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Application Of Learning Science Concepts Through Sunan E-Learning

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Abstrak

Tujuan penulisan artikel ini adalah untuk mendeskripsikan penerapan LMS (Sunan) pada pembelajaran Konsep IPA di Prodi Pendidikan Guru Sekolah Dasar Universitas Muria Kudus sebelum pandemi covid-19 dan pascapandemi covid-19. Pembelajaran berbasis internet memungkinkan terjadinya pembelajaran yang sinkron dengan keunggulan utama peserta didik dan fasilitator tidak harus berada di tempat yang sama. Penggunaan Sunan membantu pembelajaran dalam konteks jarak jauh dan sebatas tidak bertatap muka secara langsung di masa pandemi covid-19 ini. Di era e-learning ini, dosen memiliki peran penting dalam penggunaan moodle sebagai penunjang kegiatan e-learning. Pemanfaatan e-learning terdapat kelebihan antara lain aksesibilitas yang mudah, biaya yang lebih terjangkau,

Kata kunci: konsep IPA, ruang kelas virtual, e-learning Sunan.

Abstract

The purpose of writing this article is to describe the application of LMS (Sunan) in learning the concept of science in the Primary Teacher Education Study Department Universitas Muria Kudus before the covid-19 pandemic and after the covid-19 pandemic. Internet-based learning allows synchronous learning to occur with the main advantage that the learner and facilitator do not have to be in the same place. The use of Sunan helps to learn in a remote context and is limited to not meeting face to face during this covid-19 pandemic. In this era of e-learning, lecturers have an important role in using Moodle to support e-learning activities. The benefits of using e-learning are that it can be accessed easily, the cost is more affordable, the learning time and insight becomes external because of the learning resources obtained from various sources.

Keywords*: science concept, virtual class, e-learning Sunan..*

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INTRODUCTION

Learning in this 4.0 era emphasizes the use of technology as a transmitter of learning materials. The development of technology demands that the world of education continue to improve the quality of the use of information technology in learning with a web-based dynamic object-oriented learning place (Sampurno et al., 2015). In the field of education, technology has changed the conventional or traditional learning system to be modern by utilizing information and communication technology (ICT). One of the media used to support learning using technology is to make use of the internet. Learning using the internet is called e-learning (Jarot, 2021). The use of e-learning or online learning is an alternative learning model that is constantly evolving and much in demand to be applied in the education system, not least in science learning. Learning during the Covid-19 pandemic requires special and more intense attention for an educator. Learning at home or online becomes one of the solutions to continue the rest of the next semester (Herliandry et al., 2020).

Education during the covid-19 pandemic has adopted online learning to keep education going. In addition, most higher education institutions believe that online learning will be very important for the future (Allen et al., 2013). Internet-based learning allows for synchronous learning with the main advantage that learners and facilitators do not have to be in the same place. Experience in terms of knowledge transfer through video, audio, images, and communication with software can be defined in the context of online learning (Basilaia & Kvavadze, 2020). Banggur, et al., (2018) revealed that the integration of technology and a variety of innovations is a feature of online learning. The utilization of video conference technology conducted using internet technology allows learners to be anywhere as long as connected to a computer network (Wiranda & Adri, 2020). Face-to-face meetings and knowledge sharing through a variety of widely available video conferencing platforms such as Zoom and Google Meet (Herliandry *et al*., 2020). The platform allows educators and students to meet and interact virtually with instant messaging and presentation services. In addition to such flagship applications, several other simpler and cheaper opportunities can also be developed in line with current ICT advances (Chabibie & Hakim, 2016). Online learning with virtual classrooms is a learning environment in which digital content can be accessed, stored, and shared through computer networks and Information Systems so that it can be accessed anywhere and anytime (Priowirjanto, 2013). Types of delivery in virtual classrooms include

[1] Learning Management System (LMS)
- Web-based software used for planning, delivering, and managing learning activities in an organization, e.g. Moodle, Dokeos, and Tutor

[2] Learning Content Management System
- Software for managing learning content in various areas of development training. For example; Claroline, e-docio solutions

[3] Social Learning Network
- A learning process that is broader than the Learning group, for example; Edmodo.

