

ANALYZING CMS FRAMEWORKS FOR EDUCATION

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Education systems all over the world are undergoing substantial alterations as a result of the advent of the digital age, and technology is playing a vital part in the process of forming the student's educational experience. In this particular setting, the Content Management System (CMS) has emerged as an important component of the fundamental technological tools that have emerged. The incorporation of CMS frameworks into the educational system has resulted in the creation of multiple chances for the enhancement and addition of value. By underlining the function and significance of CMS in modern education and so setting the stage for our study, "A Study on CMS Framework for Value Addition in the Education System," this introduction prepares the groundwork for our research.

Keywords: CMS, Architecture, Framework, Education.

Introduction

Even though CMS systems present interesting opportunities, there is a pressing need to gain a full understanding of how these frameworks can be utilised to the greatest possible benefit in order to contribute value to the educational system. When educational institutions attempt to incorporate CMS into their pre-existing infrastructure and pedagogical procedures, they frequently run into a number of obstacles. In addition, a comprehensive investigation into the influence that CMS has on the learning outcomes, levels of student involvement, and overall quality of education is required. The purpose of this study is to find solutions to these problems by analysing the part that CMS frameworks play in adding value to the educational system. It is becoming increasingly common for educational institutions to implement Content Management Systems (CMS) in this age of rapidly advancing digitization and technology. However, there is a lack of complete understanding on how CMS frameworks might be properly utilised to add real value to the education system.

Review of Literature

Manoj, 2016; The requirements for the contents of a website have a significant influence on the development and release of the website. Websites might have extremely simple or complex information. A website's contents might need to be managed according to requirements. Consequently, there are three stages in the life cycle of a content management system: content, managed, and publication. The goal of this research is to examine how an equation might operate within the three phases of a web content management system.

Content Management System (CMS) is a web programme that runs on a web server and aids in the creation of websites. A mathematical analysis of the database's operation in a web content management system is also attempted. A content manager can be able to oversee the addition, editing, and deletion of content from a website through the Content Management programme. It is possible that a content manager lacks expertise as a webmaster or possibly lacks knowledge of HTML (Hypertext Markup Language).

The website is updated for use in the content delivery application, and CDA elements compile the data for the website update. While a content management system's functions can vary, most of them include format management, revision control, indexing, search, and retrieval in addition to Web-based publication. One possible use for a CMS is as a central repository for content, which could include phone numbers, documents, images, movies, text, and/or scientific data. Therefore, every CMS function is operational, and a composite function is developing the content management system. The term "e-commerce," or electronic commerce, refers to the buying, selling, & exchanging of goods, services, and information using computer networks, mainly the Internet.

CMS is a significant player in this industry. In this case, the ability to publish, edit, and alter content is made possible by the content management system. Certain content management systems are examples: Word Press, Drupal, and Joomla. WordPress is a free and open-source blog software programme that

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functions incredibly well as a blog platform, content management system, or conventional website. With the help of a free software programme called Drupal, anyone may quickly publish, manage, and arrange a variety of content on a website. With the help of the content management system Joomla, we may create robust online apps and websites. Without the necessary technical knowledge, a user can create or modify a web page with the help of a web content management system (WCMS). A key component of a web content management system is content management. The web content management system's three pillars-editing, administering, and publishing-will improve the web CMS's aesthetic appeal. The goal of this research is to investigate the life cycle of an online content management system analytically, with a focus on the significant role that functions on sets play. Information that has been either developed or obtained from a certain source is referred to as content. Therefore, content can be thought of as a set, and in order to produce a beautiful website, some practical work on the content is required.

According to Sivakumar, 2011 A software programme called the Digital Content Management System (DCMS) organises, preserves, and distributes digital assets. The paper discusses DCMS, including its key attributes, workings, benefits, and content kinds. Along with the systems, the need for and varieties of content management systems are explained. The function of libraries, current procedures, and norms in DCMS have all been well explained.

