

Creating and Managing Learning Objects with Common Office Tools

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Abstract

This presentation is a demonstration of rapid development of learning objects using common office tools. Tools, such as Microsoft PowerPoint and Word can be used to produce professional learning content that could be easily delivered through any standard web browser.

Motivation

National College of Ireland comprises two schools, the School of Business and the School of Informatics. While School of Informatics lecturers publish all teaching materials on the college intranet, Business School lecturers are less likely to do so. We used a survey to investigate the reasons behind this. The majority of Business lecturers are renowned experts in their area with decades of lecturing experience, but their IT skills are often limited to using common office tools, namely Microsoft PowerPoint and Word. We investigated the possibility of using familiar office tools (in particular PowerPoint) for publishing teaching materials on the web.

Target Audience - Survey Results

A short survey questionnaire is sent to all NCI School of Business lecturers. The results of our survey were as follows:

- 87% of lecturers use Microsoft PowerPoint to create/present their lecture materials
- 25% of lecturers publish their materials on the web, but all of them would require assistance from the IT department.
- Lecturers with more years of teaching experience are less likely to engage in more training.
- All lecturers considered themselves proficient PowerPoint users.
- All lecturers wanted to incorporate some form of self-assessment into their teaching material, but due to lack of IT skills they are not able to do it.

The obtained results are not surprising, recent surveys [How03] show that PowerPoint is the second most-popular authoring tool.

Common Office Tools Extensions

There are a number of tools developed to extend PowerPoint functionality. These extensions vary in complexity - some extensions add more engaging content formats (animated agents, audio and video) and streaming [AcuStudio, Apreso]. Other tools generate media-rich Flash-based online courses. Here we list and describe some of these tools currently available on the market.

- mindflash (<http://www.mindflash.com/pages/home.asp>) can be used for creating, offering and managing training courses online. The tool transforms PowerPoint files with animations and audio narration into engaging web shows.
- Thesis Professional - creates and deploys media rich learning content through the PowerPoint interface. The created material is SCORM conformant, but meta-data is inserted manually (http://personal.telefonica.terra.es/web/glassmultimedia/thesis_en/thesispro.htm).

- Macromedia Breeze and PowerPoint can be used to produce an online training system that includes assessments, tracking, analysis, course administration, and content management. The learning objects are kept in a central library and can be easily found and reused. SCORM and AICC adapters are provided and the created content can be delivered through existing Learning Management Systems. Macromedia Breeze provides more functionality than other tools named here. (<http://www.macromedia.com/software/breeze/>)

Implementation

This presentation is a demonstration of the development of a learning object using Microsoft PowerPoint and Macromedia Breeze.

Macromedia Breeze is suitable for people at all skill levels. At the same time it is a cost effective rapid development tool, as shown in the following table [Ber03]:

Media/Tool	Typical Cost to Develop (Per instructional hour)	Time Required to Develop
PowerPoint Alone	\$50-500	Hours
Macromedia Breeze	\$100-1000	Few days
Courseware	\$1000-35,000	Months

Macromedia Breeze is organized in three units:

- Breeze Presentations, personalises Microsoft PowerPoint presentations with human narration and delivers them through any standard web browser.
- Breeze Training builds a complete online training system with PowerPoint presentations that includes surveys, tracking, analysis, course administration, and content management.
- Breeze Live provides online meetings functionality, which will not be used for this presentation.

Learning object

There is no unique definition of a learning object. Some definitions are very broad [IEEE02] while others are very specific and elaborative [WISC04]. The following definition is used for this presentation: “Learning Objects are defined as any entity, digital or non-digital, which can be used, re-used or referenced during technology supported learning .” [Con02].

Based on [Boy03], each learning object implemented in this presentation is based on one learning objective – one clear learning goal. For each learning object two components are implemented, namely learning activity and learning assessment.

Learning Activity

Learning is enhanced through delivering content via more than one of the senses [Chu99]. Macromedia Breeze supports development of audio-enhanced presentations with narration recording and animations synchronization. Existing Microsoft PowerPoint presentations are used as starting point for learning activities development.

Learning Assessment

Self-assessment is a way of reflection and thus it initiates learning. It is important that students can access tests at their convenience, such as using the Internet with standard browsers [Bon00]. In an era of lifelong learning, self-assessments are even more important, since mature learners need to be corrected as they learn [Rog92]. Multiple-choice questions are quite popular with teachers but are

often used only to recall factual information. When properly set multiple-choice questions can be used for assessing comprehension, problem solving, and other higher order skills [All02].

Macromedia Breeze provides an easy five-step procedure for implementing quizzes and surveys in multiple-choice question form. Created self-assessment material is delivered on the web as part of a Microsoft PowerPoint presentation. This tool can be used for summative assessments, since student's results can be tracked and used for grading and progress monitoring.

Conclusion

Lecturers are specialists in their subject areas, and many do not have an IT background, but are comfortable with use of a PC, the Microsoft Office packages or similar, and all have slide-show presentation tool skills. The time needed and costs involved are the main obstacles for the lecturers to engage in expensive, complex, and frequently long training courses to learn to use high performance learning tools. The solution to this requirement is extending familiar office tools with learning content generators to allow rapid development of learning material. Macromedia Breeze is used to demonstrate this approach.

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