Development of Teaching Materials Based Learning Management System "Sifajargoro" to Foster Attitudes of Responsibility and Student Learning Outcomes in The Subjects of Civics Fifth Grade Elementary School Students

Anang Budiantara[1]; Mustaji[2]; Raden Roro Nanik Setyowati[3]

[1]*Pendidikan Dasar, Universitas Terbuka, Indonesia.*
[2]*Teknologi Pendidikan, Universitas Negeri Surabaya, Indonesia.*
[3]*Pendidikan Pancasila dan Kewarganegaraan, Universitas Negeri Surabaya, Indonesia.*
[1]*Corresponding email: anang20042@mhs.unesa.ac.id, Phone Number: 0838 xxxx xxxx*

Article History:
Received: Nov 30, 2022
Revised: Jan 07, 2022
Accepted: Jan 11, 2023
Online First: Jan 13, 2023

Keywords:
Learning Media, LMS-Based Teaching Materials "Sifajargoro", Development, Eligibility.

Kata Kunci:
Media pembelajaran, Bahan Ajar Berbasis LMS "Sifajargoro", Pengembangan, Kelayakan.

Abstract: The background of this study is that the use of Google Classroom in elementary school spoon II Bojonegoro is considered less effective e. This study aims to determine: 1) the development process of teaching materials based on LMS "Sifajargoro"; 2) the feasibility of teaching materials in terms of practical aspects, valid and effective. This type of research is the ADDIE development mod l. The subjects of this study were sixth-grade students of State Elementary School Sudu II-Bojonegoro academic year 2021/2022, totaling 18 children. Data were collected through validation instruments, written tests, and questionnaires. The results obtained: 1) process of developing teaching materials based on LMS "Sifajargoro" using ADDIE development model through 5 stages, namely: analysis, design, development, implementation, and evaluation n. 2) LMS-based teaching materials product "Sifajargoro" is said to be suitable for use as a medium of learning in terms of 3 aspects, namely: the validity aspect obtained from the validation results with an average score of 84.21% included in the valid criteria, the effectiveness aspect in terms of test questions obtained the percentage of students who complete is 70%, so it is said to be effective, and the practical aspect in terms of the questionnaire and the overall average percentage result is 73.97%, so it is included in the practical criteria. So that from the results of development can significantly improve student learning outcomes.

Abstrak: Latar belakang penelitian ini adalah penggunaan Google Classroom di SDN Sudu II Bojonegoro dinilai kurang efektif dan membutuhkan platform yang dapat mengemas semua kegiatan pembelajaran menjadi satu sehingga perlu dikembangkan Bahan Ajar Berbasis *Learning Management System (LMS)* "Sifajargoro". Penelitian ini bertujuan untuk mengetahui: 1) Proses Pengembangan Bahan Ajar Berbasis LMS "Sifajargoro"; 2) kelayakan Bahan Ajar Berbasis LMS "Sifajargoro" dari segi aspek praktis, valid dan efektif. Jenis penelitian ini adalah penelitian pengembangan dengan model pengembangan ADDIE. Subjek penelitian ini adalah siswa kelas enam SD Negeri Sudu II-Bojonegoro tahun akademik 2021/2022, berjumlah 18 anak. Data dalam penelitian ini dikumpulkan melalui instrumen validasi, tes tertulis dan kuesioner. Hasil penelitian yang diperoleh: 1) Proses Pengembangan Bahan Ajar Berbasis LMS "Sifajargoro" menggunakan model pengembangan ADDIE yang melalui 5 tahapan, yaitu: analisis, desain, pengembangan, implementasi dan evaluasi. 2) Produk Bahan Ajar Berbasis LMS "Sifajargoro" dikatakan cocok untuk digunakan sebagai media pembelajaran dalam hal 3 aspek, yaitu: aspek validitas diperoleh dari hasil validasi dengan skor rata-rata 84,21% termasuk dalam kriteria valid, aspek efektivitas dalam hal soal tes diperoleh hasil persentase siswa yang menyelesaikan adalah 70% sehingga dikatakan efektif, dan aspek praktis ditinjau dari kuesioner dan hasil persentase rata-rata keseluruhan adalah 73,97% sehingga termasuk dalam kriteria praktis. Sehingga dari hasil pengembangan dapat secara signifikan meningkatkan hasil belajar siswa.

