

Utilization of Learning Management System for Effective Teaching and Learning in the 21st Century Classroom

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ABSTRACT: Technology has revolutionized the way of carrying out all aspects of human activities in everyday life. Education is no exception in this regard. As students grow up with easy access to technology, their lives revolve around the use of internet, smart phones, computer, online messaging and other forms of technology. This however, places demand on educators to utilize technology in the teaching learning process so as to align with growth in technology, as well as adapt to the needs of the 21st century learners. It is pertinent therefore, that the 21st century classroom should undergo transformation in order to make learning flexible and collaborative. Learning Management System (LMS) is one tool that has great capacity to impact positively on 21st century classroom. It is a software programme or web-based technology that is used to organize, execute, and evaluate a particular learning process. Software learning packages such as Canvas, Blackboard Inc., Desire2Learn, Edmodo, and Moodle are some web-based learning management systems. Therefore, this paper focused on the utilization of LMS for effective teaching and learning in the 21st century classroom. The nature of LMS, 21st century classroom, and the need for utilizing LMS in 21st century classroom was discussed. It was concluded that if there is good mapping of students' development through technology, it will make the teaching-learning process more valuable and skill-centric. If students are to be productive members of the 21st century workplace, they must move beyond the skills of the 20th century and master those of the 21st century. Teachers are entrusted with mastering and modeling these skills in the classroom. Suggestions amongst others indicated that education authorities need to implement the use of Learning Management Systems that will enable teachers to implement a variety of technology-based pedagogical methods, deliver personalized learning, engage and connect students.

KEYWORD: Learning Management System, Utilization, Teaching, Learning, and 21st Century Classroom.

Introduction

The need to widen the horizon of education to meet the demands of the era of 21st century, has led to the wide use of computers and internet facilities. This has given rise to boosting of the teaching and learning process. The traditional teaching setting where teachers give lectures in front of the black board for very long hours cannot continue to work for learners of today's world and the world of tomorrow. The use of Information and Communication Technologies (ICT) and E-learning strategies is transforming teacher's role from a traditional profession to an intermediate supporter towards the facilitation of the students to conquer knowledge (Kalogiannakis, 2010). There is a shift away from top-down lecturing and passive students to a

more interactive, collaborative approach in which students and instructor co-create the learning process. The instructor's role is changing from the "sage on the stage" to "the guide on the side." (Ukpai, Bright & Essiet, 2022). Student's active involvement in their learning need to be encouraged rather than their passive learning. The integration of ICT as an educational tool should be considered as an approach of updating the teaching and learning procedure. This reveals that online learning is catalyzing a pedagogical shift on how we teach and learn.

We live in an ICT dominant era and the opportunity students are having to learn, develop skills and critical thinking through ICT is clearly demonstrated through a series of policy initiatives over the last decade (Littleton & Whitelock, 2005; Muttona, et al. 2006). There is need for educational institutions to be aware of the influence and outcome of the technologies that are capable of facilitating learning pathways at various educational programmes during unprecedented circumstances (Ukpai, et al., 2022). Nowadays, the computer is a significant part of the learner's daily life. It is, by now, inevitable that methods of teaching and learning should include E-learning components that are based on the computer environment and include proper preparation for the 21st century which requires a "new pedagogy" (Martin & Madigan, 2006).

The capabilities of multimedia and the hypertext navigational tools of the World Wide Web provides not only access to multiple perspectives on a certain subject matter but also provide some degree of control to learners as they try to make sense of the content (Gunawardena, 1999) cited in (Devi et al, 2020). With the creation of the World Wide Web, it has become possible and feasible for teachers to make effective use of instructional material. The beauty of using Internet resources for teaching and learning is the fact that teachers can have access to the most recent and pertinent information for their students. It therefore calls for educational institutions to create and develop effective strategies in teaching pedagogy. E-learning is a step in that direction, as it is being increasingly looked at as the panacea to bridge the resource gap many educational institutions are experiencing. E-learning can be very effective in teaching and learning, as well as to reach and motivate learners with special needs. LMS as an aspect of E-learning is especially important for students living in remote areas, in non-urban contexts, who may lack authentic materials and contact with students outside the physical classroom environment. Learning Management system gives an insight of the various facilities that can be used in Moodles like blogs, chat, forum, uploading of assignment, viewing or downloading e-content, news and assessment of students through online quiz amongst others (Devi, et al, 2020).

