

## A Review On Authoring Tools

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**Abstract.** Recently, a growing number of Institutions and business organizations have embraced the concept of E-learning. They use web based learning systems to fulfill their educational needs. E-learning authoring tools (or AT for short) enable trainers to integrate an array of media to create professional, engaging, interactive training content, and some make it possible to repurpose digitized elements or learning objects from an existing course for reuse in a new one. The choice of the best authoring tools for the right user is very important for the development of contents for E-learning. In This paper we are going to review on various authoring tools available in the market today and the need and importance of creating contents in E-learning, finally, we will classify the authoring tools.

**Keywords:** E-learning, Authoring tools, Classification, Specialized AT, Unspecialized AT

### 1. Introduction

E-learning is becoming an essential part in teaching and teachers are searching for the best method to represent their courses. Since <sup>1</sup>LO becomes the small course unit that can be designed to be reusable, customizable and flexible; teachers prefer to find the authoring tools for creating interactive LO quickly and easily. Custom content is the new frontier of E-learning. Trainers are trying to identify ways to create and publish custom digital content for use on the Internet, intranets, or CD-ROMs. Some trainers seek high-speed deployment of critical information throughout an organization, while others want control of courseware and independence from programmers. [1]

Many organizations are attempting to reduce their training costs by developing E-learning materials in-house. Whatever the reason, more trainers are finding themselves researching the features, benefits, and cost of authoring tools. Through this paper, will be described the reason of the using authoring tools and How to find the best tool In Section 2, In section 3 the categories of tools will be presented. In Section 4 we will focused on the classification of authoring tools, the most tools. Finally, the paper will be ended by conclusions.

### 2. Why Authoring Tools?

To create a proper course for E-learning, you need an authoring tool to facilitate this work. The definition of authoring tool is “a program that helps you write using hypertext or multimedia applications and enable you to create a final application merely by linking together objects, such as a paragraph of text, an illustration, or a song. By defining the objects' relationships to each other, and by sequencing them in an appropriate order, authors (those who use authoring tools) can produce attractive and useful graphics applications.[11]

Most authoring systems also support a scripting language for more sophisticated applications. Thus, these tools provide many facilities helping the author to create a good E-content for courses. In fact, E-

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<sup>1</sup> Learning Object

content has very important features that make the work easier than paper-content which are storing, modification, reusability and sharing of information .[6]

## **2.1. How to find the best tool for you**

Although selecting the best authoring tool requires close attention to detail, the process should be painless. Currently available tools offer a variety of features. For example, some tools are designed to develop extensive assessments, software simulations, or content for hand-held computers. If you have special needs, you'll certainly find a tool that meets them.

However, most tools are designed to create basic E-learning courses for desktop or laptop computers. The software programs support a variety of media and file types, such as text, graphics, video, and audio. Most include assessment and test creation features.

To find the authoring tool that works best for you, conduct a needs assessment. Regardless of how much (or how little) you know about authoring tools, determine the functionality that's most important to your organization and create a shopping checklist.

The following points are intended to give you a basic understanding of authoring tools while provoking some analytic thinking to help you identify the capabilities and options that are most important to you. Automated Programming. By automating programming for online delivery, authoring tools liberate course developers from their dependence on programmers. A few authoring tools have the ability to write such programming languages as HTML, XML, or DHML. The types of programming code or output formats vary significantly among tools. When evaluating candidates, compare the output formats for each tool.[11]

### **Interoperability and standards**

The ability of an authoring tool to work with other E-learning software and systems is referred to as interoperability. The E-learning community has several sets of technology standards and is currently developing additional standards. The four most common standards are <sup>2</sup>AICC, <sup>3</sup>SCORM, IMS Global Learning Consortium, and Microsoft LRN. Authoring tools differ in the standards they support.

### **Question types**

Trainers who develop courses are always interested in the different types of assessment questions that they can create with an authoring tool. Do you prefer fill-in-the-blank, matching, true or false, or short or long essay? If you're a trainer with favorite question types, then find the tool that supports those kinds of questions.

### **Multiple learning paths**

To accommodate differences among learners, some authoring tools have the capability to create variables, which is an important feature for adaptive learning. Courses created using variables are more complex to design, but they account for a range of knowledge and skill sets. If you develop courses that contain different tracks, you may want to add variables to your checklist.

### **Media and file support**

Pay very close attention to media and file support. Most authoring tools support such common file types as JPGs, WAVs, and GIFs, while few packages support streaming video and audio. Be sure to inventory the file types you'll use.

### **Extensibility**

Some trainers need to customize the software for specific purposes. The ability to do that is called extensibility. If you or your organization requires some customization to the authoring software, be certain that you have a tool with open source code, which allows a skilled computer programmer to customize software to meet the trainer's needs.

