

eXe – Creating Dynamic Web page for Online Courses¹

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Abstract

Online students struggle with understanding mathematical concepts and finishing homework without help. There is no doubt that visual components, such as dynamic graphs and lecture videos, are one of the most important tools for students' success in online courses. Producing dynamic web pages including applets and videos impose numerous challenges on the online course developers and instructors, especially those with no experience in web publishing. In this note we illustrate main features of eXe (eLearning XHTML editor) as a tool for producing dynamic web pages for online courses. eXe is a freely available open source authoring tool for structured educational content to assist teachers and academics in the publishing of web content without the need to become proficient in HTML or XML markup. Resources authored in eXe can be exported as self-contained web pages or in SCORM 1.2 file for auto-grading in Learning Management Systems (LMS) such as Blackboard or Moodle.

Introduction

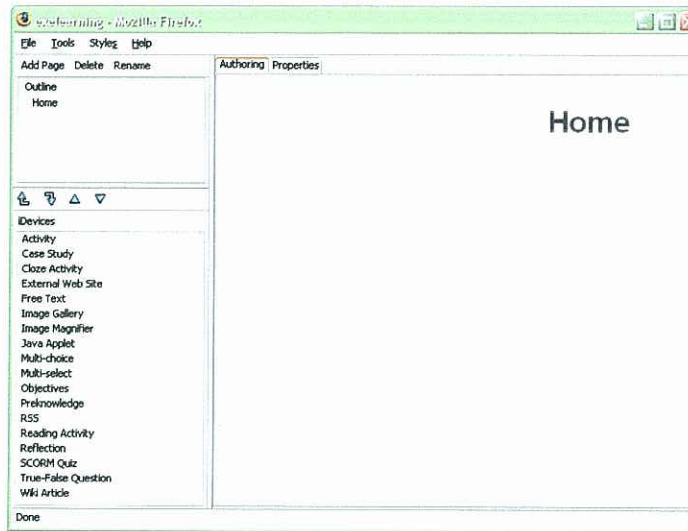
There is a common trend that has arisen in our society that invokes the need for technological integration in students' educational development and tremendous demand for online content are requested, but the problem lies in the fact that most educators and academics lack the resources and skills for web publishing. Not to mention that most web-publishing applications like FrontPage or Dreamweaver are time consuming and have a steep learning curve in order to become skilled. So we would like to promote eXe (eLearning XHTML editor) for the many features that it offers to those teachers who are not experienced in creating web pages.

Instructional Devices (iDevice)

Each iDevice (instructional device) is a collection of structural units that describe learning content and activities, and is the main feature of eXe that serve as templates of learning content such as Multi-choice/selection, Cloze Activity, External Web Site, Java Applet, SCORM Quiz, Wiki article, etc. The Multi-choice/selection iDevices can be used as a self-testing tool to bring about

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discussion and thought on topics that students might be reluctant to respond to. This iDevice in particular is quite interesting because the instructor can include feedback to each option available stating whether the answer is correct or incorrect and the reasons why a response is correct or not. The Activity iDevice provides a clean slate to define a task the student must complete.



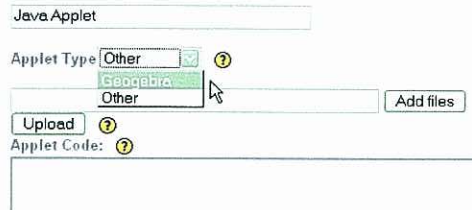
The instructor can provide information that will help the students in fulfilling the given task, making sure to consider obstacles that the students might face. The Cloze Activity iDevice prompts learners with a piece of text with significant phrases or words missing. Learners demonstrate their knowledge and understanding of the concepts presented in the text by filling in the missing phrases or words. This is another useful device for testing reading comprehension and language skills. The External Web Site iDevice allows you to attach an external website url to your content. This feature allows learners to browse the external website without the need to open a new browser window. The SCORM Quiz iDevice bundles questions to form a quiz assessment. This assessment is then managed by the Learning Management System (LMS) to enable scoring. The True-False Question iDevice present a statement that requires the learner to make a determinant whether the statement is true or not. The wiki article iDevice takes a snap shot of an article and embeds it into the eXe content. This iDevice requires that the author be connected to the internet. Changes made to the article will not automatically be updated to Wiki so changes made on the user's local machine to the wiki content in the user's content should be submitted back to the wiki where appropriate.

Each iDevice comes with assistance for users in the form of 'Pedagogical Tips' around the inclusion of iDevices. These tips can help users make informed decisions around when and how to use iDevices for delivering course material. Tips are also provided near each iDevice's form fields to assist users in generating appropriate content.

The eXe comes with the iDevice Editor in the Tool menu. Using the iDevice Editor users can create and archive new customized iDevices of their own.

Java applets iDevice (especially with GeoGebra)

The Java applet iDevice allows users to load simple java applets into the eXe content. This iDevice also recognizes GeoGebra as an applet format, so users can embed GeoGebra files into this iDevice without converting the GeoGebra file into an html file. This can serve as a tool to provide students with visual and interactive resources to solidify topics learned that couldn't be expressed with a chalkboard.