In describing the culture of 21st century classroom through the integration of ICT, Boothe and Clark (2014) noted that 21st century classrooms designed by creative educators are featured showcasing the integration of digital devices where educators have a commitment to create a "rotational" model of instruction. Through the use of digital devices, students are actively engaged in their learning and are working on meaningful, real-world projects in which they apply their learning. An observer in these classrooms no longer sees a teacher who is "a sage on the stage" nor does he/she observe students working on low level, rote kinds of learning. Rather, one observes students working at the evaluation, analysis, and synthesis levels of learning with the teacher acting as facilitator in classrooms designed and equipped for innovative model of instruction.

Learning Management System (LMS) is capable of facilitating 21st century classroom. It is a software that allows better cooperation among learners and teachers (Devi, et al, 2020). The use of Information and Communication Technology (ICT) in Education, in particular, the integration of Learning Management Systems (LMS) plays vital role in today's digital era. The Learning Management Systems (LMS) are technological learning environments that support online instructional delivery. Hence, the idea of using LMS for effective teaching and learning in 21st century classroom in Nigeria is timely. Thus, this paper illuminates the Utilization of Learning Management System for Effective Teaching and Learning in the 21st Century

Classroom in Nigeria. In view of this, the concept of LMS, 21st Century Classroom, need for 21st century classroom and the need for Utilizing of LMS in 21st Century Classroom were showcased.

Nature of Learning Management System

A Learning Management System (LMS) is a computer programme that enables the administration of instructional materials through various educational activities, the tracking and reporting of student data, and the facilitation and distribution of communication (Syed, Palade, Iqbal, & Nair, 2017). An LMS may provide classroom management for instructor-led instruction or a flipped classroom (Lindstaedt & Thurner-Scheuerer, 2012 & Boneu, 2010). Vijayalakshmi (2019) also defined LMS as a software programme or Web-based technology that is used to organise, execute, and evaluate a particular learning process.

An LMS is a system that captures many layers of progressive learning and defines multiple online operations. A learning management system (LMS) serves as a platform for distributing and managing educational content (Watson, 2006). LMS is a Software that allows one to offer, track, and manage training and education. It keeps track of student attendance, time on task, and progress. Educators can use the platform to make announcements, grade assignments, monitor course activity, and participate in classroom discussions. Students can submit their work, participate in discussions, and take quizzes. Teachers, administrators, students, and other parties (such as parents, if appropriate) may be able to measure various metrics.

Nature of 21st Century Classroom

Classroom is a learning space in which both children and adults learn. Classroom is found in educational institutions of all kinds, ranging from preschools to universities, and may also be found in other places where education or training is provided, such as corporations, religious and humanitarian organizations. The classroom provides a space where learning can take place uninterrupted by outside distractions. It is imperative to identify the 21st century learner who engages in 21st century classroom. Hirschman and Wood (2018) pointed that at the turn of the millennium, the term "21st century learner" was coined to describe a certain sort of learner who had a set of "new" 21st century abilities that were firmly linked to digital technology, digital communication, and conceptions of flexible approaches to knowledge. These shifts in understanding of the 21st century student have resulted in a shift on how a student is perceived, with the student now emerging as a self-determined, autonomous 21st century learner and patriotic citizen. In many respects, the term "21st century student" has come to symbolize the reforms that some believe are required in schools to meet the needs of a quickly changing globalized and digital world. Such changes need new learning methods, tools, skills, knowledge orientations, and pedagogies (Ukpai, 2021).

Pointing at 21st century era, Victor-Ishikaku (2022) noted that that it is an era replenished with a lot of changes in the way of life and living which has been necessitated by the emergence of the new digital technologies. It has revolutionized how every human activity is done in terms of family's personal life, work life and various field like banking, medical, security, transportation, farming and education inclusive.