Virtual classroom features include;

1) Content relevant to the learning objectives.
2) Using instructional methods
3) Can be accessed in audio-visual form
4) The learning process can be done self-taught or in direct discussion with existing instructors.

In general, Learning Management System (LMS) is an e-learning activity that is now commonly used by schools, universities, and companies. In general terms, LMS is defined as the world of technology developed specifically to manage online/digital learning systems. Due to its full online nature, the registration process, distribution of learning materials, payment, and even forms of collaboration between students and teachers are done entirely via computer devices. The use of LMS is capable and effective to manage to learn

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because it has complete features, easy access, and is easy to use(Gunawan, et al., 2020). Many LMS alternatives can be used in Online learning such as Google Classroom, Schoology, and others. Online learning at Universitas Muria Kudus has been utilizing Moodle-based LMS for a long time, starting in 2014. However, its implementation is still constrained and less utilized by lecturers in the process of learning and teaching students. With the occurrence of the covid-19 pandemic as well as the application and restrictions in face-to-face learning, indirectly, lecturers/educators at Muria Kudus University are required to use LMS-assisted learning. The purpose of this article is to describe the application of LMS (SUNAN) on the learning of Science Concepts in the Primary School Teacher Education Department Universitas Muria Kudus before the covid-19 pandemic and after the covid-19 pandemic.

METHOD

This research uses descriptive qualitative research methods. Researchers act as instruments as well as data collectors (Wahidmurni, 2017). The data was obtained from the results of observations and interviews with the learners of Science Concepts. Several stages in data collection activities are (1) Evaluate the acquisition of data owned and already obtained, (2) Record the acquisition of data both used and unused, (3) perform a presentation and analyze the data that has been listed to strengthen conclusions.

RESULTS AND DISCUSSION

Development LMS at Muria Kudus University started in 2012 to 2014. The LMS used is based on Moodle and is named SUNAN which is an acronym of Sinau Temenanan.

Figure 1. Development of SUNAN LMS at Muria Kudus University

Muria Kudus University e-learning policy based on the Rector's Decree in 2012 began with the adoption strategy of a) supplements, e-learning or meetings only complement face-to-face meetings; b) complement, some face-to-face meetings are replaced by e-learning with a maximum rule of twenty-five percent (25%) of the number of face-to-face meetings following the provisions. As well as the UMK Strategy states that the average percentage of subjects that utilize LMS e-learning in 2014 is 35%. LMS is used to create web-based online learning materials and manage learning activities and outcomes. This LMS is often also referred to as an e-learning platform or learning content management system (LCMS). The essence of LMS is an application that automates and virtualizes the teaching-learning process electronically (Komendangi et al., 2017).

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Figure 2. Old view of SUNAN user interface

The old look of SUNAN is still felt by users to be less than maximum and the level of ease of users to fulfill tasks is still less. While the use of SUNAN still requires a helpdesk to enroll lecture participants. This is the reason that makes the use of SUNAN before the pandemic period is still not maximal and is still rarely used with the old look. Similarly, Rogers (1995) in the theory of diffusion and innovation revealed that five characteristics determine the acceptance of technology, namely; a) relative benefits, ie benefit over a developed technology; b) compatibility or suitability, ie the consistency of the use of technology to social practices and norms among users; c) complexity and complexity, namely ease of use and learning; d) the ability to be tested, namely the opportunity for users to try an innovation before deciding to use; e) the ability to be observed, namely clarity on the added value of the use of technology. Of these five characteristics by Dillon (2010) assessed the three things that are most influential on the acceptance of technology that is realistic advantages, compatibility, and level of complexity. From these three characteristics, it can be concluded that the old Sunan user interface has not yet adopted the acceptance characteristics of technology either in terms of realistic advantages, compatibility, and level of complexity. Of these five characteristics by Dillon (2010) assessed the three things that are most influential on the acceptance of technology that is realistic advantages, compatibility, and level of complexity. From these three characteristics, it can be concluded that the old Sunan user interface still has not adopted the acceptance characteristics of technology either in terms of realistic advantages, compatibility, and level of complexity. Of these five characteristics by Dillon (2010) assessed the three things that are most influential on the acceptance of technology that is realistic advantages, compatibility, and level of complexity. From these three characteristics, it can be concluded that the old Sunan user interface has not yet adopted the acceptance characteristics of technology either in terms of realistic advantages, compatibility, and level of complexity.