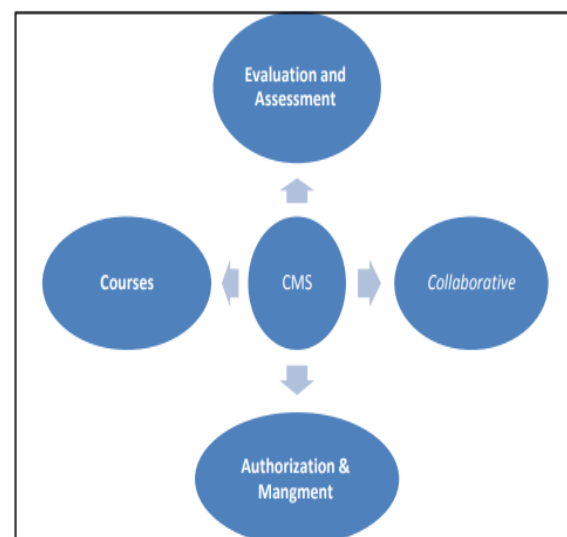
The study indicates that librarians should take the lead in creating content management systems and overseeing upcoming digital libraries, as well as play a significant role in XML and metadata development. In this paper, we first provide a quick overview of digital content management systems and concepts related to digital rights management. Then, we go into numerous business and legal considerations that have resulted in content processes that are more intricate when it comes to rights. Next, we go over some of the ways content-handling system vendors can incorporate rights handling of data into their products to provide more comprehensive solutions-at lower costs along with faster, lower-risk deployments-for customers' digital content management system and dissemination issues. Digital content management systems will continue to play a crucial and more important role in organisational success, effectiveness, and competency in our evolving information economy.

For those who can endure the process of setting up a digital content management system, which is

frequently more difficult than dealing with disorganised content, the promise of improved organisation, increased access to resources, and greater organisational effectiveness is apparent. Digital content management systems (DCMSs) are being adopted by a wide range of organisations, including media businesses, huge corporations, government agencies, & others, to assist them in organising digital content and producing content-based products for their partners, consumers, and staff. The goal of DCMSs is to serve as hubs for all aspects of the content lifecycle, such as creation, management, production, & distribution. However, due to the growing interdependencies and complexity of these processes, DCMSs are unable to fulfil their full potential.

Analysis

Frameworks for content management systems, also known as CMSs, are multipurpose technologies that are used in the field of education to manage, organise, and deliver information and resources for teaching and learning. There is a wide selection of CMS frameworks available, each of which comes with its unique set of features and capabilities. CMS frameworks for education are software platforms that are designed to develop, manage, and deliver digital content and learning materials within educational institutions. CMS stands for content management system. The creation and dissemination of educational resources such as course materials, assignments, exams, and multimedia content can be streamlined with the use of these frameworks. They provide educators with the resources necessary to efficiently organise curriculum, track student progress, encourage collaboration, and successfully engage students.



CMS frameworks improve the quality of the online learning experience by creating an atmosphere that is well-organized and intuitive for both students

and instructors, regardless of whether the learning takes place in traditional classrooms or via the internet. Moodle, Blackboard, Canvas, and WordPress are examples of well-known CMS frameworks in the education sector. Each of these platforms comes equipped with learning management system (LMS) plugins that may be customised to meet the requirements of individual educational institutions.

The following is a list of CMS frameworks that are frequently used in educational settings:

1. The Moodle

Moodle is a popular open-source Learning Management System (LMS) that is utilised extensively in the educational sector to develop and administer online courses. It was designed specifically for teachers and provides a versatile platform for the organisation of content, assignments, and examinations. Moodle has features such as discussion forums, chat rooms, and collaborative exercises that all work together to make learning more dynamic. It enables the use of multimedia content, which in turn makes classes more interesting and lively. Teachers are able to monitor their students' progression, evaluate their performance, and offer timely comments.

The open-source nature of Moodle makes it possible for it to be customised and integrated with a variety of different educational tools and systems. Because of its well-known accessibility features, it is suitable for use by any and all types of students. Moodle is supported by a worldwide community of users and developers that work together to continue the platform's evolution and make it suitable for usage in a variety of educational contexts.