As we live in the present era, it becomes clear that the 21st century classroom needs are very different from the 20th century classroom needs. In the 21st century classroom, teachers are facilitators of students' learning and creators of productive classroom environments in which students can develop the skills they will need in the workplace. The focus of the 21st century classroom is on students experiencing the environment they will enter as 21st century workers. The collaborative project-based curriculum used in this classroom develops the higher order thinking skills, effective communication skills, and knowledge of technology that students will need in the 21st century workplace. The interdisciplinary nature of the 21st century classroom sets it apart from the 20th century classroom. Lectures on a single subject at a time were the standard in the past but collaboration is the trend for all student learning presently. 20th century teaching strategies are no longer effective. Teachers must embrace new teaching strategies that are radically different from those employed in

the 20th century classroom. The curriculum must become more relevant to what students will experience in the 21st century workplace. (Commitment to the role of the teacher as a facilitator of learning, 2007).

21st century classroom focuses on best practices that hold a number of opportunities for teaching and learning by means of changing the nature of instruction. The classroom setting has to explore the best scenarios to redefine instruction and pursue the best of inspiring technology encounters (Boothe & Clark, 2014). This implies that the learning environment needs to be flexible to inform best practices and classroom spaces redesigned to support active learning environments. An engaging classroom experience combines cutting edge technology and a classroom designed to implement technology enabled learning. Based on these, it becomes paramount to identify the need for 21st century classroom and how it can be enhanced through the use of LMS.

The Need for 21st Century Classroom

Before now, the form of learning that takes place in the classroom require students sitting and listening to the teacher who solely talked all the day. This is rote learning. Rote learning is no longer encouraged where students passively learn. 21st century classroom positions students to take charge of their learning while the teacher serves as a facilitator in the classroom. As a result of this shift in role of students and teacher, the process of designing and management of modern classroom is undergoing change.

Technology has become the norm of the larger society the 21st century (Bechina & Kramer, 2013). Classroom and mobile computing is becoming more rampant as there are advances in technology. The 21st century classroom is now becoming a technology rich environment where students are used to having it available to them at all times both inside and outside of the classroom. This is timely because how students learn has fundamentally changed in the 21st century. McDonald and Battaglia (2015) noted that today's students are the first generation to be fully immersed in technology. Due to been born in the digital era, these children have been exposed at an early age to technology above and beyond laptops such as gaming, tablets, digital music players, webcams, and smart phones (Prensky, 2011). Hence, students' engagement in a learning process while interactive differs from that of students of former generations. That is why Prensky (2011) refers to students in the 21st century as "digital natives."

The 21st century classroom is student centered, not teacher centered. Teachers no longer function as lecturers but as facilitators of learning. The students learn by doing, and the teacher acts as a coach, thereby helping students as they work on projects. Students learn to use the inquiry method, and to collaborate with others, a real-life version they will experience once they leave the classroom. Students no longer study each subject in isolation. Instead, they work on interdisciplinary projects that use information and skills from a variety of subjects and address a number of essential academic standards. Textbooks are no longer the major source of information. Students use multiple sources, including technology, to find and gather the information they need. They might keep journals, interview experts, explore the internet, or use computer software programs to apply what they have learned or to find information. Instead of being reserved only for special projects, technology is seamlessly integrated into daily instruction. The goal of the 21st century classroom is to prepare students to become productive members of the workplace. (Commitment to the role of the teacher as a facilitator of learning, 2007). Hence the need for integrating LMS in 21st century classroom.

Historical Overview of LMS

One of the first internet-based LMSs was FirstClass by SoftArc, which was utilized by the United Kingdom's Open University to deliver online learning across Europe in the 1990s and 2000s. EKKO, Norway's NKI Distance Education Network's first fully-featured Learning Management System (LMS), was created and delivered in 1991. Three years later, the NB Learning Network in New Brunswick unveiled a comparable DOS-based teaching system aimed solely at business students (Huber, 2018).

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The concept of a learning management system originated from e-Learning. Although the first LMS was launched in the higher education sector in 1924, today's LMSs are mostly focused on the corporate market. The largest section of the learning system market is learning management systems. In the late 1990s, the LMS was initially introduced. Due to the emphasis on remote learning during the COVID-19 pandemic, learning management systems have seen a tremendous increase in usage (Kamarga, 2018).

Some Web-based Learning Management Systems

Some popular LMS are Canvas, Blackboard Inc., Desire2Learn, Sakai, and Moodle are some web-based learning management systems. Educators can use these sorts of LMS to run a learning system that is largely or completely online, asynchronously or synchronously. Learning Management Systems also provide a non-linear presentation of knowledge and curricular objectives, allowing students to learn at their own pace and in the sequence, they like (Chahal & Patel, 2021).

