Digitalization of School Academic Processes by Implementing a Learning Management System (LMS)

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Abstract. Teachers in the twenty-first century need to be ready to use technology to raise the bar for instruction and increase the quality of their own talents. Academic digitalization through the use of a Learning Management System (LMS) is one essential endeavor to improve the efficacy and efficiency of the learning process. Learning materials can be presented in an interesting and dynamic way thanks to the use of LMS. The descriptive approach used in this study entails examining phenomena gleaned from the research object, in this case, Palembang's Al-Asri Islamic Elementary School. Object-Oriented Analysis and Design is the methodology employed in this system. A system development technique called the prototype method makes it possible to create programs quickly and incrementally while letting users test them as they go. Al-Asri Islamic Elementary School's sustainability may benefit from this research, which could also expand the body of theoretical, viewpoint, and normative studies. particularly for the advancement of learning management system-based digital learning

Keywords: Learning Management System, Learning Process, SD Islam Al-Asri

1 Introduction

The role of schools in the 21st century is an important part of the education system and society. One component of a school that has an important role in education is the teacher. Teachers today must improve the quality of their skills by utilizing technology, so that they can improve the quality of education. This is because at the beginning of the 21st century, the industrial revolution has entered revolution 4.0[1]. The government has clarified the learning process that utilizes this technology through Minister of National Education Regulation Number 22 of 2016 concerning Primary and Secondary Education Process Standards, the contents of which require teachers, students and education staff to be able to utilize Information and Communication Technology (ICT) to increase the efficiency and effectiveness of the process. learning[2].

By using a Learning Management System (LMS), academic digitalization can be used to improve the efficacy and efficiency of the learning process. An LMS is a software program that incorporates modules or learning materials and is used for administration, documentation, evaluation, reporting, online learning, and remote learning activities [3]. Instructors can use LMS to oversee classes, communicate with students, and retrieve course materials in a predetermined amount of time.

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Because of LMS's adaptability, teachers and students can use it on any device-PC, tablet, or smartphone—at any time and from any location [4].

Al-Asri Islamic Elementary School is one of the Islamic elementary schools in Palembang City. Currently, Al-Asri Islamic Elementary School does not have a platform for the learning process and the process of disseminating information related to school academics.

The learning process that occurs at Al-Asri Islamic Elementary School does not make maximum use of technology. Learning materials still use books and blackboards. So learning is less interesting and interactive. If you use an LMS, learning materials will be more interesting and interactive and can be accessed without time and place restrictions. Likewise, to see student learning outcomes, the only person who knows student learning outcomes is the teacher who teaches in class. By utilizing this LMS, student learning outcomes are more transparent because they can be known by teachers, students, parents and school staff

Based on the problems above, the author is interested in conducting research in developing the Al-Asri Islamic Elementary School LMS which will contain information about the school, announcements, news, learning materials and student assignments. The aim of this research is that it is hoped that through academic digitalization using LMS, the Al-Asri Islamic Elementary School can improve accessibility and quality of learning.

2 Literature Review

Academic digitalization is a digitalization mechanism carried out in the academic process with learning devices and platforms as well as teaching staff who can integrate technology to make improvements in the academic process so that it is more effective and efficient [5]. Digital learning is a form of information technology carried out in the educational sector which is usually referred to as E-learning [6]. The term digital learning is more accurately intended as an effort to transform the existing learning process in schools or universities into digital form. The method of learning that makes use of digital technology—such as text, audio, and visuals—to convey instructional materials is known as digital learning. This method makes learning more flexible and practical by enabling it to happen anywhere there is internet access. [7].

The Learning Management System is an application specifically created to deliver learning and training materials more effectively and efficiently. LMS is used as a tool in providing learning materials, managing the learning process, and assessing the results of work carried out in the learning process [8].

Because LMS is generally made to be used anywhere, usually the LMS system will be made web-based to make it easier for users to access [9]. Due to the need to use the Learning Management System which must be accessible at any time and by anyone, users must have a supporting device such as a computer, while for connectivity, internet is needed to be able to connect to the Learning Management System application.

Some of the advantages of using a Learning Management System are [10]:

1. Saves more time and costs

2. Provide teaching materials in various formats
3. Practical and flexible
4. Easy to document files
5. Create more enjoyable learning
6. Minimize students missing out on learning material
7. Analyze student progress easily

3 Research Methodology

The systems approach method used in this research is Object Oriented Analysis and Design (OOAD) which is visualized using UML, in the form of Use Case Diagrams, Sequence Diagrams, Activity Diagrams.The system development method used is prototyping which will produce a prototype.