Content Formatting

Using the iDevice rich text editor users can enter the content as they would if they were using standard word processing type applications. The editing toolbar located above each editable frame provides some basic formatting, searching and linking functionality. Formatting content is relatively simple especially embedding images, videos, and mathematical equations.



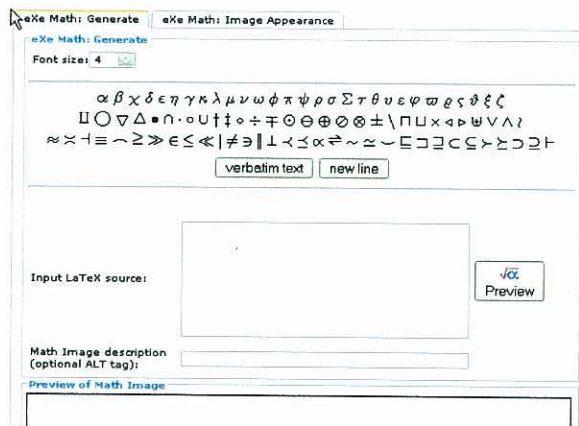
Useful Icons in the editing toolbar

Multi-Media icon

The following media types can be embedded into almost all iDevices: ShockWave Flash (SWF), QuickTime, Windows Media, Real Media (audio), MP3, FLV, and YouTube/Google Videos. All of these media types (except for MP3 and FLV) may require additional browser plugin support. With only minimal Flash installed, however, MP3s and FLVs may be embedded with a built-in player. Each of these different media types has their own set of attributes, available within the media dialog's Advanced tab. One program that I would like to emphasize on for creating lecture videos is Jing. Jing is free software that can record onscreen activity and sound with the use of a microphone, and save it as an swf file. This is very convenient because eXe can include this file as it is without converting it to any other format.

Mathematical Equation icon (with LaTeX)

The eXe math image icon opens



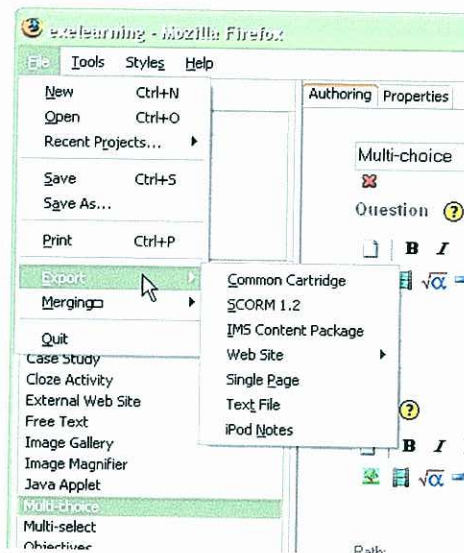
the eXe Math: Generate window, and users can use LaTeX commands to create and include mathematical equations almost everywhere within the content in any rich-text field. The equations are imbedded as image representations of what was generated through LaTeX. This is much more convenient for instructors because it offers a much easier document markup language than HTML and XHTML.

Link icon

The link icon can be used to create links just about anywhere in the content just by highlighting a particular text, then clicking the link button in the toolbar. It will then prompt you to enter the destination URL, and the text will become a standard hypertext link. The link directs the web browser to a new destination page, optionally even in a new browser window. The destination may be an external website, or possibly even an internal page of the content.

Exporting to Learning Management Systems

The content created in eXe can be exported as a web package ready for publishing to a web server. Some of the export types are Single Web Page suitable for printing, a plain text file for display on mobile devices, or iPod Notes files. One of most important features of eXe is that it can be exported as a self-contained website utilizing the navigational sequencing created during authoring and can be uploaded to a web server. Two important export types are SCORM (Shareable Content Object Reference Model) 1.2 or IMS (Instructional Management Systems) content packages that can then be imported into an LMS (Learning Management System), especially for self-grading purposes, such as Blackboard, WebCT, and Moodle.



Conclusion

The usefulness of eXe is expressed in the software's ability to make web publishing available to instructors who want to offer online resources and materials to students. It aims to provide an intuitive, easy-to-use tool that will enable instructors to publish professional looking web pages for learning. It is a tool that provides professional web-publishing capabilities that can be easily referenced or imported by learning management systems. It has been developed as an offline authoring tool without the requirement for connectivity. Its WYSIWYG

functionality enables users to see what the content will look like when published online.

Another interesting aspect to look at is how the different software programs complement each other. For instance, GeoGebra and Jing are both programs that are free and easy to use and when implemented into eXe can offer great visual insight into the material being taught, especially to those who are visual learners.

Our society is becoming more and more technologically knowledgeable, and eXe can provide a way for instructors and academics to catch up in a sense to the growing demand of online course integration. Since eXe avoids the tedious coding associated with web publishing and brings more of a ‘word processor’ feel to the user, anyone who is not an expert on HTML markup can use eXe to construct web pages with ease.

References

- 1] eXe eXeLearning, <http://www.exelearning.org/>
- 2] eXe, The eLearning XHTML Editor, http://wikieducator.org/Online_manual
- 3] GeoGebra, <http://www.geogebra.org>
- 4] Jing- <http://www.jingproject.com/>
- 5] LaTeX – A document preparation system, <http://www.latex-project.org/>