Further Nielsen & Loranger (2006) reveal that *web usability* is one of the important factors in developing a web. Developers must understand the principles of usability before implementing them on the web. Usability is a quality attribute that assesses the level of ease of use of the user interface. Usability also refers to methods for improving ease of use during the planning process. Armed with the opinions of users and the need for a simple user interface, but easily accessible, easy to accept, and use, the Sunan LMS was developed with a user interface as shown in Figure 3. below.

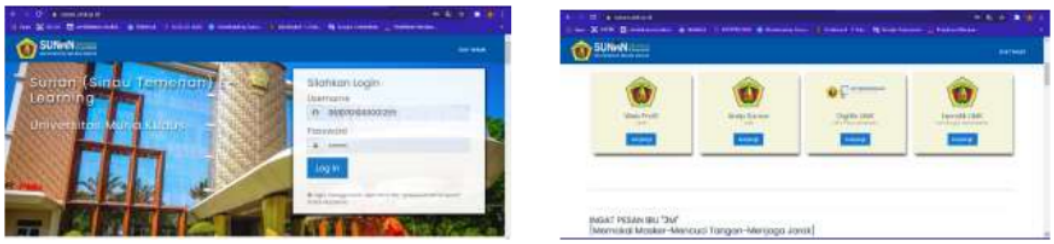

Figure 3. The latest view of Sunan's user interface

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The latest LMS is based on internet technology so it can be accessed from anywhere as long as there is access to the internet. Facilities provided include student management, learning materials management, learning process management including learning evaluation management, and communication management between learners and their facilitators. This facility allows learning activities to be managed without direct face to face between the parties involved (administrators, facilitators, learners, or learners). The presence of the parties involved is represented by e-mail, chat channels, or video conferences (Chabibie & Hakim, 2016).

The use of Sunan aids learning in a distance context and is limited to not face-to-face contact during this covid-19 pandemic. In this era of e-learning, lecturers have an important role in the use of moodle as a support for e-learning activities. Because the lecturer has the right of access to fill in the activities and resources related to the course that he forgives. Sunan's e-learning with the latest user interface has advantages among them;

a) Sunan became the center of learning in UMK.
b) Each lecturer systemically has a schedule that has been set by Sunan without requiring lecturers to enroll subject participants.
c) Sunan also stores several learning modules that have been prepared by lecturers (learning data in the form of (PPT) PowerPoint, PDF, and animation media, which can be accessed by students.
d) Sunan is also connected to video conference applications with third parties such as Jitsi.
e) In the Sunan menu, there is an e-library since 2012. The application is connected to e-books and e-journals that can be accessed for free.
f) Students can study anytime and anywhere. The material can also be repeated, and students can be flexible in learning.

The display of activity menu options in Sunan that can be used by lecturers or students can be seen in Figure 4. below.