The stages carried out in developing a learning management system using a prototype can be seen in the following picture:

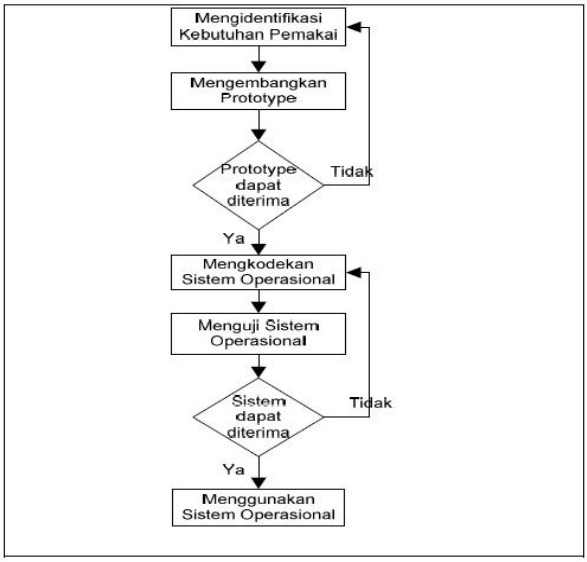

Fig. 1. Prototype Method Diagram

The first stage carried out was identifying user needs by conducting interviews and discussions with the principal, teachers and staff at SD Islam Al-Asri, then building a prototype of system requirements according to the results of the discussions that had been carried out. The prototype that has been built is evaluated to see whether the prototype meets user needs, such as whether the system to be built is in accordance with academic activities at Al-Asri Islamic Elementary School. The next stage is designing, testing and evaluating the learning management system. The next stage involves designing, testing, and evaluating the

Learning Management System. Before implementation, the system must be evaluated to ensure it meets the needs of SD Islam Al-Asri. Once the evaluation is complete, the Learning Management System can be utilized by SD Islam Al-Asri.

4 Result and Discussion

The problems that occur in the learning process at Al-Asri Islamic Elementary School are:

1. The learning process still uses whiteboards and markers as media to convey learning material
2. If the teacher is unable to attend class, then learning cannot take place so that the learning process does not run optimally
3. Limited time can also hinder the learning process so that discussions between teachers and students cannot be carried out optimally.
4. Collecting assignments that are not on time makes students less disciplined and independent.
5. Difficulty in conveying information

The Learning Management System application that will be built is a website-based application that utilizes the internet network. In this Learning Management system application, teachers can provide teaching materials and assignments to students online, discussions about learning can also be carried out without time and place restrictions so that learning targets can be achieved. Exams can also be carried out online, so that cheating in exams can be minimized, which can make students disciplined and independent.

The following is the use case diagram design:

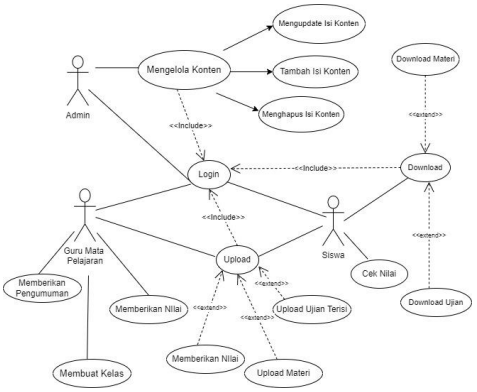

Fig. 2. Use Case Diagram

Based on the use case diagram above, the actors or users of the learning management system application are admin, subject teachers, students. What the admin can do is manage content, subject teachers can create classes, upload materials, assignments, exams, announcements and exam scores, while students can download materials, assignments, take exams, view announcements and view grades.

The following is the activity diagram design for uploading learning materials.

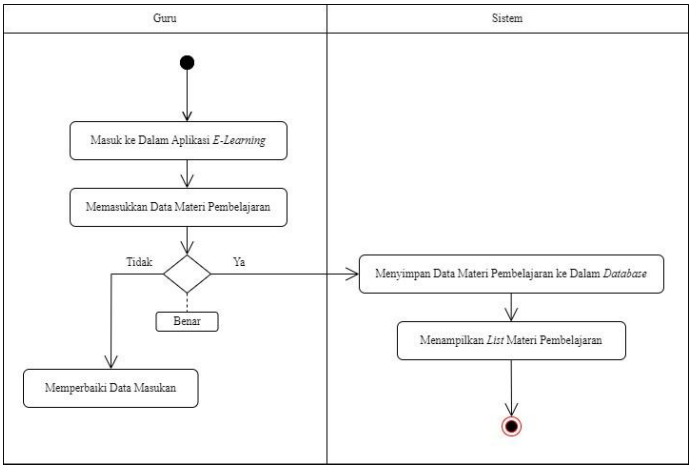

Fig. 3. Activity Diagram

In the activity diagram of the learning material upload process, it can be seen that the teacher is logging in to the learning management system application, then inputting the learning material. If the learning material is correct, the learning material will be stored in the database and the learning management system application will display a list of learning materials. From now on, students can view and download the learning materials.

