**DESIGN AND IMPLEMENTATION OF**

**ONLINE COURSEWARE**

**CASE STUDY (DEPARTMENT OF COMPUTER SCIENCE, LASU)**

**BY**

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**A PROJECT REPORT TO BE SUBMITTED TO THE DEPARTMENT OF COMPUTER SCIENCE, FACULTY OF SCIENCE, LAGOS STATE UNIVERSITY, OJO, LAGOS STATE.**

**IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF B.Sc. DEGREE IN COMPUTER SCIENCE.**

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**CERTIFICATION**

This is to certify that this project was written, compiled and carried out by **VINCENT TOSIN MICHEAL** with Matriculation Number **150591118** of the Department Of Computer Science, Faculty of Science, Lagos State University, Ojo, Lagos. Under the supervision of **Mrs. Akerele .O.C** in partial fulfillment of the requirements for the award of B.Sc. degree in Computer Science.

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**CHAPTER ONE**

**1.0 INTRODUCTION**

In recent years academy have been strived to beat the constraint of time, space and location, but has much effort made this is yet to come to fruition. Innovations in strategies of teaching and technology these days are redeﬁning higher education. And the point of this methodology is E-learning.

Online Courseware is an aspect of E-Learning that has to do with computer program or other material design used in an educational course. Good quality learning is not only about becoming more competent, polyvalent and productive but also about nurturing diversity and being well rooted. Artificial material (educational material) mainly conceived and developed for educational purposes.

Teaching aids illustrate key points in lessons and rouse the interest of learners and help the teachers to explain the concepts easily. The use of teaching aids dates back to as early as 150 B.C. with the Greeks.

The use of personal computers and Internet access entered schools in the 1990s. The introduction of computers and the Internet result to change in which teaching aids are used in the classroom. (Randy Garrison, 2008).

The teacher's role is changing from knowledge provider to learning coach and facilitator, this requires the ability to guide students in making the best educational and informational use of technology. Our society today has become so immersed in Computers because it provides an interactive educational experience that engages learners and makes the task of preparing lesson materials less time-consuming for teachers. Although teaching aids are very important for a successful teaching and learning process, they should not be a replacement for sound teaching strategies.

Furthermore, these tools are used as supplemental resources for educators, and teaching aids are used heavily to do the teaching process, besides it is a known fact that no student can produce their best without a skilled teacher behind them. However, many students cannot perform to their fullest potential without the use of teaching aids.

Therefore to improve efficient education Distant Learning was introduced through Information and communication technologies (ICT).

ICT provide new opportunities for education and training, as they enhance learning and teaching, and facilitate innovation and creativity for individuals and organizations. Thus, the use ICT led to the development of policy for educational change that promote creative and innovative school (University) environment, such learning style is E-Learning.

E-learning is defined as a system based on technology, organization, and management which bestow upon the students the ability to learn via internet and improve their learning. E-learning makes use of telecommunications technology to get information to achieve the teaching and learning objectives. But still the traditional means of higher education has remained dominant in schools in some developing countries.

Type of E-learning methods has been proposed which includes;

1. E-learning with Physical Presence and without E-communication (face-to-face)
2. E-learning without Presence and without E-communication (self-learning)
3. E-learning without Presence and with E-communication (asynchronous)
4. E-learning with virtual Presence and with E-communication (synchronous)

As we continue in the 21st century, some factors and many others are bringing strong forces to bear on the use of ICTs in education, trends suggest we will soon see large scale changes in the way education is planned and delivered as a consequence of the opportunities and affordances of ICT. ( Ron Oliver, 2002).

**1.1 PROBLEM DEFINITION**

In recent years, the knowledge-based economy has exhibited a pervasive and ever-increasing demand for innovative ways of delivering education, which has led to dramatic changes in learning technology and organizations (Zhang. et.al, 2004). Since the beginning of the information age, internet has proved to be one of the best advanced way of distributing teaching aids.

But the big issue is organizing the teaching aids, and its distribution to remote student by lecturers without time and space bound. Likewise, student gets the teaching aid from anywhere without any form of modification.