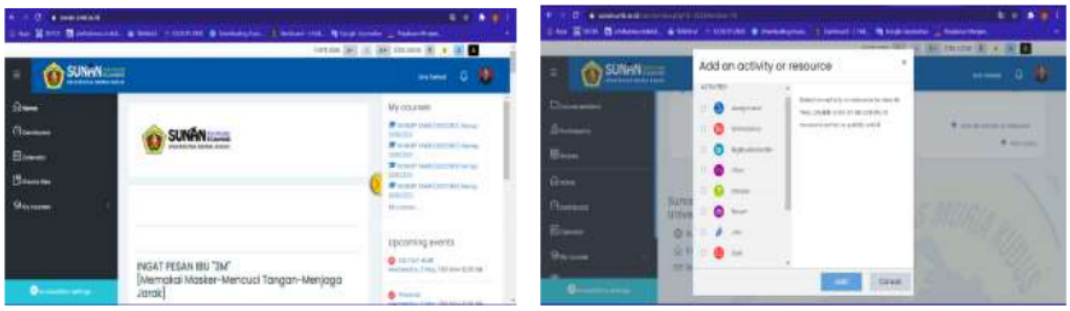

Figure 4. Display of activity menu options in Sunan

The visible display can be used for;

a) Upload material, for lecturers, can be used to upload material with material settings in the form of pdf, video, word, or other. However, limited to a maximum of 20 MB. While the assignment for students can also be set the limits of tasks that are uploaded either file in the form of pdf, video or word.
b) Upload videos/images, this menu can be used by lecturers and students in uploading videos/images supporting the material or assigning video uploads of student practicum results.
c) *Attendance* or attendance list, Students can fill in the attendance individually according to their respective log in or the lecturer who fills in the student attendance.
d) Assessment Can set the percentage weight for assessment and at the end of the value can be downloaded in excel form

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e) *Feedback*, lecturers can provide feedback to students related to the tasks that have been collected or during the discussion activities. Feedback can be accessed by students directly.

f) See last student access

The display and menu provided provide benefits and show the ease of access so that LMS Sunan began to accept and can be used fully at the University of Muria Kudus. In learning the Concept of Science has utilized LMS Sunan by sharing the menu of available activities. Lecturers can use Sunan LMS with an asynchronous delivery method with Jitsi feature or zoom meeting as well as asynchronous by providing materials or learning materials that have been uploaded ahead of time in Sunan. This is also reinforced by the opinion of Fitriani (2020) which states that lecturers as instructors can easily determine the deadline or deadline for the collection of tasks, monitor, review, and provide feedback or feedback and assessment for tasks that have been submitted. Its application can be seen in Figures 5 and 6 below.