The following is a sequence diagram for uploading the exam and carrying out the exam.

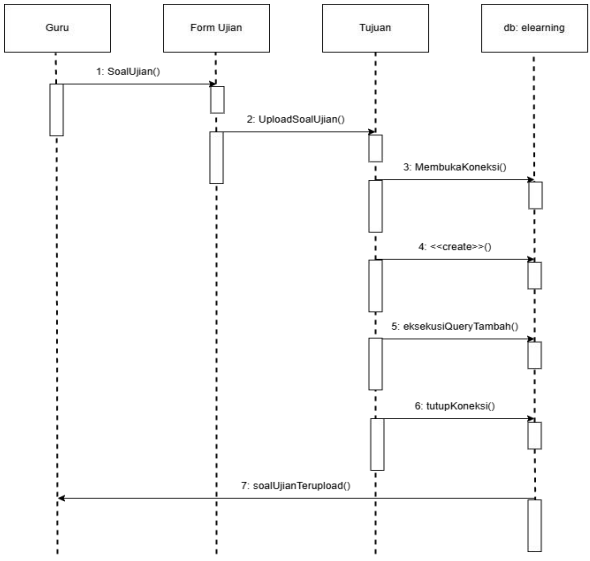

Fig. 4. Sequence Diagram

The following is Interface learning management system

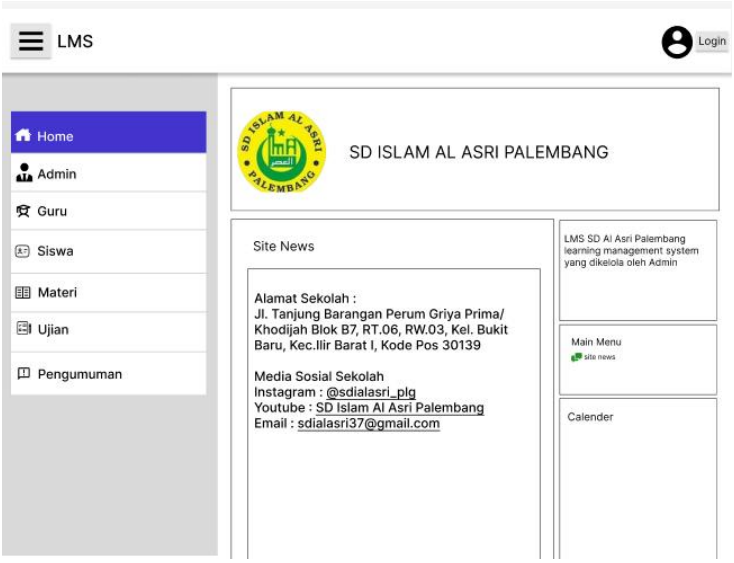

Fig. 5. Homepage

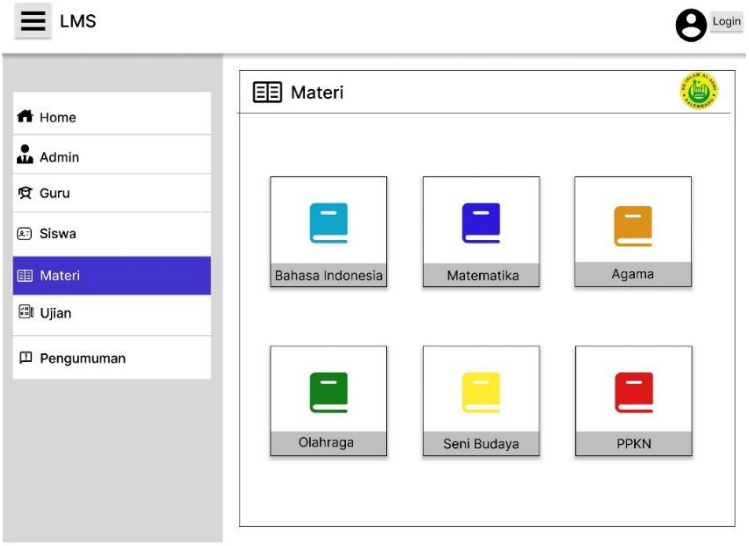

Fig. 6. Interface List Lesson

5 Conclusion

The Learning Management system application can facilitate the learning process that occurs between teachers and students. Teachers and students do not need to

meet face to face. Process learning can be done anywhere and at any time without time limits and place. Apart from that, it can foster creativity students in obtaining teaching materials and foster independence in learning as well discipline in collection task. Through this research, it is hoped that Al-Asri Islamic Elementary School Palembang can become a smart school because Al-Asri Islamic Elementary School Palembang utilizes technology in its academic process.

6 Recommendation

Regular training is needed for teachers and students regarding more advanced LMS features, such as class management, use of interactive quizzes, and automatic evaluation features. This will help improve users' technical skills so that LMS utilization is more optimal.

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