

HERODOTUS: An Educational Site as an Integral Part of a Study Book

Sjoerd de Vries
 Faculty of Educational Science and Technology
 University of Twente
 The Netherlands
 vries@edte.utwente.nl

Henk Donker
 Faculty of Educational Science and Technology
 University of Twente
 The Netherlands
 mp_donker@edte.utwente.nl

Introduction

In the Netherlands there is an on-going process of restructuring education. Secondary education is now being restructured into a basic level (the first two/three years) and an upper level (the last two/three years). The leading idea behind the upper level is the so-called 'study home' concept. The intention is that the learners become 'successful independent constructors' of their own study processes instead of 'successful dependent victims' of presented instruction. The first secondary schools start in 1996-1997 with their 'study home' and educational publishers are working on new appropriate study books in order to make the 'study-home' concept a success. To reach for success, publishers consider the use of educational software as an integral part of these new study books. Such educational software is expected to make use of the rapid evolving technologies like hypermedia and the Internet.

Educational Software as Integral Parts of Study Books

In co-operation with an educational publisher we, this is the division Educational Instrumentation Technology of the Faculty of Educational Science and Technology, University Twente, the Netherlands, searched for an acceptable design of the desired educational software. To be acceptable, this design has to function for the next years as a blueprint for implementation and maintenance of educational software products, which products should serve as an efficient and effective integral part of their new study books. We introduced the concepts Interactive Study System and Interactive Study System Environment to refer to these educational software products.

Basically we see an Interactive Study System (ISS) as a software system consisting of study tools, educational resources, and if needed additional materials. This system is an integral part of a study book. An ISS can be extended by generic software tools, like communication and information editing tools.

- Study tools can vary from drill and practice tools, tutorial tools, simulation tools, concept mapping tools, study workplaces, e.g. Study tools are software tools that are particularly designed to enhance individual or group-based study processes.
- Educational resources refer to the multimedia information content matter. The central educational resource is named the CourseBase. A CourseBase can be seen as an object-oriented database containing Instructional Multimedia Information Content Constructs (IMICC's). An IMICC is a construct consisting one or more Multimedia Information Content Primitives (MICP's) designed for instructional purposes. MICP's are basic multimedia information content units serving one goal-directed action, such like identification, relation, presentation or question.
- Additional materials refer to information and/or tools that support study processes but which are

- not offered in an electronic way.
- Generic software tools are tools that are not particularly designed to enhance study processes. Examples of such tools are communication and information editing tools. Communication tools can be used to enable communication between students, between student(s) and instructional managers, information providers, e.g. Information editing tools can be used to edit documents, spreadsheets, tables, e.g.
- The main goal of an ISS is to enable an interactive study process between a user of the system and other users and/or between the user(s) and educational resources.

However to use and maintain an ISS appropriate tools are needed. To refer to these tools we use the concept Interactive Study System Environment (ISE). In order to speak of an environment, three conditions have to be met:

- *Full support* of task performance by means of instruments and Electronic Performance Support in each phase of the lifecycle of a product, in this case the lifecycle of an ISS;
- *Flexibilisation of task performance*, the user decides about where, when, and how tasks are performed;
- *Integration*, the user has a consistent and uniform view on the applied systems.

An ISE is seen as a software system for (re-) design, use and evaluation of ISS's.

In co-operation with the educational publisher, we designed and implemented a prototype ISS named Herodotus. Herodotus is an integral part of the new history study book published by the involved educational publisher, which book is intended for the upper level of secondary education in the Netherlands. We consider the prototype Herodotus a first step to the realisation of an ISE.

The Design of Herodotus as an Integral Part of an History Study Book

A main interest in our design of Herodotus is the application of the 'WEB technology'. There are two reasons for that. First, because of the openness of the WEB technology. It offers opportunities to enhance the flexible use and maintenance of ISS's. Second, the WEB offers three basic functions, which are expected to be essential for learners in order to practice becoming 'successful independent' constructors of their own study process. These three functions are: communication, co-operation, and information gathering. These three functions are essential in a wide variety of study processes.

There are two ways of looking at the use of the WEB technology in relation to the design of ISS's. The first way is to design ISS's based on the WEB technology. This implies that an ISS can be seen as an educational site on the WEB. The second way is to consider an educational site a sub-system of an ISS. This implies that users of an ISS, also have the opportunity to make use of an educational site, which site is specifically designed as a sub-system of an ISS. We have chosen for the second way in order to design Herodotus. The main reason is that the need for interaction is a basic principle for ISS. The way the WEB technology allows for interaction (For instance 'Java') is rapidly evolving, however we considered such opportunities for interaction not yet 'stable' enough.

In our presentation we will describe the design of an ISS and in relation to this Herodotus. We describe the main design principles and the architecture. Special attention will be given to the way we integrated Herodotus into the history study book. In addition, we describe the user interface of the educational site which is a sub-system of Herodotus. Finally, we give remarks about further research in the design of ISS's and more specific about educational sites as integral parts of study books or curricula.

