**FEDERAL SCHOOL OF SURVEYING, OYO.**

**DEVELOPMENT OF COURSEWARE SYSTEM USING**

**FEDERAL SCHOOL OF SURVEYING AS CASE STUDY**

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**CHAPTER ONE**

**1.1 INTRODUCTION**

An online courseware system is a digital platform that enables students to access and complete course materials and assessments online. These systems can include a variety of features, such as online lectures, quizzes, and assignments. Online courseware systems are becoming increasingly popular as more and more institutions of higher education adopt online learning as a way to provide students with more flexible and convenient learning options. Courseware is a term used to describe any software that is designed to support teaching and learning in educational institutions. Courseware is typically used in e-learning environments, where students can access learning materials, interact with their teachers and peers, and complete assessments and assignments online. Courseware has become an essential tool in modern education, as it provides students with a more flexible and personalized learning experience, and allows teachers to monitor student progress more closely.

The background of online courseware systems can be traced back to the early days of the internet, when universities began experimenting with ways to use the internet to deliver course materials and assessments to students. One of the first examples of an online courseware system was the Open Learning Initiative (OLI) at Carnegie Mellon University, which was launched by (Ajzen, I. 2020).

The OLI was designed to provide students with access to high-quality, interactive course materials and assessments in a variety of subjects. One of the key benefits of online courseware systems is that they allow students to access course materials and assessments from anywhere, at any time. This is particularly beneficial for students who have busy schedules, live in remote areas, or have other constraints that make it difficult for them to attend traditional classroom-based courses. Additionally, online courseware systems can provide students with a more interactive and engaging learning experience, as they often include features such as quizzes, discussion forums, and interactive simulations by (Atkin, D. 2020).

In order to make use of an online courseware system, it is important to have a good understanding of the different types of systems that are available and the features they offer. One of the most widely used online courseware systems is the Learning Management System (LMS). LMSs are designed to help instructors manage and deliver online courses, and typically include features such as online lectures, quizzes, discussion forums, and assignments. Some popular examples of LMSs include Blackboard, Canvas, and Moodle. Another type of online courseware system is the Virtual Learning Environment (VLE). VLEs are similar to LMSs, but are designed to be used by individual instructors or smaller institutions. They typically include a smaller set of features than LMSs and may be less expensive to use. Some popular examples of VLEs include Schoology and Edmodo. (Converse, T. 2016).

The courseware will provide you with a comprehensive understanding of the advantages and disadvantages of different types of courseware, and how they can be used in different educational settings. You will learn about the challenges of implementing courseware, such as training and technical support, and how to overcome them. You will also learn about the importance of evaluating courseware to determine its effectiveness, and how to use assessment data to improve the learning experience.

In summary, this courseware is designed to provide you with a comprehensive overview of the different types of courseware available, their features, and how they can be used to improve the teaching and learning experience in educational institutions. You will learn about the different components of courseware, the design principles of courseware, and how to evaluate the effectiveness of courseware. By the end of the course, you will have a deeper understanding of courseware and how it can be used to enhance the teaching and learning experience for students and teachers alike. (Samson and Zvacek, 2019). Teaching and learning at a distance Foundations of distance education. Information Age Publishing.

As the technology evolved, courseware became more sophisticated and interactive, incorporating graphics, animations, and video into the learning experience. In the 1990s, the rise of the internet and the World Wide Web enabled the widespread distribution of courseware over the internet, making it accessible to anyone with an internet connection.

**1.2 STATEMENT OF THE PROBLEM**

The traditional method of education in schools involves students attending physical classes and using textbooks as the primary source of learning. However, this approach has several limitations that make it challenging for students to learn effectively

. For instance, it is difficult for students to access educational materials outside the classroom, which limits their ability to review the material covered in class and prepare for assessments.

Additionally, the traditional approach does not cater to students diverse learning styles, making it challenging for some students to grasp concepts effectively.

