise interpretation of the traces of the past. The hyperlinks on this second layer offer information about the specific context.

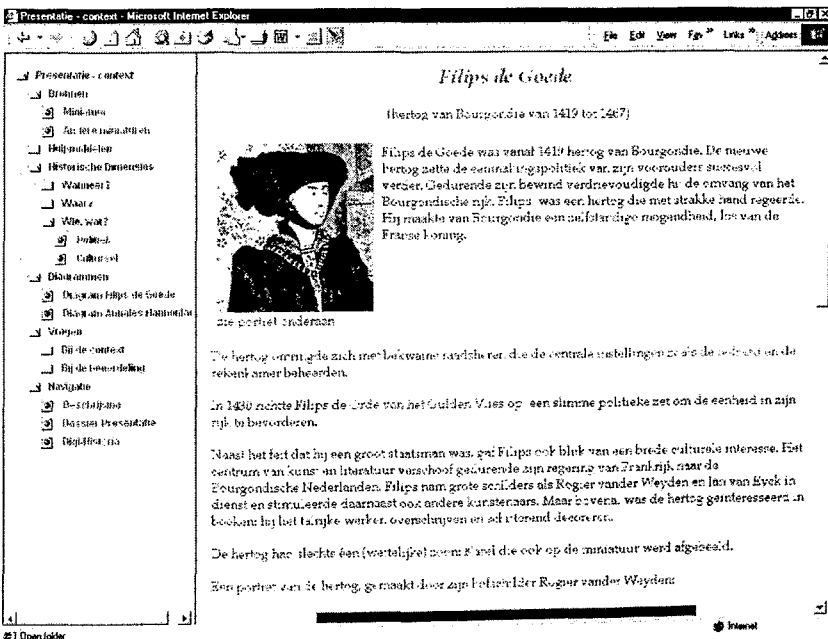
3) Comprehensive level:

Eventually one has to question the deeper meaning of the source(s), the hidden message behind the text or image. Important here are the mental background, the perception of man and society and the dominant world view.

These are the foundations of the Maerlant concept. This structure offers a framework for the 'reading' (in its broadest sense, which may also imply a close observation of a visual or material source) of almost all historical sources.



What can a Burgundian miniature tell us about late medieval politics?



Philip le Bon. Contextual information on the second level

Field-test

The Maerlant project resulted in a **multimedia cd-rom** with four dossiers each containing historical sources covering an exemplary topic representative of the concept of power in late medieval society (written sources and a material source on the Battle of the Golden Spurs, a written source on the balance of economic and political power in late medieval Bruges and a visual source on the reign of Philip le Bon of Burgundy).

The remaining two dossiers mentioned were **tested** in ten classes of four different secondary schools. The first series of lessons were organised during October 1998. A second evaluation took place in March 1999. The resulting data were gathered in the following ways: by collating the answers the pupils formulated in their assignments relating to the content of the cd-rom, on the basis of evaluation forms the pupils had to fill in at the end of each session, observation by the project developers and a permanent dialogue between scientific collaborators and the teachers who presented the lessons.

The **disposition of the classroom** turned out to be an important factor in making the lessons a success. The pupils had to work in pairs behind one screen and needed enough space to concentrate on the rather complicated reading tasks. The fact that they had to work together with a peer turned out to be very effective. The pupils did not have to wait until the class discussion started to gather new perceptions, rather they decided in consultation with each other which strategies to use, which information to consult and how to answer open questions. They rarely deviated from the subject and assisted each other when they encountered a problem or difficulty. On the other hand, placing more than two pupils behind one computer was not quite so successful.

Whilst the scientific team assumed that the pupils had to work as independently as possible within the hypertext environment, in practice it turned out to be very different. Only a few pupils were able to work completely independently. They almost all expressed the need for a surveyable task, a well-defined strategy and a practicable goal. Freely navigating through hypertext gave the pupils a feeling of discomfort and aimlessness. That is the reason why during the lessons in March attention partly shifted from **independent learning** to the **role of the teacher** as coach of his/her pupils learning process and of the learning environment as a whole. Use of the computer was pushed a little into the background in favour of educational preconditions and aids that were more complementary. The teacher made the ultimate object, the way to attain it and the timing of the pupils' activities more explicit; he/she rendered assistance during the team work, guided the class discussion and evaluated the learning process and results. Slides, a data projector and an overhead project were used to visualize procedures and concepts.

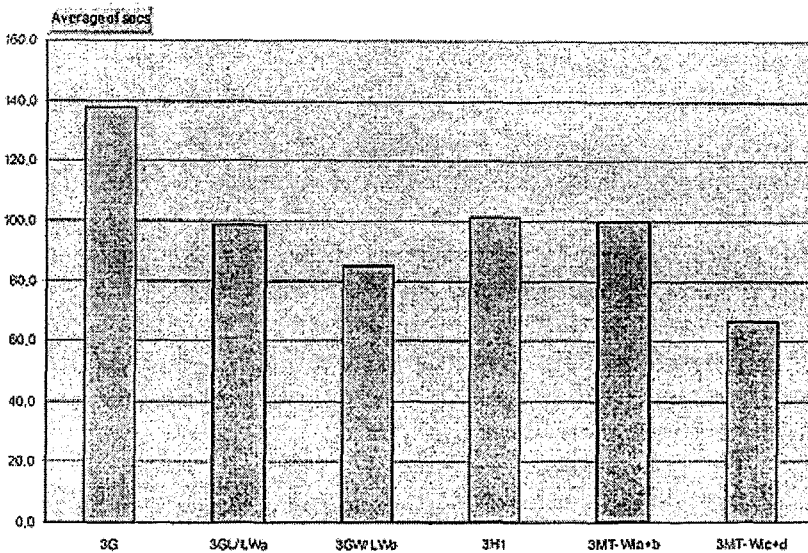
Technical **issues** scarcely caused any problems for these fifteen year olds. Most of them were sufficiently grounded in operating a computer to be able to perform the actions required to use the cd-rom. However, practical skills did not necessarily guarantee a rational approach to the program's content. Students regularly concluded that they had not yet finished reading when they were confronted with the questions they had to answer. For these group of pupils this method seems to encourage a more superficial way of working through information. In a way this is also what the program is after at the first stage. Later, however, the reader must concentrate on the crucial information he or she has selected after skimming through the surplus of information. Deeper analysis of the subject matter was often lacking.

