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Study of Content Management Systems

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Abstract: Content Management Systems is a philosophy which is accomplished through IT as a tool. This paper described study of Content Management Systems in quantifying and planning educational activities for better academic management. It is clear from the results that structured education delivery leads to better achievement both by faculty and students. Computer-based planning and management of education delivery becomes an electronic database and knowledge for planning and management in the future. In this paper we study an e-learning management system with Web services oriented framework. The system will be an open source application with client-scripting facility. It also supports the cross browser and it is fully integrated with databases like MS SQL Server

Keywords: Content Management Systems, Personal Learning Environment (PLE), e-content courseware and Virtual learning Environments (VLE).

I. INTRODUCTION

A Content Management System is a server-based software program. It contains information about users, courses and content. A content management system provides a view to learn and teach without depending on the time and space limitations. Content Management Systems are also known as Course Management Systems (CMS), Personal content Environment (PLE), e-content courseware and Virtual learning Environments (VLE).

A Content Management System may be defined as [1]

"A Content Management System is a software application for the administration, documentation, reporting and delivery of e-content education courses."

A content management system is used within educational organizations as well as with various industries. An educational content management system is designed to deliver instructor led courses which includes two way interactions between learners and instructors and also between learners and other learners. The content management system is used by the industry as well which have distinct functions and features from the educational content management system.

II. CONTENT MANAGEMENT SYSTEM DESIGN

These days Content Management Systems is being adopted by many institutions to fulfill the needs and requirement. The users of Content Management Systems can be categorized into following:

- The learners: They use the system for the educational process. The learners are the basic or the main users of Content Management Systems.
- The instructors: The instructors are the teachers and the assistants who use the Content Management Systems to supervise, assist and evaluate the learners.
- The administrators: The administrator can take the support of all the users of the system to keep a check on the proper operating status.

III. TYPES OF CONTENT

Based on the desired outcome of education and the level of uniqueness of the content utilized by the organization 5Learn classifies the type of content used during the E-learning process. Content is classified mainly into three types of content; according to uniqueness, according to format and according to interactivity. Under each of these classifications come several factors.

According to Uniqueness:

The more the content becomes organization specific the more customization it may require. Accordingly, such content falls into different categories.

Off the shelf content: such content works like magic in a box. Meaning that this content is pulled of the shelf to serve a purpose previously served by similar content. Usually such content contains basic introductions to generic knowledge that applies similarly to different organizations. The cost of reusing such content is very low and requires minimum efforts.

Customized Content:

when off-the-shelf content is used but with minor modifications that help optimize the content to fit a specific organization it can be classified as customized content. Such modifications are usually applied to the fine tunings of the

content not the core content. This could be due to difference in languages, different cultures, differences in learner characteristics etc.

Custom: in this category the E-content is designed and created from scratch with full application to a specific organization. Such content is usually based on information specific to this organization or situations and circumstances that are very unique to that very organization.

According to Format:

After classifying the content as per the level of uniqueness it is necessary to address the format of the content during delivery and specify whether the content will be designed into textual content, audio content, video content, graphical or animated content, or simulated content.

Textual Content:

This form of content is a traditional form of content that delivers education in the form of text. Practically speaking it is preferred to combine textual content with other formats of content to achieve greater impact. Usually such a format is viewed as less effective and non-desirable, however this depends heavily on the quality and style at which the content is scripted. The textual format can often be the most effective format of content delivery according to the subject of learning. Technically speaking Textual Content can be easily manipulated, since it is viewed by all operating systems and platforms, and required no additional plug-ins or downloads, nor will it require the purchase or installing of new hardware.

Graphical Content:

It is often a very smart way to deliver a message by having some sort of visual aid that matches what the text says. Graphical Content is usually made of static images and graphs that communicate certain information to the learner. This method can have great impact in the retention of information by the learner. Textual and Graphical content are usually closely used together for optimum outcome.

Audio/Video Content:

Learning material can very much be communicated using methods of Audio or Video, by converting educational messages into such forms. Audio and Video can be used in various ways to demonstrate material to learners that is best communicated through moving pictures. Sometimes the best way to have a piece of information reside in the mind of its receiver is to let the learner see it happen in the form of visuals. One of the limitations of Audio and Video is their lack of interactivity, both forms seem to involve one way communication between the sender which is the video/audio and Learner whom is the receiver, with no space for feedback from the receiver.

Animated Content:

People may often confuse animated material with Video & Audio illustrations. 5Learn realizes that there is a key educational element that makes them quite different. When educational material is converted into an Animation that depicts certain movements and actions to deliver capsule messages to the learner. Animations also allow user interaction to give the learner a better more realistic feel of the content. Animated Content secret key of difference lies in the word "interactivity".