Furthermore, with the current COVID-19 pandemic, it has become necessary to provide remote learning options for students who are unable to attend physical classes due to health concerns or other reasons. To address these challenges, there is a need to develop an online courseware system that can provide a comprehensive learning experience for students. The system should be accessible to all students, regardless of their location or ability to attend physical classes. It should also have features that cater to different learning styles, such as interactive quizzes and simulations.

**1.3 OBJECTIVE OF THE STUDY**

To provide students with easy access to educational materials, an online courseware system will allow students to access course materials anytime and anywhere, making it easier for them to review and study course materials at their own pace.

To expose the student to different learning styles, an online courseware system can incorporate various features such as videos, interactive quizzes, and simulations that cater to different learning styles, making it easier for students to grasp concepts effectively.

To provide a flexible and accessible approach to education, an online courseware system will provide students with a more flexible approach to education, allowing them to attend classes remotely and at their own convenience. This will make education accessible to students who are unable to attend physical classes due to health concerns, distance, or other reasons.

Overall, the objective of an online courseware system is to provide a seamless learning experience for students that is flexible, accessible, and catered to their needs and learning styles, while also promoting engagement and improving the quality of education.

**1.4 SIGNIFICANCE OF THE STUDY**

1. Improving educational outcomes: The study will help improve educational outcomes by providing a flexible and accessible approach to education that is catered to different learning styles, making it easier for students to understand and retain information.

2. Enhancing the quality of education: The study will help enhance the quality of education by providing students with up-to-date course materials and assessments, and by enabling educators to monitor student progress more effectively.

3. Promoting lifelong learning: The study will promote lifelong learning by providing students with easy access to educational materials, allowing them to learn and study at their own pace, and from anywhere in the world.

4. Addressing the challenges of the COVID-19 pandemic: The study will help address the challenges of the COVID-19 pandemic by providing students with remote learning options, allowing them to continue their education despite physical distancing measures.

5. Improving student engagement and collaboration: The study will help improve student engagement and collaboration by providing opportunities for interaction and collaboration among students through discussion forums and virtual classrooms.

**1.5 JUSTIFICATIONS FOR THE NEW STUDY**

1. Potential to improve access to education: Online courseware systems have the potential to make education more accessible to people who may not be able to attend traditional in-person classes, such as those living in remote areas or with disabilities.

2. Online courseware system will make it easy for students to access course material at any location provided there is network.

3. To address the limitations of traditional education methods: The traditional education system has several limitations, including limited access to educational aterials, lack of flexibility, and lack of engagement. A new study on the online courseware system will help address these limitations by providing a more accessible, flexible, and engaging approach to education.

**1.6 SCOPE OF THE STUDY**

This project focus mainly on development of online courseware system using Federal school surveying, Oyo as a case study which includes online lectures, quizzes, assignment and educational materials to aid student accessibility to the school handouts.

**1.7 DEFINITION OF TERMS**

Learning Management System – It is a software application that enables the administration, documentation, tracking, reporting, and delivery of educational courses, training programs, or learning and development programs. An online courseware system is a type of LMS that is specifically designed to deliver online courses or educational content.

Virtual Learning Environment – It is a broader concept than the courseware system, which focuses on the delivery and management of educational courses or content. A VLE is an online platform that provides learners and instructors with a range of tools and resources to support teaching, learning, and assessment in a virtual or blended learning environment.

Open Learning Initiative - The Open Learning Initiative (OLI) is a courseware system developed by Carnegie Mellon University that provides open and free online courses in various subject areas. The OLI courses are designed to be self-paced and include a combination of interactive activities, assessments, and multimedia resources to support student learning.

**CHAPTER TWO**

**LITERATURE REVIEW**

This chapter contains overview and review of related literature on the proposed online courseware system of Federal School of Surveying at Oyo, Oyo State, Nigeria. In this literature review, we will explore the existing literature on courseware systems for students and identify their various features and benefits.

**2.1 CONCEPTUAL REVIEW**

**2.1.1 CONCEPT OF ONLINE TERMINOLOGY**

The Online refers to a state of being connected to the internet or another network, as proposed by Rouse (2014). Then, according to Rheingold, H. (2014) Online means that computer technology is used to connect people and information in a digital space. Online refers to an environment in which communication, information exchange, and transactions occur via the internet (Huang, 2011).

