Content Authoring Tools and Standards – A Self-Reliant Mechanism for Content Development

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Abstract

The choice of the right authoring tools and the right content for the right user is very important for the development of contents for e-Learning. This paper focuses on the objectives of an authoring tool, various tools available in the market today and the need and importance of developing contents maintaining e-learning standards. It also analyses the need for development of multilingual content and the problem of non-availability of authoring tools for regional languages.

Learning is more than just content or delivery software. It needs to be integrated into a broader learning process involving instructional support and collaboration, and designed with emphasis on the learning objectives. Thus a developer is faced with a variety of tools available, which can be used to develop content. In India, a diversity of languages give the need for development and presentation of content in local languages. This is very important in order to communicate the information to the learner in the language understood by them. The challenge is the non-availability of many tools for developing content in regional languages. The importance of standards to the continued growth, expansion, and evolution of e-Learning cannot be overemphasized. Standards leads to efficiency and synergy's that enable markets to grow and the promise of e-Learning to be realized. SCORM is probably the most important and widely emerging e-Learning standard today, whose ultimate goal is ensuring ubiquitous access to the highest quality education and training, tailored to individual needs, and delivered cost-effectively anywhere in the world at anytime.

The standards could ensure interoperability, affordability, durability, reusability and accessibility.

The paper tries to provide some possible solutions and in a way utilizing the various capabilities of C-DAC to arrive at a solution to develop multilingual content in the absence of authoring tools in regional languages. The ultimate goals of a content developer are to present content in a form fulfilling the requirements of every learner. Choosing the content authoring tool and choosing the right methodology to present the content is the first major effort in this direction. Managing and integrating the existing resources into a solution catering to the need of content development is the next step. Integrating the existing products available and including regional languages to benefit the masses on a large scale is the ultimate goal of implementing e-Learning to benefit the masses on a large scale.

1.0 Introduction

The essence of implementation of e-Learning lies with the representation of content. This is the first and important step in the e-Learning path. The development of content in a presentable form, which appeals to the learner, is a great challenge to the developers of content. This technical paper discusses the foreseen and unforeseen challenges in the road to development of content of international standard. It proposes the methodology of integrating available facilities into developing a solution for meeting the challenges in authoring of content. In the era of explosion of information, it is very important to provide the accurate, quantified information catering to the need of the learner and in the form, which is presentable and understandable by the learner. This is more so prominent because the new learner has to be convinced to shift from the "brick and mortar" approach to a "click and learn" approach.

2.0 The interface for content development - Content authoring and tools

2.1 Problem definition:

- The term content authoring is very vague, it is very important to understand the term in relation to e-learning
- Many tools are available for content authoring, it is very difficult to choose the right one for fulfilling the requirement

2.2 What is content authoring?

Content authoring is preparing information so that it is well presented and accessible to individuals and groups in all possible environment they happen to be.

There are so many tasks to do, so many different kinds of content to manipulate, and so many distribution and display technologies to support that it is unreasonable to expect a single tool to cover everything. Authors ideally want a system of integrated tools that:

- Make it easy to re-purpose content that has already been prepared for a specific use
- Provide user interfaces that enhance the creative process of authoring

The ultimate goal of authoring systems is to provide a well integrated system that satisfies the concept of "author once – publish to many platforms"

Categories of tools

Single Purpose Tools:

They are designed for basic purposes rather than for creating a suite of varied tools. Most tools in this category are not specifically designed for production of instructional materials.

Activity Creation Tools:
They are designed to produce small, stand-alone, interactive activities that may be incorporated into courses.
Course Development and Presentation Tools:
They are specifically designed for developing and presenting online courses and training programs. These tools are typically organized around specific concepts, lessons, and modules.

General Presentation Tools:

They are designed for the presenting content in multimedia form, and with specific

uses in online education, though not intended for this purpose exclusively.

Testing and Assessment Tools:

They are designed to produce tests, quizzes, and other types of assessment for print, computer, and/ or Web-based delivery.

Thus, depending on the requirements and where the content would be implemented the appropriate choice of the content authoring tool can be choosed.

The common categories of authoring tools which produce content complying with the e-learning standards use some base software application. The most common ones are those that use Powerpoint presentations, Web based content (HTML) and Flash based presentations.

Screen Hunter 4.0 is a freeware edition of a popular screen capture utility. It allows users to capture any image displayed on a computer screen and then paste the image into another application (Word, PowerPoint, FrontPage, etc.) or save the capture as a graphic file. This is an example of a single purpose tool.

Hot Potatoes. The Hot Potatoes suite is a set of six authoring tools created by the Research and Development team at the University of Victoria Humanities Computing and Media Centre. The tools permit the development of several types of interactive Web-based exercise. No prior Web programming knowledge is required. The user enters the data (text, questions, answers etc.) into a template, and the software creates the webpages for posting on the site. Almost all aspect of the pages can be customized. The following six tools are included: JCloze (creates fill-in-the-blank exercises, and is useful for reviewing vocabulary and for word pattern recognition); Jmatch (creates matching and exercises and flash-card reviews; useful for reviewing vocabulary and definitions and for review drills on any subject); JQuiz (creates multiple-choice, short-answer, and hybrid questions; useful for reviewing and subject and self-monitoring of progress); JCross (creates online crossword puzzles, useful for reviewing vocabulary and definitions); JMix (creates mixed-up-sentence exercises; useful for verbal pattern recognition); the Masher (compiles activities created with individual Hot Potatoes tools into a single linked, indexed set.This is an example of activity creation tool.

