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# CONTENTS

Sr. No.	TITLE & NAME OF THE AUTHOR (S)	Page No.
1.	<b>ADEQUACY OF KNOWLEDGE AND ATTITUDE TOWARDS INFORMATION TECHNOLOGY OF STUDENT LIBRARY USERS AT SELECTED COLLEGES AND UNIVERSITIES IN CALABARZON, PHILIPPINES</b> <i>DR. MA. LINDIE D. MASALINTO, DR. MA. CONSUELO M. OBILLO, RUFO S CALIXTRO JR., JOSEFA G. CARRILLO &amp; MA. XENIA Z. BITERA</i>	1
2.	<b>MOBILITY IN HETEROGENEOUS WIRELESS NETWORK USING HMAC</b> <i>C. SUGANTHI &amp; DR. C. MANOHARAN</i>	4
3.	<b>A STUDY ON CONSUMERS PERCEPTION TOWARDS THE PURCHASE DECISION OF TWO WHEELER MOTORCYCLES IN NELLORE DISTRICT, ANDHRA PRADESH</b> <i>D.V.RAMANA &amp; DR. PARA SUBBAIAH</i>	9
4.	<b>OPTIMIZING THE DE-DUPLICATION FOLIAGE IMAGE ACCESS IN STORAGE SYSTEMS</b> <i>CHITTALA RAMA SATYA &amp; B.VIJAYA KUMAR</i>	15
5.	<b>A STUDY ON THE IMPACT OF E TAILERS ON UNORGANISED AND ORGANISED RETAILERS WITH REFERENCE TO ELECTRONIC GOODS</b> <i>KALAVATHY K.S &amp; DR. BINA PANDEY</i>	18
6.	<b>A MODERN CLASSIFICATION OF PRICING STRATEGIES OF RETAILERS</b> <i>SREELATA, N. V. NARASIMHAM &amp; DR. M. K. GUPTA</i>	24
7.	<b>LEADERSHIP CONCEPT: AN OPINION SURVEY IN A PRIVATE SECTOR AND GOVERNMENT SECTOR</b> <i>DR. E. LOKANADHA REDDY &amp; DR. G HARANATH</i>	30
8.	<b>MARKETING MIX: A REVIEW ON THE 'P'S OF MARKETING</b> <i>M.VASUDEVAN, DR. V. M. SENTHILKUMAR &amp; K.SASIKUMAR</i>	37
9.	<b>SECURING A BIOMETRIC TRAIT: A CASE STUDY ON FINGER PRINTS</b> <i>MADHU CHAUHAN &amp; DR. R. P. SAXENA</i>	40
10.	<b>INFORMATION AND COMMUNICATION TECHNOLOGY AND THE PERFORMANCE OF SMALL AND MEDIUM ENTERPRISES IN NASARAWA STATE, NIGERIA</b> <i>UMARU DANLADI MOHAMMED &amp; CHINELO GRACE OBELEAGU-NZELIBE</i>	43
11.	<b>RELIABILITY TEST PLANS BASED ON LOG-LOGISTIC DISTRIBUTION</b> <i>R.R.L.KANTAM, B.SRIRAM &amp; A. SUHASINI</i>	49
12.	<b>MIGRATION AND SUSTAINABLE DEVELOPMENT</b> <i>DR. H.R.UMA, MADHU G.R. &amp; MAHAMMAD HABEEB</i>	58
13.	<b>THE ANTECEDENTS OF BRAND LOYALTY: AN EMPIRICAL STUDY ON AIRTEL CELLULAR SERVICES</b> <i>DR. P. SUJATHA</i>	61
14.	<b>STATUS OF BI SOLUTIONS AT SELECTED BRANCHES OF BANKS IN RAJASTHAN</b> <i>DR. AZIMUDDIN KHAN</i>	66
