

# **A MODEL FRAMEWORK ON E-LEARNING WEBSITE DEVELOPMENTS**

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## **ABSTRACT**

E-learning has become a key trend as it allows people to learn effectively besides using websites either from Internet or from Intranet / Extranet. E-learning is commonly deliberated to use of networked Information and Communications Technology in teaching and learning practices. There are number of other terms are also used to describe this mode of teaching and learning that includes online learning [3], virtual learning [3], distributed learning, network and web based learning. This paper deals with the model framework on e-learning website developments that can be easy to enhance or build the E-learning websites of any higher institutions.

**Keywords:** Blended Learning, E-learning Hypermedia, ICT, OLMS, website.

## **RATIONALE OF THE STUDY**

As the letter “e” in e-learning stands for the word “electronic”, e-learning would incorporate all educational activities that are carried out by individuals or groups working online or offline via networked or standalone computers and other electronic devices. Hypermedia [5] makes powerful to e-learning. It is a superset of hypertext. Hypermedia documents contain links not only to other pieces of text, but also to other forms of media such as sounds, images, and movies. Hypermedia simply combines hypertext and multimedia. Multimedia is any mixture of text, graphics, art, sound, animation and video with links and tools that let the person navigate, interact, and communicate with the computer [7].

E-learning enables flexible access to any course related information and resources through Information and Communication Technology (ICT). Flexible access refers to access and use of information and resources at any time, any place with speed that are suitable and convenient to individual learners rather than the teachers and/or the educational institutions carry out. This paper carries the model framework to enhance or create e-learning website, which can be adaptable by any higher institutions.

## MAIN OBJECTIVES

The growing interest in e-learning seems to be coming from several directions. These include institutions that have traditionally offered distance education programs either in a single, dual or mixed mode setting. They see the incorporation of online learning in their assortment with the logical extension of their distance education activities.

E-learning is very interested to residential and off-campus based educational provided by any higher institutions as well. The goal of distance education was to free these learners from the constraints of conventional residential educational settings. They would not be required to live or attend lectures in locations away from where they may be living and working. The printed distance study materials, which each distance learner received, would carry the core subject matter content they would need including all their learning activities and assessment tasks. Students would be required to complete these tasks, submit their assignments and take their examinations within a set time frame.

The growth of e-learning is directly related to the increasing access to Information and Communications Technology, as well it's decreasing cost wise. The capacity of Information and Communications Technology to support multimedia resource-based learning and teaching is also significant to the growing interests of e-learning.

## METHODS OF ONLINE COURSE DEVELOPMENTS

There are two ways of developing online courses. They are partially online and fully online. This is shown in the Fig. 1.



**Fig. 1 E-learning Course developments**

### A. Partially online

A “partially online” [12] course is one that integrates existing resource materials that are available either in print or non-print form such as textbooks etc. with some elements of online learning. This might include the use of a learning management system or simply a

mailing list for some asynchronous discussion [12]. Such courses promote the concept of what is commonly referred to as “blended learning”.

*Blended Learning* is learning that employs multiple strategies, methods and delivery systems. You may also hear blended learning described as “integrated learning”, “hybrid learning”, “multi-method learning” and so on. Blended learning can refer to the integration of multiple strategies, methods and delivery systems on a number of levels, most prominently within a course or within a program. It focuses on the integration of classroom and Internet based resources in ways that create improved conditions for teaching and learning.

*Wrap around model* comprises the study guides, activities and discussion “wrapped” around existing previously published resources such as textbooks or CD/DVD ROMs etc. This model represents a resource-based approach to learning, as it seeks to use existing material that is relatively unchanging.

*The integrated model* comprises availability of much of the subject matter in electronic format, opportunities for computer conferencing, small group-based collaborative online learning activities, and online assessment of learning outcomes. For the moment though, some of the subject matter content will be best-accessed offline in already published textbooks and other sources.

### **B. Fully online**

A “fully online” [12] course, on the other hand, is one that will have most of its learning and teaching activities carried out online. We can say “most of its learning and teaching activities” because invariably everything about a course could not possibly be carried out online. Moreover, it might not be advisable to do so. For instance, students would always be studying away from the computer from printed materials, textbooks and other resources from libraries. There would be no real need to put these online, and it might not be possible to do so for reasons that have to do with costs and copyright laws.

## **METHODS OF WEBSITE DEVELOPMENTS**

The e-learning brings two aspects in its developments. They are manually devolved websites and using Online Learning Management Systems. This is shown in the Fig. 2.



