

Presentation

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Speaker/Author

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Title

ZMS eLearning Components: Addressing key factors for the efficient production of medical eLearning courses

Extended Abstract

Efficient Learning Content Modelling and Publication

ZMS [1, 2] is a content management framework based upon the open source application server ZOPE, that is enhanced by a series of special functions for building structured content. It facilitates the editorial process by providing a homogeneous and specific concept for the acquisition of electronic content. It enables the inexperienced user to „one click publishing“ by directly entering contents into a web form.

With the *ZMS eLearning Components* (eLC) the framework can be configured to a Learning Content Management System (LCMS), and allows for creation of SCORM compliant content structures (SCOs, SCAs) and interaction elements, such as quizzes, polls, and groups. The extended application area of the framework is the creation of learning content, interactive self-assessment elements, learning course administration and course appliance.

ZMS is perfectly suitable for hospitals, research institutions, NGOs and small to medium-size international companies. The modular structure of the ZMS components and the approved production steps characterize ZMS as an incomparable fast and productive tool, that allows for achieving important economic results even in the so-called low budget area. The easy modelling and the achieved high degree of structuring of the content together with the XML interface support the migration into other systems or the integration of external content at any time. ZOPE as well as ZMS are both available as license free OpenSource products.

Rich Media Assets

Rich media assets utilize specific media elements such as 2D and 3D animation, simulation, and interactivity, to provide explorative learning and information scenarios for the user. They add the dimensions space, time, and interactivity to

content representation, such that spatial and dynamic aspects of knowledge can be covered, and multiple views on the content can be taken.

Especially in the STM (Science, Technology, and Medicine) medical field the importance of rich media assets for content representing is very high. A core instrument in medical diagnosis is imaging, i.e. the attainment and interpretation of picture data with various methods, such as ultrasound, CT, MRI or SPECT imaging, by the physician. Anatomy is essentially three-dimensional, in some cases such as the heart even four-dimensional, steering circuits within the body and also pathological and healing processes occur in time. Rich media assets can display essential medical content adequately, and simulate essential actions of the medical daily work.

Despite the technical foundation to produce and use rich media assets, and their didactically highly desirable features for representing eLearning content, rich media assets are not yet common, and their full potential is far from being reached. There are several reasons for this: The production of rich media assets such as 3D animation is cost intensive, since highly educated media specialists and programmers have to be involved. Often these technical specialists are not familiar with the subject field, so that production typically runs in long cycles.

Economic Aspects

There are approaches to reduce the production effort and to standardize the process of conception, implementation, integration und administration of learning content. One core idea is to create content as “learning objects”, that are sustainable and re-usable, and do not need to be re-engineered when integrated in new contexts and environments. The concepts LOM and SCORM [3] clearly define these evolving standards, that in the end lead to a good cost-value-relationship and a learning objects economy. Also, new standards such as SVG define new perspectives in cross-media publishing of highly graphical material, and thus contribute in making the production process more cost effective.

Using the ZMS eLearning Components, it is possible to easily integrate and capsule valuable rich media content both within the learning content as well as the self-assessment elements. Special objects provide interfaces that require a minimum of technical media and programming knowledge for the author. The encapsulation of rich media content and the finishing with meta tags (e.g. DC.Core) and keywords allows content production, that can be shared and integrated. Thus, entrance points are defined that enable publishing companies, industry, and content providers, to participate in business cases.

Blended learning scenarios require the content to be in multiple forms (Print, CD-ROM). ZMS is already prepared for cross-media publishing, i.e. supports the production of a “coursebook-on-demand” or “CD-ROM-on-demand” from the structured online content.

The presentation demonstrates how the ZMS eLearning Components (eLC) support the efficient production and publication of eLearning material by focussing on an example from the medical area. The set up, administration and delivery of an online course in echocardiography will be shown.

References

1. ZMS - open source content management for science, technology and medicine. <http://www.zms-publishing.com>
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3. SCORM Version 1.3 Application Profile Working Draft Version 1.0. ADL - The Advanced Distributed Learning Initiative. <http://www.adlnet.org>
4. EchoVisum – Basic Online Course Echokardiography. <http://www.EchoVisum.de>