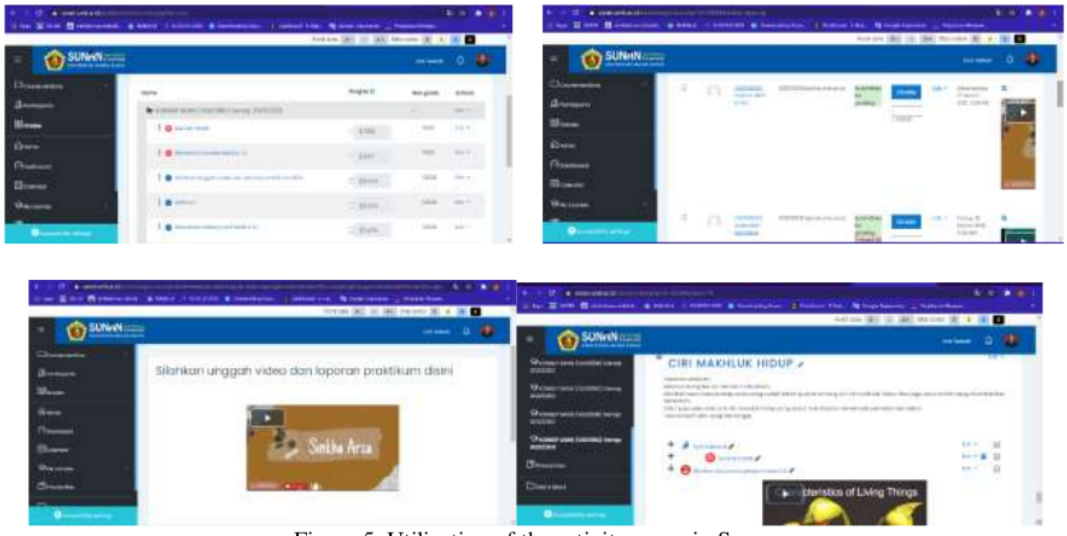

Figure 5. Utilization of the activity menu in Sunan

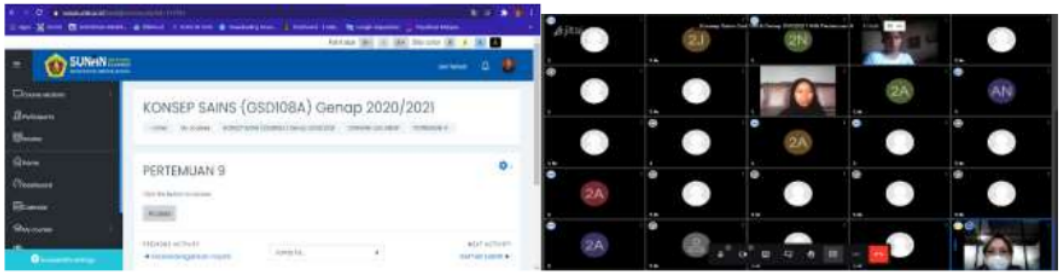

Figure 6. Utilization of the activity menu in Sunan

Utilization menu activities in Sunan have begun to be widely used by lecturers because they are easy to understand and easy to access. This is reinforced by the opinion of Penha et al. (2014) who stated that the usability or usefulness of a website is very important because from here you can assess how useful the website is built, but of course, the usability of each website will be different for one user with another user depending

on the level of needs of the user. The categories of usability factors themselves are accessibility and personalization, content and features, navigation and search, as well as the identity, privacy, and security (Windarto, 2015). The same thing is also revealed by Ali (2016) who mentioned that other aspects that must be considered in the creation of web-based e-learning are the display or user interface (user interface). Other than that flexibility of the Learning Management System allows lecturers and students to access the LMS anytime and anywhere and through various devices, either via PC, tablet, or smartphone (Fitriani, 2020).

The utilization of e-learning has advantages including easy access, more affordable cost, flexible learning time, and insight into the outside because the learning resources obtained are obtained from various sources. This is reinforced by the opinion of Verawardina et al. (2020) who stated that e-learning effectively supports the implementation of learning even though educators and learners are not in the same place. In addition to having advantages, the use of e-learning there are weaknesses such as internet access for areas that have not yet access to the internet is an obstacle, lack of direct interaction between educators and learners, understanding of the material does not necessarily occur if learners' independence is still lacking due to lack of supervision in learning. This is as expressed by Akhmalia et al. (2018) self-regulated learning affects students' academic achievement, the higher the level of self-regulated learning possessed by students the higher their academic achievement. This agrees with the research of Novitayati (2013) who stated that blended learning can improve students' self -regulated and ultimately able to improve students' cognitive learning outcomes.

CONCLUSION

Education during the covid-19 pandemic has adopted online learning to keep education going. Online learning at Universitas Muria Kudus has been utilizing Moodle-based LMS for a long time, starting in 2014. However, its implementation is still constrained and less utilized by lecturers in the process of learning and teaching students. Then Sunan LMS is improved based on input from users and the need for a simple user interface, but easy to access, easy to accept and use, then Sunan LMS is developed with a more attractive user interface and can be used to the maximum. The display and menu provided provide benefits and show the ease of access so that LMS Sunan began to accept and can be used fully at the University of Muria Kudus. In learning the Concept of Science has utilized LMS Sunan by sharing the menu of available activities.

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