**1.2 AIM AND OBJECTIVES**

The aim of this project is to design and implement an online courseware for Department of Computer Science that can be adopted and used as a teaching tool.

The objectives of this research are:

* The development of software that enables lecturer to distribute course material and student to get it firsthand.
* The enhancement of learning aid that enables student to express their doubt and lecturers to give answers.

**1.3 RESEARCH METHODOLOGY**

The methodology of this project includes;

1. Analyzing the current system that is been used mostly in the developed world.
2. Gathering of information.
3. Building a conceptual model for the project.
4. The design of the user interface using Html,CSS, Bootstrap, java script, PHP.
5. The design of the backend using Html, java script, PHP.
6. The design of the database using My SQL.

**1.4 SIGNIFICANCE OF THE STUDY**

We view online courseware as that learning facilitated online through network technologies. Various authors have described the growth of online-courseware as productive, unprecedented, amazing, and disruptive. In fact, there are those who argue that we are experiencing a revolution in higher education. Others suggest that Online Courseware is unique and represents a new dimension of distance education, inline with the perception, what has changed is the “speed and power of communications and the expanded capacity to send, receive, and use information” and the capacity to bridge time and space for educational purposes. While lifelong learning has become an imperative and communications technologies are transforming higher education, in most instances “the revolution proceeds without any clear vision or master plan”.

Today the Internet is becoming the dominant means of delivering information and knowledge with low cost and real-time distribution.

E-learning represents a true paradigm with regard to distance education. E-learning in higher education is ﬁrst and foremost about providing a quality educational experience.

In comparison with traditional face-to-face classroom learning that centers on instructors who have control over class content and learning process, e-learning offers a learner-centered, self-paced learning environment.

The traditional education is made in classrooms where the teacher presents the learning material to a group of students. Regardless of obvious advantages as a direct contact between a teacher and students and immediate feedback, the traditional classroom education has many disadvantages. For example if the student has no ability to take part in some lesson he or she will miss the training material. These disadvantages lead to search for new and more effective educational methods.

**1.5 SCOPE OF STUDY**

The scope of the study is the educational system of the country. It lay emphasis on the development of a teaching paradigm for higher education. The focus is on giving learning aids disbursed by the lecturers and received by the student firsthand and gotten at lower cost and effort.

**CHAPTER TWO**

**LITERATURE REVIEW**

**2.0 HISTORY OF ONLINE COURSEWARE**

The development of online courseware was slated back to 1960, when the University of Illinois created an intranet for its student. It was a system of linked computer terminals where student could access course material.

In 1979, the first massively played educational computer game arguably, “Lemonade Stand” was released for Apple II. The concept was simple but it created a massive impact. It introduced the idea of learning with a computer to a generation.

In 1994 CALC (Computer Assisted Learning Center) was introduced to offer courses online. This was considered as ‘Online’ with real time interaction.

In 2002, MIT (Massachusetts Institute of Technology) begin offering lectures and course materials online through its ‘Open Courseware Project’, most of which are accessible by anyone in the world. (Peterson.com). The goal was to

* Provide material to MIT courses.
* Make student access the material anywhere in the world at any time.
* To create an interactive Forum
* Enhancing the idea of learning in a virtual environment.
* Increase the number of student participating in class

**2.1 PROS AND CONS OF ONLINE COURSEWARE**

The Internet today is reshaping the way knowledge is delivered, and that online courseware is becoming a big part of the real alternative to traditional classroom learning. In the past few years, it has emerged as a promising solution to lifelong learning and it is yet to come fruition.

Online courseware already known to be a technology-based learning tool in which learning materials are delivered electronically to remote learners via a computer network.( Dongsong, Zhao, Lina, and Jay, 2004.)

It comes with various advantages which are:

* Learner-centered and self-paced
* Time and location flexibility
* Cost-effective for learners
* Potentially available to global audience
* Unlimited access to knowledge
* Archival capability for knowledge reuse and sharing

Learning materials are presented in diverse media such as text, audio, images and videos.