Similarly, Roberts (2015) defined online as a term that describes anything that takes place over the internet. Online refers to the use of the internet or other networked technology to support or facilitate a range of activities. O'Reilly, T. (2005). Activities like communication and collaboration to e-commerce and entertainment. Zhang and Zhang (2020) also proposed that Online can be referred to as the use of the Internet to access and interact with digital content, digital services and digital applications.

Online refers to the use of computer networks, such as the Internet, to connect people, organizations, and devices for communication and collaboration. Turban, Pollard, & Wood. (2018). Online refers to the electronic communication and exchange of data, information, and knowledge between users and systems over the Internet or other computer networks. Whitman & Mattord, (2020). Online refers to the availability of digital resources, services, and tools that can be accessed through the Internet or other computer networks. López & Tennyson (2020).

**2.1.2 CONCEPT OF COURSEWARE**

Courseware refers to software that is designed for educational purposes, such as teaching, learning, and assessment. Horton and Quesenberry (2018). Courseware refers to any digital material that is used in the delivery and support of a course, such as multimedia presentations, online lectures, and interactive simulations. (Huang and Wu 2020). Courseware may also be referred to as a collection of instructional materials that are used to support teaching and learning, including textbooks, slides, handouts, and multimedia resources (Ehrmann, 2019). Courseware connotes any software, hardware, or digital resources that are used to deliver and support educational content and activities. (Alqahtani & Rafi, 2021).

**2.1.3 CONCEPT OF A SYSTEM**

A system is a set of interdependent components that work together to achieve a common goal. (Hall, 2017). A system is a collection of elements or components that are interconnected and work together to perform a specific function or achieve a specific objective. (Kroenke & Boyle, 2019).

According to Bertalanffy (1968). proposed that a system is a group of interacting, interrelated, or interdependent components that form a complex and unified whole. A system is a collection of elements or components that work together to achieve a common purpose or objective, and that can be studied and analyzed as a whole. (Pressman & Maxim, 2015).

**2.1.4 CONCEPT OF AN ONLINE COURSEWARE SYSTEM**

In recent years, courseware systems for students have become increasingly important in the education sector. These systems provide a comprehensive platform that enables students to access, interact, and learn course materials more efficiently. Courseware systems are digital platforms designed to deliver educational content to students. These systems provide a range of features that facilitate learning, including multimedia resources, interactive quizzes, and collaboration tools. According to a study by Yilmaz and Genc (2018), courseware systems are instrumental in enhancing the quality of education by providing students with a personalized and engaging learning experience. Courseware systems offer various features that support effective teaching and learning. Some of these features include:

Multimedia Resources Courseware systems provide multimedia resources such as videos, audio recordings, and images that make learning more engaging and interactive. According to a study by Kovalchick and Dawson (2012), multimedia resources help students to understand complex concepts better and retain information for longer.

Interactive Quizzes Courseware systems provide interactive quizzes that enable students to test their knowledge and receive immediate feedback. According to a study by Sitzmann et al. (2016), interactive quizzes are effective in promoting long-term retention of information.

Collaboration ToolsCourseware systems provide collaboration tools that enable students to work together on assignments and projects. These tools promote teamwork, communication, and critical thinking skills, according to a study by Pellas et al. (2014).

**Benefits of Courseware Systems**

Courseware systems offer various benefits that enhance the learning experience. Some of these benefits include:

1.Personalized Learning: Courseware systems enable students to learn at their own pace and according to their individual needs. According to a study by Lane and Shah (2017), personalized learning improves student engagement, motivation, and academic performance.

2.Access to Learning Material: Courseware systems provide students with access to a range of learning materials, including lecture notes, readings, and assignments. According to a study by Haggard et al. (2019), access to learning materials enhances the quality of education and improves student satisfaction.

3.Time Management: Courseware systems enable students to manage their time more effectively by providing a clear outline of course requirements and deadlines. According to a study by Wang et al. (2015), time management skills are essential for academic success and career development.

