

Web based Toolbook Applications in the Educational Environment

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Introduction

Library Affairs of Southern Illinois University at Carbondale is dedicated to providing the best possible service and instructional support for our users. The Library's Instructional Support Services staff work with faculty to create classroom applications that incorporate the latest in technology to enhance the education process.

Toolbook is one of the most popular programs among faculty, and the Library has worked to provide the support necessary for continued development of Toolbook applications for classroom instruction. In keeping with this philosophy, the Library sponsored the appointment of Paolo Tosolini as a research scholar to develop Toolbook applications that enhance the use of Toolbook programs for classroom instruction. Specific research has been done on the integration of Toolbook in the World Wide Web. This paper introduces the most relevant projects.

MultiMedia WWW PC

USA site: <http://www.lib.siu.edu/mmwwwpc/mmwwwpc.html>

European mirror: <http://www.ets.bris.ac.uk/tosolini/mmwwwpc/>

This Web provides free software and interactive demonstrations about how to publish Asymetrix MultiMedia Toolbook applications on the World Wide Web. Based on DDE protocol, MultiMedia WWW PC library consists of a powerful set of functions that can be implemented in custom applications to communicate with a Web browser. In this way, it is possible from within a Toolbook program, to send a command to the Web browser in order to access to a specific address (URLs), retrieve information about the currently displayed page such as title and full URL, check if the browser is running and more.

Another interesting feature is that configuring the Toolbook runtime as an external viewer, the Web browser becomes a launching pad of remotely located interactive applications and the Internet a carrier of Toolbook files (Macken et al. 1995, Tosolini 1995, Ostrouska et al. 1996). Combining openscript programming with MultiMedia WWW PC functions, it is possible to design CBT modules that are downloaded on demand by other Toolbook modules, as illustrated in figures 1 and 2.

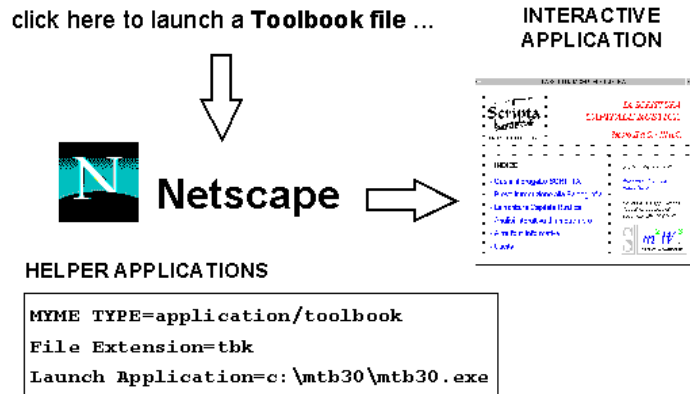


Figure 1. Configuring the Toolbook runtime as a helper application in Netscape, it is possible to retrieve and launch a Toolbook file with a single mouse click from the Web.

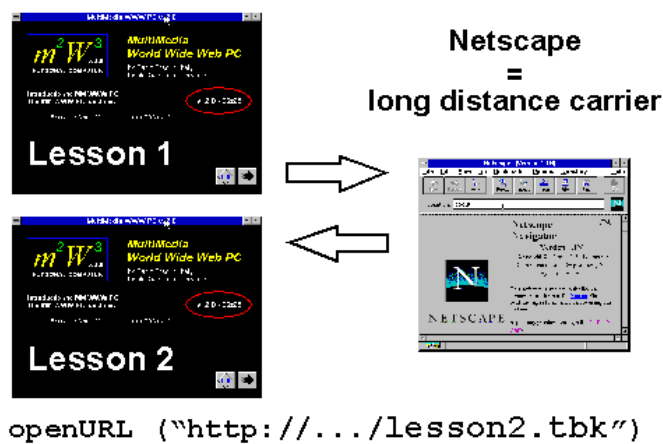


Figure 2. MultiMedia WWW PC software library includes several functions that make Toolbook interact with Netscape.

Time can be also considered as a new relevant factor to be implemented in Web based CBT applications. With the ability to continuously check the current displayed URL, Toolbook can become a 'time based watcher' of user's cyberspace navigation and prevent him from getting lost or connected to unwanted internet addresses.