Canvas

Canvas, a Web-based learning management system, is developed and published by Instructure, Inc., an educational technology business with a website at www.instructure.com. In August 2020, 16 states in the United States announced a cooperation with Instructure to implement its Canvas LMS platform for their educational institutions as a statewide answer to the issues posed by the global COVID-19 pandemic, allowing educators and students to receive better support (CAO, 2021).

Blackboard

Blackboard Inc. is an educational technology business best known for its learning management system, Blackboard Learn. It's a cloud-based LMS that may be utilized in a classroom setting for students of all ages on PCs, tablets, and mobile devices. Additionally, as a mobile communication tool for keeping parents up to date on their children's progress. Accessibility, an up-to-date user interface, compatibility with other Blackboard products, file storage and administration, excellent collaboration support, personalization, and specialized grading tools are just a few of the benefits (Rahmatullah, 2021). This includes a learning system enabling schools to offer and manage courses, as well as a communication community and portal system, a content management system for centralized control over course content, and a system to track and evaluate student assessment results. Managed hosting, platform consulting, enterprise consulting, online programme management, training, and student services are among Blackboard's offerings. Student admissions and enrolment, financial aid, and student accounts and retention are all managed by Blackboard Student Services. It also provides IT and helpdesk support for learning management systems to students and staff.

MOODLE (Modular Object-Oriented Dynamic Learning Environment)

Moodle is a PHP-based (Hypertext Pre-processor) is a general-purpose scripting language used to develop dynamic and interactive websites learning management system (LMS) that is free and open-source, and is released under the General Public License. Moodle, based on pedagogical concepts, is used in schools, universities, workplaces, and other sectors for blended learning, remote education, flipped classroom, and other e-learning projects. It is a free web tool that help teachers construct engaging online learning environments. Its ease of use, adaptability, rapid implementation, and cost effectiveness are all strong aspects. Accessibility, heavy reliance on third-party add-ons, and insufficient maintenance expenditure are some of the flaws of Moodle. Moodle pioneered a number of features that are now regarded as standard for learning management systems, such as a calendar and a gradebook, as an E-learning tool. Moodle is a virtual learning environment that may be utilized in a variety of situations, including education, training, and development, as well as business (Belova, 2021).

Schoology

Schoology is a cloud-based learning management system that was founded in 2009 by three University of Washington undergraduate students in St. Louis. It includes resource folders, tracking systems, and communication applications that teachers and students in schools can use. Parents, instructors, and students can use Schoology accounts for free; however, "a license is necessary if a school wants to combine data from the platform with its other applications". It uses streamlined sharing and content management, provides a systematic approach to content production, provides a personalized homepage, and grades and attendance are easily accessible from the student's homepage. The only difference is that school localities and school systems must buy licenses to link data, and individual teachers must have students sign up independently and furnish them with information for "joining a class" (Rojabi, 2019).

Google Classroom

It's a cloud-based learning management system that lets teachers create assignments, announcements, and even formative questions for students to respond to. Teachers can observe how students are doing on their projects in Google Classroom and provide real-time feedback to students while they are online. Furthermore, Google Classroom is currently free for all schools, whereas most LMS platforms are expensive to set up. As a result, this is a significant benefit for schools who wish to become more digitally integrated and high-tech while operating within a limited budget. It eliminates the need for paper and is simple to arrange with a user-friendly interface. It does not, however, provide automated multiple-choice formative evaluations (Vasanth & Sumathi, 2020).

Edmodo

Edmodo is a free (open source) online platform that emphasizes collaboration and social media to personalize learning. Specifically created for use in the classroom. Homework, evaluation, discussion, and mobile learning tools are all available on the platform. (K-12 Blueprint Learning Management System (LMS) Guide, 2014). Communities can connect teachers to a global network of educators (Emiroğlu, 2019).

The Need for Utilizing of LMS in 21st Century Classroom

A traditional classroom-based method is becoming less and less effective as technology advances, digital materials become more widely used, and the needs of modern learners change. In order to address the problem, education authorities need to implement the use Learning Management Systems that will enable teachers to implement a variety of pedagogical methods, deliver personalized learning, and engage and connect students (Dressel cited in Chahal, & Patel, 2021; Hativa 2000).