- Moodle is a Learning Management System (LMS) that is freely available and is frequently utilised by educational establishments.
- It provides a variety of capabilities for the management of courses, such as the ability to create content, conduct assessments, and utilise various communication methods.
- Personalization is supported in Moodle through the use of customised course templates and themes.
- It boasts a robust plugin system and a vibrant user community, both of which contribute to its overall capability.

2. The Chalkboard

The chalkboard is a flat writing surface that is often constructed of slate or another material that is comparable, and it is used for teaching and presentations. This classroom staple has been

around for centuries. The surface of the board can be written on or drawn on using chalk or chalk-like markers, making it a flexible instrument for use in educational settings.

Even though they have been gradually phased out of many contemporary classrooms in favour of whiteboards and digital displays, chalkboards continue to be recognised as iconic icons of the educational system. Visual learning, the organisation of material, and concise explanations is all facilitated by chalkboards. They allow for dynamic visuals while also encouraging interaction between students and teachers. Despite advances in technology, the chalkboard continues to play an important part in education because of its historical and emotional relevance.

- In the world of higher education, Blackboard Learn is a well-known and widely utilised proprietary LMS.
- It includes tools for the authoring of content, for conversations, for assessing students, and for managing grades.
- Blackboard is compatible with a wide range of third-party software and provides a mobile app to facilitate learning on the go.

3. The Canvas

The term "the canvas" most commonly refers to an empty canvas, which is an essential component of the visual arts. It is a surface that is usually rectangular in shape and is fashioned from cloth that has been stretched over a wooden frame. Painting and other forms of artistic creation are often carried out on canvases by creative types. The artist is given the opportunity to express their thoughts, feelings, and visions through the use of colours, brushstrokes, and other artistic techniques when working with a blank canvas, which signifies the endless creative possibilities available to them.

It is both a representation of unrestricted artistic expression and the point of departure for the creative process. In the world of art and self-expression, the blank canvas is transformed by artists into a masterpiece that reflects their individual viewpoints and talents. Because of this, the canvas is an essential component.

- Another learning management system (LMS) that is extensively used and well-known for its intuitive user interface is Canvas by Instructure.
- It allows for the design of courses, grading of those courses, tools for collaborative learning, and analytics.
- Because of its emphasis on mobile-friendliness and accessibility, Canvas is

able to cater to a wide range of learner requirements.

4. WordPress as an Educational Content Management System

WordPress is most often linked with websites and blogs; however, it may also be used as a content management system (CMS) for educational purposes.

- Using plugins and themes, WordPress allows for a great deal of flexibility in the process of creating and managing content.
- It is adaptable for use in a variety of educational contexts, from simple blogging in the classroom to advanced management of entire courses.

5. For Sakai

Sakai is an open-source learning management system (LMS) that was developed to help educational institutions improve teaching, learning, and collaboration. Sakai is a strong platform that was developed by a global community of educators and technologists. Its purpose is to facilitate the development, delivery, and management of online academic courses and content. It provides tools for content production, student interaction, assessment, and communication, making it an all-encompassing solution for in-person as well as online educational settings.

The open-source nature of Sakai makes it possible for the software to be customised, integrated with other systems, and continuously improved thanks to contributions from the user community. Because of its reputation for dependability, security, and adaptability, it is a wonderful resource for educational institutions that are looking for a versatile LMS to expand the educational opportunities they provide.

- Sakai is an open-source platform for facilitating collaboration and learning that was developed specifically for use in higher education.
- It offers tools for the management of classes, communication, and teamwork.
- The use of open standards and interoperability with other systems are both emphasised in Sakai.

6. The Schoology

- Schoology is a learning management system (LMS) that runs in the cloud and is geared for K-12 schools.
- It provides functionality such as gradebooks, discussions, assignments, and direct communication with parents.

- Schoology's primary goals are to facilitate improved communication and collaboration among students, instructors, and parents.