A courseware system for students is an educational technology tool designed to support the teaching and learning process. The system typically includes a range of digital resources, such as course materials, interactive tutorials, assessments, and communication tools, all of which are delivered through a web-based platform or application.

Some key features of a courseware system for students include:

Personalized learning paths: The system can be tailored to the individual student's learning needs and preferences, providing them with a personalized learning experience.

Interactive content: The system can include multimedia content, such as videos, simulations, and interactive exercises, to engage students and promote active learning.

Automated assessments: The system can automatically grade student work and provide feedback, allowing students to monitor their progress and identify areas where they need to improve.

Collaborative tools: The system can include communication and collaboration tools, such as discussion forums and group projects, to promote social learning and peer-to-peer interaction.

Analytics and reporting:

The system can provide instructors with data and analytics on student performance, allowing them to track progress and adjust their teaching strategies accordingly.

Examples of popular courseware systems for students include Blackboard, Canvas, Moodle, and Edmodo.

**2.2 Empirical Review**

According to Hsieh and Tsai (2015), the impact of courseware assisted learning on students' academic achievement and motivation. The study as conducted on a group of 117 eighth-grade students from two classes in Taiwan, with one class serving as the experimental group and the other class serving as the control group. The experimental group received courseware assisted learning, which consisted of online multimedia resources and activities designed to enhance students' learning experiences. The control group received traditional classroom instruction. Both groups were tested on their academic achievement and motivation before and after the intervention. The results showed that the experimental group outperformed the control group in terms of academic achievement and motivation. The experimental group had significantly higher scores on the post test of academic achievement and motivation than the control group. These findings suggest that courseware assisted learning can be an effective tool to enhance students' academic achievement and motivation.

Overall, this study provides valuable insights into the potential benefits of incorporating courseware assisted learning into classroom instruction. It highlights the importance of using technology to enhance students' learning experiences and improve their academic outcomes.

Examines the impact of using courseware on students' achievement in science education. The study was conducted with a sample of 212 seventh-grade students from three different schools in Taiwan. The researchers used a quasi-experimental design with a pretest-posttest control group to measure the impact of courseware usage on student achievement.

The study found that students who used courseware had significantly higher achievement scores than those who did not. The researchers also found that students who used courseware had a more positive attitude towards science and were more motivated to learn science. Additionally, students who used courseware reported that they found the learning experience more enjoyable and engaging.

The study has important implications for science education. The results suggest that using courseware can be an effective way to enhance students' achievement and motivation in science education. The study also highlights the importance of using technology to create engaging and interactive learning experiences for students. However, the study has some limitations, including the fact that it was conducted in a specific cultural and educational context, and the sample size was relatively small. Therefore, further research is needed to confirm the findings and to investigate the impact of courseware on student achievement in other contexts (Lee & Kuo, 2015).

Also another review was carried out by a certain set of people to show the importance impart of online learning system by Means, Toyama, Murphy, Bakia, and Jones (2010): This meta-analysis examined the effectiveness of online learning systems by analyzing 50 different studies that compared student learning outcomes in online versus face-to-face courses. The authors found that online learning was more effective than face-to-face instruction in terms of overall student achievement, and that online courses were particularly effective for adult learners and those in vocational training programs.

(Zhang and Nunamaker 2003) Also proposed a framework for designing effective online learning environments based on a review of existing literature and case studies of successful online courseware systems. The authors identified four key factors that contribute to effective online learning: learner characteristics, instructional design, technology, and organizational context.

This study compared student learning outcomes in online and face-to-face courses across multiple disciplines, and found that there was no significant difference in student achievement between the two

formats. However, the authors did find that online courses tended to have higher rates of student retention and engagement by Cavanaugh and Jacquemin (2015).

By Bernard et al. (2009) This meta-analysis reviewed 99 studies on the effectiveness of online learning and found that, overall, online learning was more effective than face-to-face instruction.

The authors identified several factors that contribute to effective online learning, including active learning strategies, collaborative learning,

and instructor presence.