KnowledgePresenter is a comprehensive tool for creating dynamic, interactive, online content such as: multimedia lessons, both self-running and interactive; software simulations and demonstrations; and multiple-choice quizzes. All content can be displayed in the browser and can be viewed on many platforms. The version reviewed here was KnowledgePresenter Pro, including the full feature set, separate programs for screen movie capture (ScreenTeacher), still-screen capture (KookaCap 2004) and a learning management system. It is a professional-level tool and carries a high price tag. With the product's power and flexibility comes a certain degree of complexity. At first, its huge range of features and possibilities can be quite overwhelming. Fortunately, the software contains a user-friendly interface, a set of wizards and templates, and a complete set of tutorials and exercises to get new users up-to-speed. Once past the substantial initial learning curve, the program proved fairly easy to use for simple tasks. The basic design of KnowledgePresenter is similar to that of MS PowerPoint, with separate screens for each stage of the presentation, each containing a variety of text, graphics, video, or other media.

Articulate QuizMaker - Is an example of a testing and assessment tool. This can be used to interactive quizzes, online examinations with questions of various formats and can be integrated with a standards compliant Learning Management system . This has a very user friendly interface and very easy to adapt.

Articulate Presenter – This is a full content development suite for integrating content with multimedia and provide SCORM compliant content. This uses the Powerpoint presentation as the base for the development of SCORM compliant content.

Please note that the objective of presenting these examples is not to propagate the usage of these tools but to provide some analogy to help in choosing the right tools for content development.

Whether WYSIWYG authoring is required, Web authoring, PowerPoint conversion, or just plain HTML (to name a few strategies), there are hundreds of tools out there to help efficiently create lessons, assessments, simulations, etc. Because there are so many tools to choose from, and it is difficult to afford to be more discriminating in choice of tools. There are websites and literature, which provide tools which help users choose the right content development tool for the required purpose. This is included in [ref a].

Some more examples of authoring tools and their websites addresses for reference are mentioned in [ref b].

Good Practices for content development
Good Practice relates to the use of logos, colours, fonts, screen sizes, picture sizes, etc which are context dependant, rather than more widely agreed aspects of web design.

- Ensure the layout is clear and content accessible in the minimum number of clicks. To make sure of this plan the structure and layout before starting development
- Include a site map where possible
- Keep the style, colour and position of tabs consistent throughout
- Ensure there are clear links from the home page to each area of your site
- Include a link back to the home page from all pages
- Avoid use of too many colours, logos etc and keep the interface simple and uncluttered
- Ensure graphics and text is suitable for the audience the site is aimed at
- Use the standard conventions for hypertext links
- Try to avoid jargon or slang
- Ensure it is possible to search the database information

StandardsUsually refers to the widely agreed aspects of web design and use (covering hardware, con. guration and coding). There are several types of standards to be considered. (1) Open Standards (W3C - http://www.w3c.org) In general content should be written so that it is available to the widest possible audience including a high level of accessibility for people with disabilities. For static websites the following standards are

- expected.CSS2.1 http://www.w3c.org/Style/CSS/#specsHTML 4.01 http://www.w3c.org/MarkUp/ActivityWAI: http://www.w3c.org/WAI/

In addition developers should also:

- Include a web address for site feedback and for reporting anyproblems or errors
- Ensure they have permission to use any content included in the site.

Content Development in Regional Languages
Problem definition:

- In India especially, the content has to be in regional languages in order to reach the masses

Non-availability of content authoring software in regional languages is a big challenge

A number of tools are available for development of content in English lanuage but for the development of contents in regional languaes is still a major challenge. But for the benefits to reach the masses, the subject matter must be in the language that the masses understand. This poses a major problem to content developers. The solution is two-fold in nature

- Translate the exisiting content to the required regional language (The focus of the paper is on Indian Languages only)

Develop the new content in the regional language using the multilingual editors and bring it to the format of making it SCORM compliant. (could be HTML based or Powerpoint based)

Results and Discussion

The above paper has focussed on the good practices to develop content. It also has dwelled into the aspect of non-availability of content authoring tools in regional languages. It proposes the solution of development of content using the available multilingual tools for translation and Office tools. The idea is to build compatible content

complying to standards of e-Learning like AICC/SCORM. Once the content is developed in some base format this can further be made SCORM compliant easily. This is one of the proposed solutions in the absence of complete authoring tool for regional languages.

The paper also discusses the importance of the e-Learning standards. Standards themselves are meant to allow interoperability between software developed. Hence content becomes reusable and organizations benefit in terms of the cost factor.

The solution proposed thus provides a self-reliant mechanism for content development in regional languages using the available expertise in the area of Natural Language Processing. This would finally deliver the benefits of e-Learning to the masses in India.

References

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