7. Edmodo

- Edmodo is a social learning platform that is widely utilised in elementary, middle, and high schools.
- It offers a protected and engaging environment in which teachers, students, and parents may connect with one another and share materials.
- Edmodo prioritises user friendliness and group work in its design.

8. Google Classroom

The web-based platform known as Google Classroom was built by Google to assist digital learning and classroom management. It is included in the Google Workspace for Education suite, which has found widespread adoption in educational institutions all around the world, and its use is encouraged.

Google Classroom is an online platform that enables educators and students to collaborate on the development, distribution, and management of assignments, as well as resources and communication. The ability to create virtual classes, share papers, provide comments, and organise assignments is available to educators. Within the same platform, students have access to all of the course materials, can finish their assignments, can work together on projects, and can communicate with both their teachers and their classmates.

Google Classroom is a versatile and user-friendly application that can be used for both in-person and remote learning because to its seamless integration with other Google Workspace products, such as Google Drive, Google Docs, and Google Meet. It improves the effectiveness of the teaching and learning process while also streamlining administrative duties, encouraging paperless classrooms, and promoting paperless classrooms.

- Google Workspace for Education includes Google Classroom as one of its components.
- It makes it much easier to create and disseminate assignments, conversations, and notifications.
- Google Classroom is able to interface with other Google programmes, such as Google Drive and Google Docs, in a smooth manner.

9. Brightspace from D2L

Brightspace is a popular choice for K-12, higher education, and corporate training because it provides a comprehensive array of tools and features to enable online and blended learning. The ability to produce and deliver course content, engage with students through discussions and evaluations, and monitor the students' progression is available to educators.

The platform has a strong emphasis on accessibility and user experience, delivering a user interface that is responsive and can adapt to a wide range of devices. Brightspace also interfaces with a wide variety of educational technology and provides analytics to assess and improve instructional tactics. The utilisation of cutting-edge technological solutions is intended to contribute to an improved teaching and learning environment.

- An LMS that is well-known for its adaptive learning capabilities is called D2L Brightspace.
- It provides tools for the creation of content, as well as assessments and analytics.
- In higher education, D2L is frequently utilised to provide personalised learning experiences for students.

10. Learn with Totara

Totara Learn is an open-source learning management system (LMS) that was developed for usage in educational environments in addition to corporate and government training programmes. It offers learning routes that may be customised, facilities for managing competencies, and reporting capabilities.

These are only some of the instances of CMS frameworks that are utilised in educational settings. The selection of a CMS is determined by considerations such as the needs of the institution, the available budget, the system's scalability, and the particular requirements of the educators and the students. There is also the option for educational institutions to create bespoke CMS solutions that are tailored to their particular educational goals and aims.

Conclusion

This study aims to contribute valuable insights that will help educational stakeholders make informed decisions regarding the adoption, implementation, and optimisation of CMS for the betterment of education by addressing these research questions and conducting a thorough examination of the role that CMS frameworks play in education. This will be accomplished by examining the role of CMS frameworks in education. The more conventional

approaches to education, such as classroom lectures and textbooks, as well as paper-based learning resources, are being replaced by their digital counterparts. In the rapidly changing environment of the educational sector, CMS frameworks have evolved as multifunctional platforms for the production, delivery, and management of information. The term "content management system" (CMS) refers to a wide variety of software and technologies that give educational institutions the ability to store, organise, and distribute course materials, resources, and multimedia content in a method that is both organised and effective. The accessibility, interactivity, and personalization of educational experiences could all see significant improvements as a result of the implementation of these technologies, which have the potential to bring about a revolution in the education industry. Over the course of the last few decades, the landscape of education has been through a significant transition. This change has been driven by the rapid growth of technology as well as shifting pedagogical methods. Traditional classrooms made of brick-and-mortar buildings and printed textbooks are gradually being augmented by digital tools and online resources, if not supplanted entirely by these newer mediums. In an ever-changing educational ecosystem, information Management Systems (CMS) have emerged as a vital component, enabling a dynamic platform for developing, managing, and delivering educational information. These systems are also known as "learning management systems."

Conflict of Interest

There is no conflict of interest between the authors in this manuscript.

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