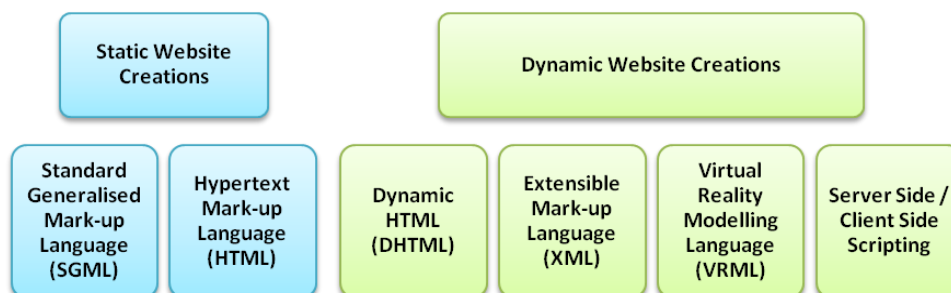
**Fig. 2 A model framework on E-learning website developments**

### 1. Manually developed websites:

To create an e-learning website, we should be trained in mark-up languages, client side scripting languages and server side scripting languages with database concepts.

#### ➤ *Mark-up Languages:*

The mark-up is used in printing industry as instructions for printing in a particular style. Mark-up is also used while proof reading, editors mark the text as instructions to the printer to print the text in a particular font type, size and in bold or italics. Similarly, to display the electronic text in a web page instructions are given as mark-up within the text to make parser (a computer program) understand how the text should appear on display. Mark-up is also used for data retrieval, particularly in the library and information field. Once the structure of document is fixed, one can easily find which part of the document contains which kind of data. There are several mark-up languages available for creating websites; they are drawn in the Fig. 3.



**Fig. 3 Mark-up Languages**

*SGML* stands for Standard Generalized Markup Language, it is a standard for how to specify a document markup language or tag set. SGML is not in itself a document language, but a description of how to specify one. It is a Meta language. HTML and XML are examples of SGML based languages. HTML stands for Hyper Text Markup

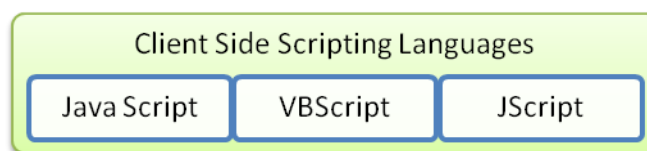
Language [6]. It is the authoring language used in the creation of documents for the World Wide Web. HTML was initially created for use as a universal common document language for the World Wide Web.

*DHTML* stands for Dynamic HTML is a collective term for a combination of the new Hypertext Mark-up Language (HTML) tags and options that will let you create web pages more animated and more responsive to user interaction than the previous versions of HTML. It is simply the combined use of both CSS and JavaScript together in the same document. *XML* stands for Extensible Markup Language (XML) [6]; it is an extremely simple dialect of SGML. The goal is to enable generic SGML to be served, received, and processed on the web in the way that is now possible with HTML. XML has been designed for ease of implementation and for interoperability with both SGML and HTML.

*VRML* stands for Virtual Reality Modeling Language [1]. It is an open platform-independent file format for 3-D graphics on the web. It encodes computer-generated graphics in a way that makes them easily transportable across the network. VRML requires a special web browser to display these graphics, which simulate virtual reality 3-D ‘environments’, or ‘worlds’ through which the user can move and interact with objects. These 3-D ‘worlds’ can contain objects that link to documents, other objects, or other 3-D worlds.

➤ ***Client Side Scripting Languages:***

The client side scripting languages are used to validate the user input at the client side. This can also used for firing any events to any controls. There are several varieties of clients side scripting are available; they are drawn in the Fig. 4.



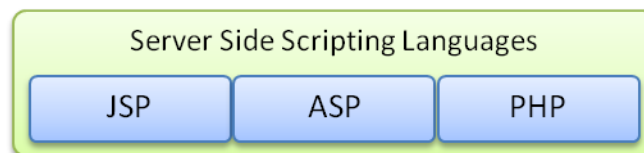
**Fig. 4 Client Side Scripting Languages**

*JavaScript* is a scripting language is intended to provide a quicker and simpler language for enhancing web pages and servers. JavaScript is embedded as a small program in a web page that is interpreted and executed by the web client. JavaScript [11] functions can be called from within a web document, often executed by mouse functions, buttons, or

other actions from the user, similarly VBScript [8] and Jscript can also does. it is a Microsoft's alternative of JavaScript.

➤ **Server Side Scripting:**

The server side scripting languages are used at the server computer to generate dynamic websites. It can also used to provide the accessibility to databases. There are several varieties server side scripting languages are available; they are drawn in the Fig. 5.



**Fig. 5 Server Side Scripting Languages**

*ASP* stands for Active Server Pages, a Microsoft's technology to enable HTML pages to be dynamic and interactive by embedding scripts. Since the scripts in ASP pages are processed by the server, any browser can work with ASP pages regardless of its support for the scripting language used therein. Similarly JSP [2] can also perform, stands for Java Server Pages; it is a Sun Microsystems technology. *PHP* is a scripting language [4] and MySQL open-source database are quite effective independently, but together they make a simply unbeatable team. When working hand-in-hand, they serve as the standard for the rapid development of dynamic, database-driven websites. This combination is so popular, in fact, that it's attracting many programming newbie's who come from a web or graphic design background and whose first language is HTML.