15.	<b>A STUDY ON USAGE OF GEOSPATIAL TECHNOLOGIES IN POWER UTILITY</b> <i>VARUN PRAKASH</i>	71
16.	<b>AN IMPROVED INVISIBLE WATERMARKING TECHNIQUE FOR IMAGE AUTHENTICATION</b> <i>DASU VAMAN RAVI PRASAD</i>	76
17.	<b>ORGANIZATIONAL STRUCTURE, RESPONSIBILITY, MOTIVATION LEVEL AND JOB SATISFACTION OF SELF-FINANCING ENGINEERING COLLEGES BY USING MATHEMATICAL MODELING</b> <i>RAVI DATT, DR. SUNIL DUTT, DR. SITA RAM &amp; SANTOSH KUMARI</i>	82
18.	<b>DESIGN AND IMPLEMENTATION OF A REAL-TIME VEHICLE TRACKING SYSTEM</b> <i>MAITANMI OLUSOLA STEPHEN, OGUNLERE SAMSON OJO, DR. ADEKUNLE YINKA, GREGORY ONWODI &amp; MALASOWE BRIDGET</i>	86
19.	<b>PERFORMANCE EVALUATION OF MANET ROUTING PROTOCOLS WITH SCALABILITY FOR E-MAIL THROUGHPUT TRAFFIC USING OPNET MODELER</b> <i>MANDEEP SINGH &amp; BALWINDER SINGH</i>	93
20.	<b>DETAILED INVESTIGATION OF RESIDENTIAL SATISFACTION IN APARTMENT'S MANAGEMENT SERVICE</b> <i>P. BALATHANDAYUTHAM &amp; DR. R. SRITHARAN</i>	98
21.	<b>A STUDY ON THE PSYCHOLOGICAL IMPACT OF REDUNDANCY ON SURVIVORS</b> <i>S.SOWJANYA</i>	100
22.	<b>A STUDY ON SECURITY THREAT AWARENESS AMONG STUDENTS USING SOCIAL NETWORKING SITES, BY APPLYING DATA MINING TECHNIQUES</b> <i>A.PAPPU RAJAN</i>	103
23.	<b>ELECTRONIC REMITTANCE SYSTEM IN INDIA: CHANGING PARADIGMS OF PAYMENT MECHANISMS IN INDIA</b> <i>SAMIR</i>	107
24.	<b>E-SATISFACTION AND E-LOYALTY OF CONSUMERS SHOPPING ONLINE</b> <i>R. SATHISH KUMAR</i>	111
25.	<b>STUDENTS PERCEPTION TOWARDS e-BANKING: SPECIAL REFERENCE TO KOLLAM DISTRICT IN KERALA</b> <i>NIJAZ NIZAR</i>	114
26.	<b>TECHNOLOGICAL DRIFT TOWARDS SMART DEVICES: AN OVERVIEW</b> <i>MUKESH H.V &amp; HALASWAMY D. NAIK</i>	118
27.	<b>MOTIVATION AS AN EFFECTIVE TOOL FOR ORGANIZATIONAL DEVELOPMENT IN NIGERIA</b> <i>DR. ABDULSALAM JIBRIL &amp; YUSUF SAJO</i>	121
28.	<b>AN UNDERSTANDING OF DUNNING'S OWNERSHIP-LOCATION-INTERNALISATION (OLI) ECLECTIC THEORY OF MULTINATIONAL COMPANIES</b> <i>JABES GABBIS ODHIAMBO KOTIENO</i>	124
29.	<b>AUTHORING TOOL: KEY FOR E-LEARNING SYSTEM DEVELOPMENT</b> <i>JAVED WASIM</i>	128
30.	<b>ANTECEDENTS AND CONSEQUENCES OF WORK-EXHAUSTION (IT SECTOR)</b> <i>UMAIR NAJAM &amp; FAISAL ABBAS</i>	131
	<b>REQUEST FOR FEEDBACK</b>	136