### **Cost**

The most cost-efficient way to buy authoring software is by volume. Most companies that sell authoring tools have price schedules for multiple copy purchases, thereby reducing the per-piece cost and delivering higher cost efficiency. [1]

## **3. 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.

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<sup>2</sup> Aviation Industry Computer-based Training Committee

<sup>3</sup> Sharable Content Object Reference Model

- **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 chosen.

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 and Flash based presentations. [10]

## 4. Authoring tools Classification

The classification of authoring tools can be based on different aspects such as:

- **Complexity:** the tools can be classified in range from simple to advance. The tools become simple when supporting drag drop facilities, wizard ...etc. The advanced tools are those that require programming capabilities to build a course material and needs technical competency. A long time need to be spent in creating a course - especially when there is a need for programming to create tests and quizzes or building the course from scratch.
- **Fee:** the tools can be classified as free and commercial. Based on the center of learning and performance Technology, we find through the top 100 course authoring tools 2009 there are 19 free tools and the other need to be purchased.
- **Purpose:** the purpose of some authoring tools concentrate on creating courses. However, there are a number of multipurpose tools which are not specialized for creating online courses but are used.

There are a number of tools which are known to the most such as: MS PowerPoint, Front Page, Dreamweaver and Flash. However, the author, who uses these tools, needs to have a good command over programming to make an interactive course. Thus, there are software such as Articulate, Adobe Captivate, Course Lab and <sup>4</sup>GLO that concentrates on creating courses and LO without need for programming level. The subsequent topics will provide details about unspecialized and specialized authoring tools. [9]

### 4.1. Unspecialized Authoring Tools

#### • MS PowerPoint

MS PowerPoint is presentation software used to create slideshow. The slides are usually linear and can include hyperlinks to jump to other sections. This allows the user to get to more detail on a subject of interest. In addition, it allow user to add audio and video clips in a presentation. Even though this tool is mainly for creating presentation, it is considered to be one of the most popular course authoring tools. [7]

One of the reasons for using the office package for developing, implementing, and delivering E-content of a course is the easiness of use which is built over the previous expertise of using this package by almost all of the personal computer users. In fact, MS PowerPoint plays a significant role in developing course authoring tools. Many professional course authoring tools are based on PowerPoint or use its structure. [6]

#### • Flash

Flash has become a popular method for adding animation and interactivity to web pages. Flash is commonly used to create animation, advertisements, and various web page Flash components, to integrate video into web pages, and more recently, to develop rich Internet applications. Therefore, some course authors prefer using flash, because it allows many features and programming using Action Script. This helps them to create tests and quizzes in attractive way. However, this tool is complex and need professionals. [8]

#### • Front Page and Dreamweaver

These tools used to create WebPages. They provide an easy way to create links and images without need to know about <sup>5</sup>HTML. However, these tools alone cannot provide the interactive course. It needs the help of other tools and graphics designers.

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<sup>4</sup> Generative Learning Object

<sup>5</sup> Hypertext Markup Language

## 4.2. Specialized Authoring Tools

The growing of E-learning leads to create special authoring tools that help authors and fulfill the needs for creating course in easy way. The following are the most popular courses authoring tools.

- **Articulate**

In Articulate Studio Package the most three important authoring tools are Presenter, Engage and Quiz Maker. These authoring tools are used inside MS PowerPoint. The Presenter allows adding interactivity and narration compiling to create flash presentation. In addition, it provides features to get attention and inspire learning such as:

1. Animated annotations that highlight important points.
2. Clear, crisp images and video.
3. Multi-level navigation and branching.

Finally, Quiz Maker tool allows creating group and randomizing question pools quickly without separating questions that should appear together. It also provides the following feature:

1. Branch quizzes takers to different slides depending on how they answer each question.
2. Animate objects and adjust their timing on the click-and-drag timeline.
3. Choose from a wide selection of professionally designed themes or create your own.
4. Give your quiz takers specific results and feedback based on their scores.
5. Get quiz results through e-mail. [3]

- **Adobe presenter**

Adobe Presenter helps to easily create professional Flash presentations and self-paced courses complete with narration and interactivity. In addition, it allows adding animations, quizzes, and software simulations to E-learning courses. Similar to articulate, this tool is also based on MS PowerPoint. [4]

- **Adobe Captivate**

Adobe Captivate can rapidly author professional E-learning content with advanced interactivity, simulations, quizzes, and other engaging experiences no programming or multimedia skills required. However, Captivate does not need MS PowerPoint because it is independent. In fact, it has features as which in Flash that make this tool professional.

- **Course Lab**

Course Lab is a powerful, easy-to-use, E-learning authoring tool that offers programming-free and WYSIWYG environment for creating high-quality interactive E-learning content. This tool is somehow similar to captivate but it is free.