Simulation:

An advanced form of learning is the process of simulation. The simulation of educational material varies greatly from simple simulations that require straightforward one action interaction versus complex situations that are put into simulation and require a complex of actions. However, this form of learning can be a practical and entertaining way to deliver a message to the learners. Usually, simulations as a form of learning are used to help the learner acquire, enhance or develop certain skills and abilities. It can be said that simulations achieve what can be called "Edutainment", a mixture of both education and entertainment.

In this Era of education and specifically E-Learning course material would usually be a combination of several content formats, all put together to optimize learning results. Different strategies of learning encourage a healthy combination of content formats to stimulate different areas of the learners brain functions.

According to Interactivity:

The interactivity of Content must be assessed according to the level of interaction and the complexity. When two elements mutually influence one another an interaction takes place. In the learning process interaction is a vital factor for retaining more of the material acquired. In the case of instructional interaction the mutual influence occurs between the learner and the learners environment. Interactive content is designed to create a learning experience for the learner that changes their behavior to achieve an educational goal. The degree of interactivity is determined according to the amount of knowledge exchanged between the learner and the learning environment.

IV. ADVANTAGES AND DISADVANTAGES OF CONTENT MANAGEMENT SYSTEM

A. Advantages

- Using the correct content strategies, Content Management Systems can increase motivation of learners, promote content, encourage interaction, provide feedback and support can be provided during the content process.

- A Content Management Systems supports content in various formats, e.g. multimedia, video, and text.
- Access to course material is at anytime. Course material is updated and students can see the changes made in the particular field. Teachers can modify information according to the need of the student.
- Improvement in teaching methodology and the outcomes of the learning are not guaranteed through learning management system.
- Various activities are offered to the learners to make choices out of it.
- Re-use of the learning activities can be done. By re-using content, time and effort can be saved and the cost of improving online content is also reduced.

B. Disadvantages

- Conventionally, Content Management Systemss tend to be course centered rather than student centered. At this time, a Content Management Systems does not accommodate a complete range of teaching styles.[1]
- Some trainers have weak computer and information literacy skills and lack the information management skills needed to successfully use a Content Management Systems to support their teaching. Teaching staff in this situation must not only learn how to operate within these environments but also develop a critical perspective of their use of the Content Management Systems in teaching in a variety of modes.
- Teachers are challenged to design and organize learning activities which are require to fulfill the needs of the student.
- It is very easy to convert existing poor teaching practices to a Content Management Systems.

V. PHASES FOR THE CONTENT MANAGEMENT SYSTEM

The content management system is divided into three phases: Design, Database, and Web services. Description as follows :

Design Phase: This phase has the main concepts of the web application design facilities in the system. PHP is used for the designing of the whole system. Here PHP is used as the scripting language,

- PHP is an open source server side programming language available at free of cost.
- Its coding is very easy to understand and efficient on multi-platforms.
- It is flexible, powerful language and suitable for developing dynamic web pages.

Database Phase: This phase is connected with all other modules. MySQL is used as the database for the project. MySQL pronounced either "My S-Q-L" or "My Sequel," is an open source relational database management system. It is based on the structure query language (SQL), which is used for adding, removing, and modifying information in the database. Standard SQL commands, such as ADD, DROP, INSERT, and UPDATE can be used with MySQL.

Web Services Phase: In this phase the data manipulation is done through web services. Web Services allow the system greater flexibility over the Internet by allowing it to work with other systems through the Internet as if it was a standard LAN network. It uses XML to transmit the data to and from different sources. Web Services can also be considered as a connectivity tool—objects, data sets, and even cached objects can be passed to and from other servers. [4]

VI. CONCLUSION

Content Management Systems are popularity as a convenient medium for delivering teaching or training to the learners. This work tries to bring out those functionalities which can be incorporated in a standalone Content Management Systems to upgrade it into various educational bodies supporting Content Management Systems. Objectives of this work were, to study about Content Management Systems and different modules of an already existing CMS, to explore extra functionalities to transform a generic Content Management Systems into various educational bodies, and to propose a Framework for an LMS that can act as a learning management system for various educational bodies. Moreover, more flexibility in program flow is required. In the proposed framework all the fundamental modules needed to facilitate actions for a consortium are identified. However, there could be more investigations needed in different aspects of versatile operation of such a consortium LMS like, extra modules for identifying the best content among the similar subjects, broadcasting any information from the participating universities, checking quality of the content etc, to incorporate quality of the services of the consortium. The future work will concentrate on these needs and extend the proposed framework to incorporate those modules. Moreover we have tried to implement some of the proposed modules and functionalities.

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