W3 Kiosk

USA site: <http://www.lib.siu.edu/w3kiosk/w3kiosk.html>
 European mirror: <http://www.ets.bris.ac.uk/tosolini/w3kiosk/>

This Web provides free software, technical details and interactive demonstrations to develop remotely modifiable hypermedia applications. W3 Kiosk is based on the concept that you can use the Web to download from a remote server Toolbook objects in the form of openscript, and import such objects in a locally running application. Combined with MultiMedia WWW PC functions, W3 Kiosk is the solution to write Toolbook programs with the ability to automatically update their contents through the Internet (Lythgoe et al. 1996).

Toolbook OnLine

USA site: <http://www.lib.siu.edu/tbonline/>
European mirror: <http://www.ets.bris.ac.uk/tosolini/tbonline/>

This Web introduces the concept of *hyperfolios*, electronic documents that are integrated with hypermedia applications and the Internet (Falkenberg et al. 1995). Although this model refers to a more general cross platform environment, Toolbook OnLine makes use of the Windows version of Adobe Acrobat and Netscape to set up a real working demonstration.

As illustrated in figure 3, *hyperfolios* are basically hypertext electronic documents deliverable over the network. Compared to HTML, the visual quality of the information is higher, and the ability to interact with the Web to launch different applications and/or view other media are unmodified. In Toolbook OnLine, interactive Toolbook applications display information requested by the user directly from the Acrobat format (see figure 4).

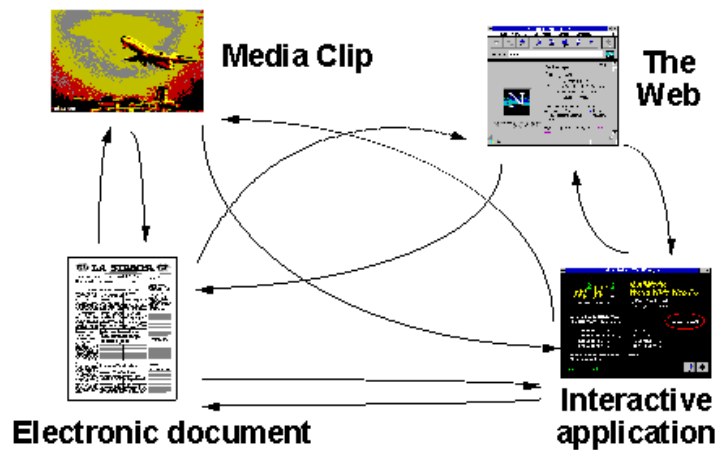


Figure 3. In hyperfolios electronic documents and hypermedia applications interact together over the network.

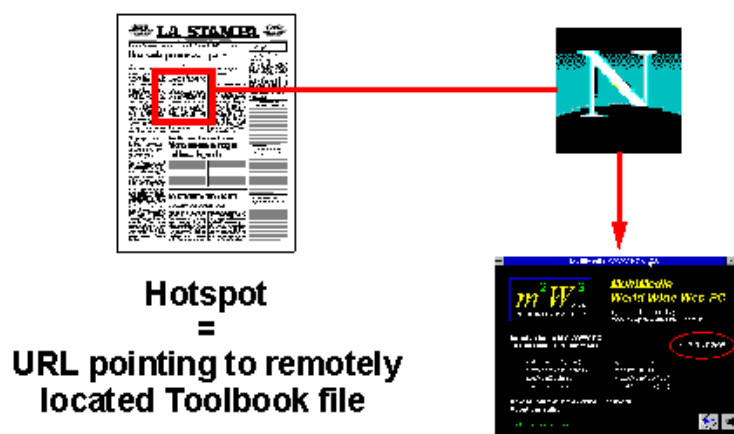


Figure 4. With the ability to interact with the Web, Adobe Acrobat may represent for certain purposes a valid replacement of HTML.

Virtual Reality Xplorer (VRX)

USA site: <http://www.lib.siu.edu/vrx/vrx.html>
European mirror: <http://www.ets.bris.ac.uk/tosolini/vrx/>

VRX is an authoring system to create and display 360 degree views using Toolbook (Tosolini 1995b, Tosolini 1995c). VRX software is based on the concept that a 360 degree view can be reproduced by putting together 8 different images, each one shot horizontally at the same elevation every 45 degrees in a circle. Images above and below the horizon can also be shown with images shot at the same view angle but at different height levels. VRX is used to represent the original point of view by properly positioning the images on a 2D array (see figure 5).