➤ **Supporting Tools:**

The supporting tools are assists to create images, videos, animations. The web programmer can utilize those tools to enhance the website to be attractive either by 2D or 3D model. There are several varieties of tools are available two of them have drawn in the following Fig. 6.



**Fig. 6 Supporting Tools**

**Adobe Flash CS3:** Adobe flash is one of the software in adobe studio CS, it can quite complex, but you can do almost anything with it. You can develop presentations,

websites, portions of websites, games, or full-length feature, animated cartoons. You can import just about anything into Flash. You can drop in images of almost any file format, video clips, sounds and more will enables us to create attractive website to be used in e-learning websites.

**2D & 3D Animator:** 2D&3D Animator produces high-quality images, titles, banner ads and buttons for your webpage or for a presentation. It comes with an object-oriented design interface that enables you to edit graphics, manipulate text and layers, apply special effects, and then compile the animated graphic all from within the same program. You can add shadow to object, make it glow, and draw it with opacity. Further add cool deformation, transition and colour adjustment effects. You can create animations from your own pictures (JPG, GIF, BMP, AVI, ICO, and PNG) and add 3D text and shapes.

## 2. Online Learning Management Systems (OLMS)

Online Learning Management Systems (OLMS) [9] [10] [12] are suite of software tools that enable the management and facilitation of a range of learning and teaching activities and services. In large-scale operations, online learning management systems can save costs and time. In conventional educational settings, online-learning management systems can help to improve the speed and effectiveness of the educational processes, communication among learners, and also staff and students. Use of OLMSs in non-traditional educational settings allows any higher institutions to maximize their values by enabling flexible access to its resources and services. A few of the widely known OLMSs are described below (See Fig. 7). Most of the OLMSs can incorporate with Learning Content Management System (LCMS), which is a set of software tools that enables the, storage, use and reuse of the subject matter content.



**Fig. 7 Online Learning Management Systems**

*Moodle* is an open source Course Management System (CMS) use to add web technology to their courses. More than 30,000 educational organizations around the world currently use Moodle to deliver online courses and to supplement traditional face-to-face courses.

It is available for free on the web (<http://www.moodle.org>), so anyone can download and install it. It has two meanings. First, it's an acronym for Modular Object-Oriented Dynamic Learning Environment. Second, it's a verb that describes the process of lazily meandering through something, doing things as it occurs to you to do them, an enjoyable tinkering that often leads to insight and creativity.

*WebCT or Blackboard Learning System* is an online proprietary virtual learning environment system that is sold to colleges and other institutions and used in many campuses for e-learning. It is available for free on the web (<http://www.blackboard.com/>), so anyone can download and install it. To their WebCT courses, instructors can add such tools as discussion boards, mail systems and live chat, along with content including documents and web pages. The latest versions of this software are now called Webcourses. WebCT is significant in that it was the world's first widely successful course management system for higher education.

*Joomla* is web content management system. The Learning Management System is based on PHP and MySQL. It is available for free on the web (<http://www.joomla.org/>), so anyone can download and install it. It enables users to create native OLMS courses or import SCORM 1.2 and SCORM 2004 courses either created using Rapid E-learning authoring tools or off the shelf acquired SCORM packages.

*SCORM* stands for Sharable Content Object Reference Model; it is a content packaging standard. These packages are self-contained bundles of content and JavaScript activities that can send data to OLMS. Moodle and Joomla can use SCORM packages as an activity type or as a course formats.

### **OPPORTUNITIES AND CHALLENGES OF E-LEARNING**

A growing body of literature on learning and teaching is suggesting enhancing e-learning. Information and Communications Technologies afford us a wide range of opportunities to capture, store and distribute information and resources of all types and formats. Along with text, pictures and illustrations, these include multimedia-based simulations of complex processes from all sorts of domains. However, e-learning in itself does not guarantee efficient or effective learning and teaching. For it to be efficient and effective with more attraction, a great deal of care and attention needs to go into its implementation. The efficiency of multimedia in online training can also be measured by



evaluating the bandwidth, i.e., the speed through which data is transferred. Basically, the larger the multimedia file, the more time it will take to download.

Assessing learning outcomes is concerned with determining whether or not learners have acquired the desired type or level of capability, and whether they have benefited from the educational experience. A measure of learning outcomes requires learners to complete tasks, which demonstrate that they have achieved the standards specified in the learning outcomes. In order to ascertain the most realistic and valid assessment of performance, these task(s) have to be as similar to on-the-job conditions, that is, as authentic as possible.

### CONCLUSION

E-learning websites uses Information and Communications Technology (ICT) that enables the presentation of subject matter content in an alternative forms, as such freeing up lecture time which can now be more usefully devoted to the facilitation and support of learning activities. The manually developing websites are required few knowledge on mark-up and client/server side languages with supporting tools; It is also time consuming process. Hence, it is not a suggested way for developing e-learning websites. This paper strongly suggested developing websites using OLMS.

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