Each century brings in different paradigms of education and teaching strategies, which sometimes extend into the schools' and classes' design, along with renewed teacher qualities. Today's schools were shaped for the Industrial Age, but the classrooms of tomorrow will be shaped for the digital age (Arstorp, 2018). Before the 2000s, education was about teaching people something or solely a transfer of knowledge. In more recent years, it has become about making sure that individuals develop a reliable compass and evolved navigation skills in times of uncertainty (OECD, 2015). Therefore, it is not enough for educational institutions to only stay up to date since it cannot be anticipated how necessary the required skills for today's educational systems will be in 20 years (Barber & Mourshed, 2009). Educational systems need to innovate themselves to help teachers and students gain 21st-century skills and be actively prepared for the new century (Göçen, et al, 2020). For effective realization of this, policymakers need to reinterpret modern educational methods and implementations. From there, they can introduce new teaching concepts with strengths attained from recent technological developments and pedagogical findings. Educational system today, need to reincorporate flipped classrooms, digital literacy, distance learning, flexible learning environments, learning zones, LMS

and such. New understandings or changes in education will surely continue to surface, as it is essential for the educational priorities of schools to catch up with those of the developing world.

Students need to possess 21st century skills as they engage in learning. Herbert, Putro and Fitriasari (2019) noted that the 21st century skills are a series of skills that students must possess to be able to win a new era competition where it begins to open globally. The 21st century is also marked by the number of: 1. information available anywhere and can be accessed at any time; 2. faster computing; 3. automation that replaces routine jobs; and 4. communication that can be done anywhere and everywhere. One model that is currently quite potential is Information and Communication Technology (ICT) -based learning in the form of a Learning Management System (LMS). Technology infrastructure is already a need to support 21st century learning (Phillipo & Krongard, 2012). Learning Management System (LMS) can be a missing link that unites contemporary education by using creative and innovative technology (Wilson & Scott, 2017).

The goal of a learning management system (LMS) is to provide a smooth online teaching-learning environment for students and teachers, with the goal of creating a value-based online platform that promotes the growth of all stakeholders and assists students in achieving success through skill development. The LMS software allows for effective e-learning course management, material creation and uploading, online examinations, several exam forms, quick feedback, and far more (Bartuskova & Krejcar, 2014).

Students who use a learning management system have access to e-content and e-learning classes at all times, as well as online assignments, teacher chat, and much more. Educators can share their educational materials and engage with parents and students. The promotion of particularly tailored information for capturing learner's progress in achieving expectations is one of the LMS's tasks. Learners can enroll for classes, track their grades, and check for changes and course/subject announcements on an LMS platform, which fosters engagement and achievement (Ippakayala & El-Ocla, 2017).

Conclusion

LMS stands for Learning Management System. It allows educational institutions to manage and deliver engaging skill-based e-learning courses/subjects to students. Using analytical data and reporting, LMS were created to identify training and learning gaps. LMSs are mostly used for online learning, but they can also be used for a variety of other purposes, such as serving as a platform for online content, such as asynchronous and synchronous courses. The ideal LMS software is one that tracks students' success at every step of their online learning journey. It uses online classroom environments to reinforce the learning process. If there is good mapping of student development, it will make the teaching-learning process more valuable and skill-centered.

If students are to be productive members of the 21st Century workplace, they must move beyond the skills of the 20th Century and master those of the 21st Century. Teachers are entrusted with mastering these skills as well and with modeling these skills in the classroom. The characteristics of the 21st Century classroom will be very different from those of in the classrooms of the past because the focus is on producing students who are highly productive, effective communicators, inventive thinkers, and masters of technology. Therefore, the utilization of LMS in 21st century classroom for effective teaching and learning cannot be over-stressed.

Suggestions

The following suggestions were offered:

1. Students should be enlightened on the need to master the skills needed for learning in 21st century classroom.

2. Education authorities need to implement the use of Learning Management Systems that will enable teachers to implement a variety of pedagogical methods, deliver personalized learning, and engage and connect students.
3. Educational systems need to innovate themselves to help teachers and students gain 21st-century skills and be actively prepared for the new century.
4. Policy makers need to reinterpret modern educational methods and implementations.

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