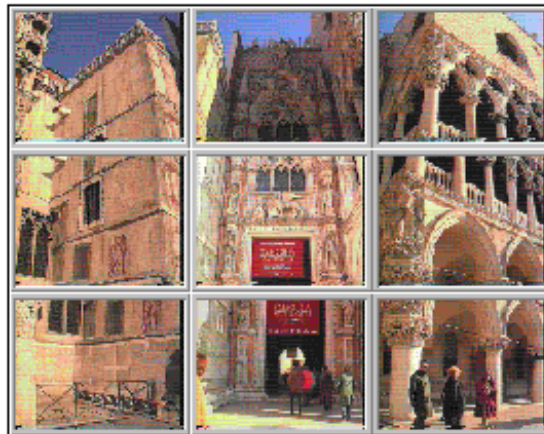


Figure 5. Authoring a VRX view consists in positioning in proper placeholders a series of images previously captured using a VCR.

An important feature that gives VRX more flexibility is hotspots. Hotspots are mouse-sensitive areas that can be defined on top of the pictures and that can be linked either to a caption or ToolBook statement. Hotspots can also be associated to new images, sounds, movies or other VRX views, enhancing the level of user interactivity and allowing a kind of cybernavigation in the virtual space. Linking hotspots to MultiMedia WWW PC functions make it possible to browse the Web using the metaphor of a virtual environment (see figure 6).

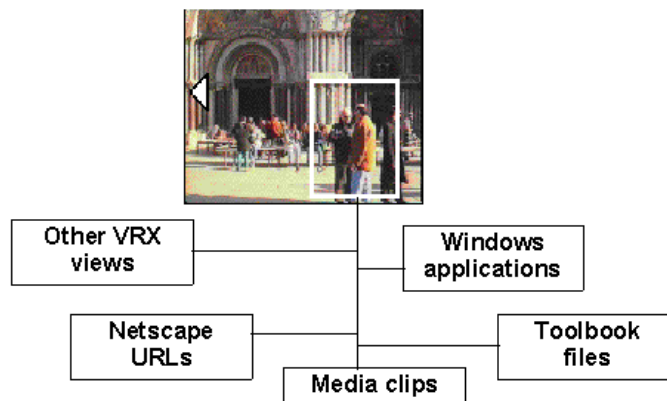


Figure 6. Hotspots in VRX may be linked to any valid openscript statement.

The Virtual Plaza

USA site: <http://www.lib.siu.edu/tbkwww/plaza.html>
European mirror: <http://www.ets.bris.ac.uk/tosolini/tbkwww/plaza.html>

Our endeavors have been also directed toward finding new educational applications for Internet based collaborative software. The Virtual Plaza is a discussion forum where users have the opportunity to exchange information in real time through a chat program called PowWow by Tribal Voice. During these virtual sessions, the moderator can guide the participants through a slide show held in an automatic form on the Web, and send real time audio to support his explanations.

Conclusions

Our research activity has challenged some of the many ways to use the Internet for educational purposes. Our expectations for the coming releases of Toolbook are new in-built and easy to use capabilities for integration with the Web. We feel that by promoting these new technologies, the Library is helping in the development of creative applications for teaching, particularly in the distance learning environment. As more people develop Web sites for educational purposes, and incorporate Toolbook applications into them, the value of the Web for educational support will also grow. We are pleased to be on the forefront of this effort.

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Acknowledgements

For the support in this research, the authors are grateful to all the personnell of Instructional Services at Library Affairs, SIUC, and particularly to Alex Falkenberg, Ross Easterling, Tom O'Brien, Jerry Hostetler and Jay Starratt.

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Susan Logue is the Assistant Instructional Support Services Librarian at Library Affairs. She manages digital imaging and is responsible for developing the World Wide Web at the Library.

Paolo Tosolini is a freelance multimedia developer. His research activity challenges the fields of user interface design and the publishing of multimedia documents on the Internet. He is currently visiting researcher at Southern Illinois University at Carbondale.