- **GLO Maker**

1. GLO Maker is an authoring tool for creating rich, interactive learning resources. It builds on the extensive Publish to HTML package.
2. Publish to CD-ROM.
3. Publish to SCORM 1.2 and SCORM 2004 package for import to any <sup>6</sup>LMS supporting this standard.

Experience of the <sup>7</sup>CETL in Reusable Learning Objects. It is open source and free for educational use.

GLO Maker authoring tool is based on the new concept. GLO approach inverts traditional approach for reusability. The traditional approach to the reuse of learning objects has been to separate content from context in order to make the content reusable. However, in GLO, It extracts successful pedagogical designs and makes these the basis for reuse. [5]

- **E-learning Authoring Tool**

The E-learning authoring tool is a simple, easy to use tool for creating online course content. Its design allows you to create rich media courses containing text plus images, Flash animations, audio and video created with your favorite media editors. Every course you create will fully conform to the SCORM standard. With the AT, you can quickly create courses for employees, customers, partners, or even the general public. Your learners will enjoy an easy to navigate course with a clean, professional design. You will not need any programming skills to create courses with the AT. You author your course with easy to use forms and a built-in HTML editor.

When you deliver your course or test with a SCORM-based LMS, the questions are automatically graded and the results sent back to the LMS. The AT reports the overall score (raw, minimum and maximum), the course status (incomplete, completed, passed or failed) and the results of individual questions. [2]

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<sup>6</sup> Learning Management System

<sup>7</sup> Centre for Excellence in Teaching and Learning

## 5. Conclusions

Nowadays, there is a large movement from education institutions and universities for using E-learning and increasing population to choose the best AT to create a proper course for E-learning. In addition, all produced learning contents are conforming to the SCORM standard, which makes better the contents interoperability and reusability. Therefore, Improving authoring tools is important and one of the main points is, to enhance them for the easily usage and having professional output.

This paper proposed several authoring tools with the goal of designing and creating the contents which should provide the learner with all the necessary tools. The usage of AT cause the incremental of learner's interaction.

Therefore many organizations are attempting to reduce their training costs by developing E-learning contents in-house. Whatever the reason is, more trainers are finding themselves researching the features, benefits, and cost of authoring tools. Choosing an appropriate authoring tool in E-learning can help to solve many problems including the needs of growing communities to educate people, Lack of access to educational, shortage of training costs and economic opportunities. There are many advantages in this type of training that will cover the problems.

## 6. References

- [1] J. Harris, Vice present of Marketing. *An Introduction to Authoring Tools*. Appeared in the March 2002 edition of ASTD's Learning Circuits online magazine.
- [2] E-learning Authoring Tool, [Online]. Retrieved 2010, from <Http://www.E-learningconsulting.com>
- [3] Articulate, [Online]. Retrieved 2009, November 27 from <Http://www.articulate.com/>
- [4] Adobe, Adobe Presenter [online]. Retrieved 2009, November 27 from <Http://www.adobe.com/products/presenter>
- [5] GLO Maker, [Online]. Retrieved 2009, November 26 from <Http://www.glomaker.org>
- [6] Basuhail, A. A. (2009). *Design and Implementation Of and E-learning Content Using Simple and Obtainable Tools*. First International Conference 'E-learning and Distance Education'. [Electronic version]. Retrieved 2009, November 3 from [Http://eli.elc.edu.sa/2009/content/AbdullahAhmadBasuhail\[research\].pdf](Http://eli.elc.edu.sa/2009/content/AbdullahAhmadBasuhail[research].pdf)
- [7] Kurtus, R. (2006). *Authoring Tools for E-learning*, CBT and WBT. [Electronic version]. 2006, January 20 Last update. Retrieved 2009, November 22 from <Http://school-for-champions.com/elearning/authortools.htm>
- [8] Webopedia: *Online Computer Dictionary for Computer and Internet Terms and Definitions*, [Online]. 2003, July 09 Last update. Retrieved 2009, November 3 from [Http://www.webopedia.com/term/a/authoring\\_tool.html](Http://www.webopedia.com/term/a/authoring_tool.html).
- [9] K.Al-Shawkani. E-learning Authoring Tools: The Present and Future Vision. 2009.
- [10] V.K. Sharma, S.Meenakshi. *Content Authoring Tools and Standards – A Self-Reliant Mechanism for Content Development*. 2005.
- [11] H.Keynejad, M.Khademi, M.Haghshenas , H.Kabir. *E-learning Content Authoring Tools and Introducing a Standard Content Constructor Engine*, 2nd International Symposium on Computing in Science & Engineering / June 1-4, 2011 / kusadasi-Turkey.