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- Sharma T., Kwatra, G. (2008) Effectiveness of Social Advertising: A Study of Selected Campaigns, Corporate Social Responsibility, Edited by David Crowther & Nicholas Capaldi, Ashgate Research Companion to Corporate Social Responsibility, Chapter 15, pp 287-303.

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**AUTHORING TOOL: KEY FOR E-LEARNING SYSTEM DEVELOPMENT**

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**ABSTRACT**

Recently, a growing number of Institutions and business organization 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 .The choice of the best authoring tools for the right user is very important for the development of content for E-Learning . This paper describes and reviews on authoring tools that represent the part of the e-learning systems and also to find the best authoring tool.

**KEYWORDS**

E-Learning, Authoring tools, Classification, Specialized AT, Unspecialized AT.

**INTRODUCTION**

E-learning is emerging as the new paradigm of modern education. Worldwide, the e-learning market has a growth rate of 35.6%, but failures exist. Little is known about why many users stop their online learning after their initial experience. With its ability to both reduce operating costs and train more people, E-Learning is an attractive option for companies that are trying to balance business and educational goals. But in order to implement an E-Learning program, one have to wade through hundreds of learning management systems, learning content management systems, authoring tools, and collaboration environments to determine what solution will work best for your situation. There are several hundred e-Learning tools out in the marketplace today. Selecting the proper course-authoring tool for developing your company's online training content is no small undertaking. E-learning is becoming an essential part in teaching and teachers are searching for the best method to represent their courses. Since Learning Object 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. [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 describe the authoring tool, the reason of the using authoring tools and How to find the best tool. In Section 6, the categories of tools will be presented. In Section 7, we will focus on the classification of authoring tools, the most tools. Finally, the paper will be ended by conclusions. [11]

**WHAT IS AN AUTHORIZING TOOLS**

The "Intelligent tutoring system" research community uses the term authoring system to refer to a computer based system that allows a general group (including non-programmers) to create (or author) content for intelligent tutoring systems. While a few intelligent tutoring systems have been successfully created, they are very costly to construct.

In the development of educational software, an Authoring System is a program that allows a non-programmer to easily create software with programming features. The programming features are built in but hidden behind buttons and other tools, so the author does not need to know how to program. Generally Authoring Systems provide lots of graphics, interaction, and other tools educational software needs.

An authoring system usually includes an authoring language, a programming language built (or extended) with functionality for representing the tutoring system. The functionality offered by the authoring language may be programming functionality for use by programmers or domain representation functionality for use by subject experts. There is overlap between authoring languages with domain representation functionality and domain-specific languages. An authoring tool is a software package which developers use to create and package content deliverable to end users.

Though authoring tools have a range of uses, they are commonly used to create e-learning modules. These modules are generally written to conform to some international standard, such as SCORM (Shareable Content Object Reference Model) or AICC (CBT) (Aviation Industry CBT Committee).

Distribution of content created with authoring tools also varies. Distribution methods include: web, kiosk, interactive CD-ROM, and executable file.

Since the term is somewhat general, many programs can be considered authoring tools, including Flash, and PowerPoint. However, only a small group of programs specifically include support for e-learning content standards including Dictera, Easygenerator, Elicitus, e2train, Composita, Macromedia (Adobe) Authorware, Power X Editor 4 [1], Director, Mohive, Lectora, Composer FX, EasyAuthoring (Metamorphosis), iSpring Suite and MyCAT. [12]

**WHAT IS AN AUTHORIZING LANGUAGE**

An **authoring language** is a programming language used to create tutorials, computer-based training courseware, websites, CD-ROMs and other interactive computer programs. Authoring systems (packages) generally provide high-level visual tools that enable a complete system to be designed without writing any programming code, although the authoring language is there for more in-depth usage. Examples of authoring languages PILOT ,TUTOR Examples of web authoring languages Bigwig

**WHY AUTHORIZING TOOLS?**

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

Authoring tools provide the teacher/expert to design, describe organize and public the learning resources (e.g. learning content, tests).