How to cite:
Budiantara, A., Mustaji, & Setyowati, R. R. N. (2023). Development of Teaching Materials Based Learning Management System "Sifajargoro" to Foster Attitudes of Responsibility and Student Learning Outcomes in The Subjects of Civics Fifth Grade Elementary School Students. *Edunesia: Jurnal Ilmiah Pendidikan*, 4(1), 294-311.

https://doi.org/10.51276/edu.v4i1.346

A. Introduction

In 2019 the Covid-19 pandemic broke out worldwide, changing all areas. The world of education was also significantly affected. Learning in the network (online) is forced to be done to minimize coronavirus transmission to students. Online learning has many obstacles, one of which is miscommunication between students and teachers, causing a decline in learning outcomes and causing student academics to be substandard. Learning quality can be improved if good knowledge transfer is carried out (Suttrisno, 2021). Learning objectives are influenced by several factors, including practical ways of conveying knowledge itself. The process of quality learning and teaching activities (KBM) will ensure the transfer of quality knowledge as well. During the Covid-19 pandemic, it forces us in the world of education to follow the development of information technology that has developed rapidly, including through the emergence of online learning Zoom meetings, google meetings, classroom and Learning Management Systems (LMS) (Sumardi et al., 2021). The birth of LMS "Sifajargor ". LMS "Sifajargoro" serves to assist learners in online learning. The rules of health protocol do not allow us to meet with others face to face. So the character can be described through the LMS "Sifajargoro".

Online learning during the Covid-19 virus outbreak has impacted practical, quality online learning activities and student learning achievement. The increasing use of Learning Management Systems (LMS) by educators and students presents a challenge for schools to find e-learning methods that can facilitate their e-learning learning and how online learning system management can manage the management process in an integrated manner (Raza et al., 2021). Two dynamics will synergize in teaching and learning activities during the Covid-19 Pandemic. First, the need for education will increase significantly with online learning, as was done during the Covid-19 pandemic. Obtained from online learning will be an attraction for educators and students to choose the learning process where learning becomes available face-to-face (Wati et al., 2021). The Learning Management System-based learning process is becoming one of the leading options in distance education. There are several menus provided by LMS, including (1) online-based teaching and learning activities, (2) presentation of material in the form of images, PDFs, text, audio, video, quizzes, and others, (3) copy of material between educators, between classes and even between schools (4) games and online attendance (5) assignment in the form of collecting or uploading tasks about questions and recapitulations (6) questions and recapitulations, and learning outcomes (7) video teleconference and chat between students and teachers (Al-Sharhan et al., 2020).

Learning Management System or LMS is a system with the help of technology that regulates the activities of planning, distribution, and evaluation in learning activities (Ashrafi et al., 2020). LMS can accommodate the delivery of materials, provision of materials, interaction, and learning management that learners can access, administrators, and material makes. There is an assumption that using LMS can improve student learning outcomes (Raza et al., 2021). This follows the factors that affect success in learning, among others; 1) psychological factors, 2) environmental factors of society, 3) family environmental factors, 4) factors supporting learning, and 5) factors of school time (Sumardi et al., 2021). Other

https://doi.org/10.51276/edu.v4i1.346

opinions suggest that the factors that affect learning outcomes consist of 1) mastery of teacher teaching practices, 2) Learning media, 3) mastery of teaching methods, and 4) student motivation. Regarding understanding, LMS is included in the supporting factors of learning activity. Because teachers can use LMS to distribute organized learning media. Therefore, the presence of LMS is very suitable for distance learning to support student learning. In the end, it is expected to improve student learning outcomes.