(Xu and Jaggars 2013) also made a review on online learning, this review analyzed 45 empirical studies on online learning in postsecondary education and found that, on average, online courses were just as effective as face-to-face courses in terms of student learning outcomes. However, the authors noted that certain types of students (such as those with low academic preparation or those who are less self-directed) may struggle more in online courses.

(Shea, Swan, Fredericksen, Pickett, and Pelz 2020) This study analyzed the workload of faculty members teaching online courses and found that, on average, faculty members spent less time per student in online courses than in face-to-face courses. The authors used this data to compute an "ideal" class size for online courses, which could help institutions manage faculty workload and maximize the effectiveness of online courseware systems.

These studies provide valuable insights into the effectiveness of online courseware systems and how they can be designed and implemented to maximize student learning outcomes. I hope this helps with your project work.

**2.3 Theoretical Framework**

A courseware system is a software application designed to help instructors create, manage and deliver educational content to students. This theoretical framework will discuss the key elements of a courseware system for students, including its purpose, features, and benefits.

Purpose:

The primary purpose of a courseware system for students is to provide a digital platform for delivering educational content that can be accessed anytime and anywhere. It helps students to learn at their own pace, interact with the content, and receive immediate feedback on their progress.

Features:

1. Content Creation and Management: The courseware system should allow instructors to create, upload, and manage content, including multimedia elements like videos, images, and interactive simulations.

2. Student Progress Tracking: The system should track student progress and provide analytics on student performance, which can help instructors adjust their teaching methods and content to meet individual student needs.

3. Communication and Collaboration: The system should facilitate communication and collaboration among students and instructors, including tools for discussion forums, messaging, and group projects.

4. Assessment and Evaluation: The system should include assessment tools such as quizzes, exams,

and assignments, and provide grading and evaluation tools to instructors.

5. Accessibility and Usability: The system should be accessible to students with different abilities and learning styles, and its user interface should be intuitive and easy to use.

Benefits:

Flexibility and Convenience: A courseware system provides students with the flexibility to learn at their own pace, anywhere and anytime, which can help students balance their academic responsibilities with other commitments.

1. Personalization: The system can be tailored to meet the individual needs and preferences of students, including their learning styles and abilities.

2. Enhanced Learning Experience: A courseware system provides students with interactive and engaging content, immediate feedback on their progress, and opportunities for collaboration and communication.

3. Increased Efficiency: The system can streamline administrative tasks for instructors, such as grading and feedback, allowing them to focus on teaching and improving student outcomes.

A courseware system for students provides a digital platform that facilitates learning and enhances the overall educational experience. It allows for flexibility and personalization, promotes collaboration and communication, and can help instructors streamline administrative tasks, leading to improved student outcomes.

**2.4 Appraisal of Literature Review**

Appraisal literature review on a "courseware system for student" would aim to provide an overview of existing research and publications related to the topic. It would discuss the various approaches, methodologies, and technologies used to design, develop, and implement courseware systems for students, as well as their effectiveness in enhancing learning outcomes.

To ensure a comprehensive literature review, the researcher should consult a wide range of sources, including academic journals, conference proceedings, books, reports, and online resources. They should also use appropriate search terms and databases, such as Google Scholar, ACM Digital Library, IEEE Xplore, and ERIC, to identify relevant studies.

The literature review should be structured logically, with an introduction that provides a brief background to the topic and highlights its significance. This should be followed by a discussion of the key concepts, theories, and models related to the design and development of courseware systems for students. The literature review should also cover the different types of courseware systems and their features, as well as the advantages and disadvantages of each.

To provide a more in-depth analysis, the literature review may also compare and contrast the different courseware systems and their effectiveness in enhancing learning outcomes. This may involve evaluating empirical studies that have investigated the impact of courseware systems on student learning, engagement, and performance.

Finally, the literature review should conclude by summarizing the key findings and identifying gaps in the literature that future research can address. The researcher should also highlight the practical implications of the literature review for the design and development of courseware systems for students.

Overall, a well-executed appraisal literature review can provide a strong foundation for the design and development of effective courseware systems for students, based on the latest research and best practices in the field.