**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]

## CATEGORIES OF TOOLS

The majority of authoring tools fall into two broad categories: the pedagogy-oriented systems which “focus on how to sequence and teach relatively canned content” and the performance-oriented systems which “focus on providing rich learning environments in which students can learn skills by practicing them and receiving feedback.” There are seven categories of ITS authoring systems according to the type of ITSs they produce. These are: i) Curriculum Sequencing and Planning, ii) Tutoring Strategies, iii) Device Simulation and Equipment Training, iv) Expert Systems and Cognitive Tutors, v) Multiple Knowledge Types, vi) Special Purpose, and vii) Intelligent/Adaptive Hypermedia. 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. [8]

## AUTHORING TOOLS CLASSIFICATION

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

(i).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.

(ii). Fee: the tools can be classified as free and commercial. Based on the center of learning and performance Technology website (2009), we find through the top 100 course authoring tools 2009 there are 19 free tools and the other need to be purchased.

(iii). Purpose: the purpose of some authoring tools concentrates on creating courses. However, there are a number of multipurpose tools which are not specialized for creating online courses but are used.

### 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. [4, 5]

#### ✓ 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. [6]

#### ✓ Front Page and Dream weaver

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

### 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.

Quiz Maker allows creating group and randomizing question pools quickly .It 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 / Captivate

Adobe Presenter helps to easily create professional Flash presentations and self-paced courses complete with narration. 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 and can rapidly author professional E-learning content with interactivity, simulations, quizzes, and other experiences no programming skills required. However, Captivate does not need MS PowerPoint because it is independent. [10]

#### ✓ 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 6LMS supporting this standard.

Experience of the 7CETL 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. [10]

#### ✓ 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. [10] 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]

#### ✓ ObjectJ Authoring Tool

ObjectJ Authoring tool is an E-learning Content Authoring Tool which is easy to use for instructors and Provides highly synchronized interactive content. ObjectJ Authoring tool supports the whole authoring process from high-level outline to fine-tuned timing using an instructor-centered user interface. This tool provides features to get attention and inspire learning such as: \* Easy to use for instructors and covering the authoring process from providing lesson outline to detailed timing and synchronizations in a single, easy to use storyboard view. \* Providing highly synchronized interactive content and Support for different types of media clips, including audio, video, and flash components. \* Supports thin-client model for authoring Whole functionality is accessible through the web browser. No client management is necessary.



8AICC-standard compliant The produced content is fully AICC-compliant and can communicate with any standard LMS. \* Supports Java applets and ActiveX components Both Java applets and ActiveX components can be embedded in the content to increase interactivity. This feature enables having complex simulations, virtual labs, or tests in the content. [13]

#### ✓ **Advanced E-learning Builder**

The Advanced E-learning Builder authoring tool is designed for creating e-learning materials such as e-tests, tutorials, quizzes, etc. The system enables the creation of E-tests, just with several mouse clicks (visual design), which contain several types of exercises. The Advanced E-learning Builder authoring tool creates Standalone EXE files. By planning exercises in visual mode, exercises can be designed, corrected, examined, complemented, and updated in a simple and survivable way. Various elements such as gap-fill tasks, multiple choices, and alternative questions are used to set tests questions. Additionally, many other elements such as various types of texts, graphics, multimedia, Object Linking and Embedding - buttons ensure that your test has an attractive look and professional feel. And, all these elements can be easily moved and resized using a mouse. Elements offer various customization possibilities including changing colors, fonts, and contents; thus, creating and modifying all kinds of e-tests is quick and easy. Visual design mode allows the building of E-learning materials in a simple and comprehensive way. Therefore, you can always see exactly how the final test to be deployed to students will look. Additionally, built-in dynamic resolution assures you that a test will automatically adjust to all possible screen resolutions that end-users may have so the look won't be deformed in any way. [14] Advanced E-learning Builder also contains many pre-defined test templates that allow you to make professional looking tests in no time at all. This way, creating e-tests is as easy as editing text in a word processor, which allows beginners to start using the application immediately. An additional feature of advanced E-learning Builder is test flow control, which allows you to write teaching sequences that can adjust to the students' knowledge and supply students with additional information when needed. This way, individualization is granted. All tests created with advanced E-learning Builder are finally graded and supplied with a customizable commentary. The package also contains a real world example that can be used in the class with, or without, customization.

## 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. 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.

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