Nevertheless a very important benefit of this method of autonomous-guided learning in a

hypermedia environment was the active participation of the pupils during the entire course of the lesson. Even those pupils who concluded that their strategy was not sufficiently developed, had experienced a learning process that enabled them to evaluate their own actions. They were motivated by a layered (progressive through different levels) and concentric (repeatedly returning to the starting point, the historical source(s)) method of studying information. The students enjoyed working with the programme because it enabled them to pursue their own interests, to study the past in an active manner and to engage in discussion and personal interpretation. Some pupils also stated that what they discovered by themselves is much easier to remember. It was evident though that the teacher played a crucial role in assessing the situation of each different group of pupils. His/her role shifts from passing on knowledge to coaching the learning process of his/her individual pupils. The computer did not replace the teacher, on the contrary, it turns him or her into a confidence-building expert.

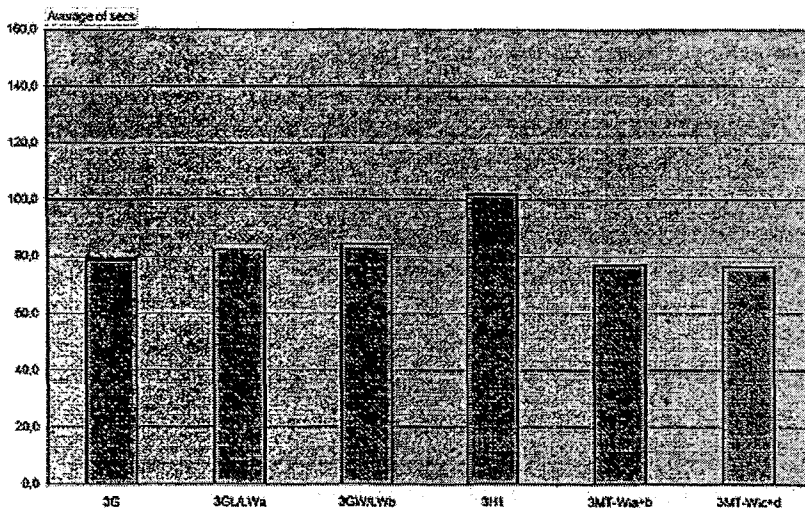
Future perspectives

Although the Maerlant-project is now finished, research on the development and use of ICT in educational contexts is still one of the main objectives of the Maerlant centre.⁸ The analysis of the log files collected during the field tests, explains in detail how pupils navigated through hypertext aimed at developing of (historical) thinking skills and how a digital learning environment can anticipate their behavior.



Average duration of reading on the first level of information (descriptive level)

⁸ More information about the Maerlant Centre: <http://fuzzy.arts.kuleuven.ac.be/mcepub/>



Average duration of reading on the second level of information (contextual level)

To date, the Maerlant centre has, among other things, produced a cd-rom on the Sint-Baafscathedral in Ghent, a cd-rom on Mayor Rockox and Antwerp's Golden Age and a website for university students to help them to master historical method in a professional manner.⁹ Similar to the latter project is the STIHE-project also discussed in this issue. A permanent interaction between theory and practice, between products, product developers and users remains a necessary condition for all future activities.

Summary

The Maerlant Project has been discussed earlier in this journal¹⁰ as a research project which aims to establish a digital learning environment focusing on the development of historical skills among pupils in secondary education. The main idea behind it was to formulate a concrete response to two main challenges that face history teachers in Flanders today. It is taken for granted that they teach historical skills on the one hand while making use of ICT during their lessons on the other. Due to the growing conviction that historical understanding can only be developed when students become familiar with the research methods of the historical discipline, the constructive nature of historical knowledge pervades the minds of scholars who have to be able to cope with an over-supply of sometimes questionable (historical) information. Beginning with the assumption that hypertext and hypermedia could stimulate this critical attitude we consulted with several schools to test the strengths and weaknesses of the multimedia cd-rom that the Maerlant Centre had developed for pupils aged fifteen. How well were they able to

⁹ More information about the Heurodot project: <http://fuzzy.arts.kuleuven.ac.be/heurodot/>

¹⁰ R. De Keyser, K. Rogiers and F. Truyen, "Historical skills and ICT" in *Informations. International Society for History Didactics*, Vol. 18, No 2 (1998), 107-120.

investigate the historical sources and secondary information available to them in large quantities and in a layered and personalized manner? Did the program succeed in its attempt to narrow the gap between the source, the historical reality it represents and the prior knowledge of our target group?