In some instance learners have relatively little control over the knowledge structure and the learning process to meet individual needs. Sometimes a student may want to ask questions about the instruction materials and get answers immediately instead of sequentially going through an instructional video or other sources to find an answer.

Though online courseware comes with so many advantages, but it is not close to perfection which leads to some drawbacks like;

• Lack of immediate feedback in asynchronous e-learning

• Increased preparation time for the instructor

• Not comfortable to some people

• Potentially more frustration, anxiety, and confusion.

**2.2 THE IMPACT OF ONLINE COURSEWARE ON UNIVERSITY STUDENTS’ ACADEMIC ACHIEVEMENT AND CREATIVITY**

The application of teaching and learning methods that promotes deep and active learning and creativity in learners is the emphasis of the educational system of the present age. A number of scholars have suggested that there exists a strong relationship between learning and creativity, in fact Guilford states that creativity can be considered as a sub-type of learning.

Higher education, as a social institution should nurture individuals that they educate to be creative and thoughtful with high academic ability. To achieve this objective, the traditional teaching methods (lectures) do not have the required effectiveness, but implementation of e-learning in teaching-learning process could be a way to realize this goal with online courseware playing a huge part.

Online Courseware is one of the most important E-learning environments in the information era. Therefore, efforts and experiences related to this type of learning is given due attention around the world. In Iran, most universities are extensively using this technology. Online courseware can benefit self-regulation through the use of self-directed learning at readers pace.

Review of studies conducted in the field of e-learning usage and its impact on learning and creativity suggests that the use of online courseware method in the teaching-learning process can lead to the effectiveness of training. This brought about the emergence of new theories of teaching and learning that has made the education to shift from being teacher-oriented to being student-oriented.

Moreover, development and evolution of new communication devices has enabled modern man to use modern methods of teaching and learning and get free from time and space barriers to keep on learning in any time and place according to his needs and demands (Zare, Sarikhani, Salari, & Mansouri, 2016).

**2.3 ONLINE COURSEWARE AND ITS EFFECTIVE USE**

In online courseware, learning is asynchronous and self-paced. Asynchronous learning is teaching and learning that do not happen at the same time. Education can become transformative when teachers produce information across subjects and experiences.

Key Role of Online Courseware in E-Learning

* increase access to learning and training
* improve the cost effectiveness of educational resources
* improve the quality of existing educational structures
* enhance the capacity of the educational system
* deliver educational materials to specific students
* expand the capacity for education in new subject areas
* offer combination of education with work and family life
* add an international dimension to the educational experience

Good online instructors also need to engage their students, which can be accomplished by utilizing online discussion boards, responding promptly to discussion questions and encouraging students to share their ideas. To achieve these objectives, they suggested online instructors be good organizers. Because Social presence is a key component in online education and has a direct impact in many ways on the effective use of an online courseware and interaction in online environments (Sun A. & Chen X. (2016))

Good online instructors are those who possess the knowledge and skills on how to use and adapt updated technologies, and are also available online at most times and promptly reply to questions and concerns. To enhance effective use of online courseware, students should be given all course materials before the class begins for student to have prior knowledge of course.

**2.4 THE FUTURE**

Prediction that online courseware would completely replace traditional programs has proven unfounded. However, there is little doubt about predictions that the number of courses that provide online teaching aid will quadruple in the coming decade.

Though future of Online courseware is of no clear vision but it has obviously emerged triumphant as a viable education choice in its own right. To Shape the course efficiency of online courseware for students of tomorrow, each student need to play a role in that evolution.

**2.5 CONCLUSION**

The day when students can trade their 30-pound book bags for lightweight portable reading devices no longer seems far in the future. Several companies are now marketing appliances that may be suitable for use in education and textbook publishers are cautiously converting some of their print titles into e-book formats. (Dr. Eric J. Simon, 2001)

While few doubt the willingness of students to trade atoms for bits, little is known about how they might use electronic teaching aids and the value digital technologies might add to the reading and learning experience.

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