Knowledge Explorer Centre: The Web as a Multimedia Publishing Medium

Greg Dixon
The Dixon DesignWorks, Canada
gdixon@dsoe.com

Introducing the Knowledge Explorer Centre

In response to the phenomenal interest in the World Wide Web, the Dixon DesignWorks has changed its view of the Internet from that of promotional medium to that of publishing medium for multimedia educational content. The result is the KNOWLEDGE EXPLORER CENTRE, recently launched on the World Wide Web (www.dsoe.com/explore). This paper examines the benefits, challenges, and viability of using the World Wide Web as a multimedia publishing medium.

A Brief History

The Dixon DesignWorks developed an English language tutorial program called *English Structure and Style* in the 1980's. *English Structure and Style* helps secondary, college, and adult students learn about grammar and style elements. A few hundred schools, school boards, and colleges have licensed the program for use in their language labs.

The Dixon DesignWorks converted the content of *English Structure and Style* to Windows hypermedia format and published it as a shareware program called *Exploring English*. *Exploring English* was the first in the planned Knowledge Explorer Series. Other titles planned for the series included *Exploring English as a Second Language*, *Exploring Literature*, and *Exploring Libraries*. Market research indicated high interest in *Exploring Literature*, followed by *Exploring Libraries*. The results of the market survey, plus exciting new developments on the Internet, have led to the creation of the KNOWLEDGE EXPLORER CENTRE on the World Wide Web.

Objectives of the Knowledge Explorer Centre

The KNOWLEDGE EXPLORER CENTRE is an innovation in Internet publishing. Some of the main objectives are:

- To share educational materials to help students achieve success.
- To encourage others to explore specific areas of knowledge.
- To provide a forum for people of varied backgrounds to share their knowledge and enthusiasm for a wide range of subject areas.

Current Knowledge Explorer Titles

Each main area of the KNOWLEDGE EXPLORER CENTRE provides a multimedia overview to a subject area with pointers to other resources available on the Internet and on other media.

- *Exploring English* provides a webmedia tutorial on the English language for adults and young adults.
- *Exploring Gardens* provides information and photographic images of plants and garden topics.
- *Exploring Libraries* introduces people of all ages to the resources found in modern libraries.
- *Exploring Literature* provides an introduction to the rich world of the written word.

- *Exploring British Columbia* provides a fun introduction to the natural wonders of British Columbia.

Benefits of Publishing on the Internet

The original intention for creating a World Wide Web site was to promote individual titles in the Knowledge Explorer Series, each offered as separate multimedia software packages. However, we shifted our view of the Internet to that of a multimedia publishing medium for the following reasons:

- Natural translation of the hypermedia approach from Windows Help format to webmedia format.
- Instant distribution to millions of Internet users.
- Hardware and operating system independence.
- Increasingly rich multimedia platform.
- Low development and publishing costs.
- Opportunities for world wide collaboration.

Challenges to Publishing on the Internet

There are a number of challenges that may limit the effectiveness of Internet resource centers such as the KNOWLEDGE EXPLORER CENTRE. Most are cultural and not technical.

- Attracting the people who could benefit the most.
- Countering the general perception of the Internet primarily as an entertainment vehicle.
- Regaining the interest of many who have searched for quality educational content without success.
- Finding specific sites on a network which by nature is not organized.
- Wandering through too many lists of lists leading to sites without content.
- Funding the development of quality content.

Sponsorship Funding Model

The KNOWLEDGE EXPLORER CENTRE was launched without any government or corporate funding. Its continued growth will depend on the level of support from the people using the material and from sponsors. Individuals and organizations that find the material useful are encouraged to show their appreciation by contributing to the Center. Companies and organizations looking for public relations and marketing exposure are invited to sponsor the KNOWLEDGE EXPLORER CENTRE in general or to sponsor specific areas such as *Exploring Gardens*.

Advertising space is available in a linked area called the EXPLORER TRADING POST. Advertisers associate their products and services with specific areas of the KNOWLEDGE EXPLORER CENTRE.

Future Plans

Assuming a positive reception from the Internet Community and funding support, the KNOWLEDGE EXPLORER CENTRE will continue to evolve in the following areas:

- Expansion of current areas according to interest and support.
- Expansion into new subject areas such as *Exploring Art* and *Exploring Ecology*.
- Publishing in other media such as books and CD-ROM.

Conclusion

Online multimedia resource centers such as the KNOWLEDGE EXPLORER CENTRE are emerging as

important sources of knowledge and inspiration on the World Wide Web. The rich suite of multimedia tools and a staggering potential audience make the Web a natural vehicle for publishing educational and exploratory materials. The success of such sites over the next year will indicate the viability of the World Wide Web as a publishing medium for multimedia educational materials.