The use of LMS-based teaching materials, "Sifajargoro" can stimulate the development of cognitive and emotional aspects of the student. The teaching materials intended here are digital materials that educators enter into the LMS Sifajargoro system. The form of teaching materials is learning videos, images, graphics, material files, and evaluation questions. By using this media, students can actively choose the pace of learning by the capabilities possessed. The point of choosing their learning steps is that students can start by looking at learning videos first or material files and evaluations according to what they want and can even repeat them repeatedly. Piaget's theory states that students build their knowledge independently through assimilation, accommodation, and equilibration (Venter et al., 2012). According to Bruner's theory, there are 3 ways of presenting learning experiences: enactive, iconic, and symbolic (Emelyanova & Voronina, 2014). Presenting learning materials in LMS-based "Sifajargoro" in which there is a blend of writing, images, and sound, can motivate students to try and interact directly with the media. Interactively actively, students obtain feedback from the selected action. Teaching materials in the LMS "Sifajargoro" is new for elementary school students in Bojnegoro. Usually, they only use textbooks, learning media, and the surrounding environment. However, through LMS 'Sifajargoro" they are presented with teaching materials in the form of material files, learning videos, and images that support students' understanding that even students have never met them in their surroundings.

The development of LMS-based teaching materials will certainly increase motivation and impact student learning outcomes. This statement is undoubtedly by some previous research (Al-Sharhan et al., 2020; Ashrafi et al., 2020; Emelyanova & Voronina, 2014; Fahrudin & Maryam, 2022; Raza et al., 2021; Sumardi et al., 2021; Venter et al., 2012; Wati et al., 2021; Yana & Adam, 2019; Yulfianti & Dewi, 2021). For example, Yulfianti & Dewi (2021) concluded that Learning Management System (LMS) based on google classroom and interest in learning together affect the economic learning outcomes of students of SMA Negeri 3 Sidoarjo East Ja a. Further also, as featured by Yana & Adam (2019), using LMS media can improve learning outcomes compared to conventional. Learning using quipper School-assisted LMS improves student learning outcomes (Fahrudin & Maryam, 2022). Following the description above, the researchers sought to improve students' character of responsibility and learning outcomes through the "development of LMS-based teaching materials "Sifajargoro" in improving student learning outcomes in distance learning subjects civics students Grade V Elementary School".

https://doi.org/10.51276/edu.v4i1.346

B. Method

This study is a research and development (R&D) using the ADDIE development Model consisting of 5 stages: Analysis, Design, Development, Implementation, and Evaluation (Nari, 2020). The selection of the model is based on the consideration that the model is developed interrelated and structured systematically means from the first stage to the fifth stage in its application.

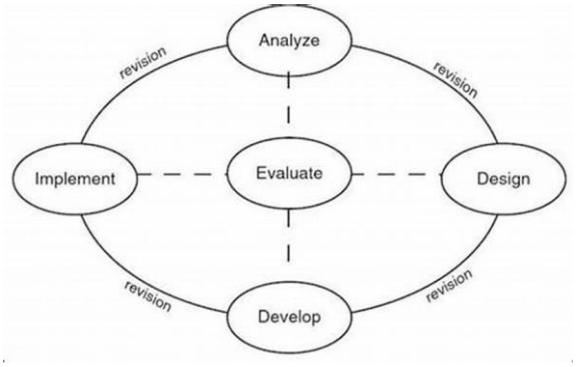

Figure 1. ADDIE Development Model Stages (Cahyadi, 2019)

This study's target subjects were Grade V students in SD Negeri Sudu II, Gayam Sub-District, Bojonegoro Regency. The implementation time of this research and development activity is carried out in semester 2 of the 2021-2022 academic year. The theme developed is Theme 2, Sub-theme 1, Learning 3, material about human interaction with the environment. Grade V Public Elementary School Satu II students who became the subject in this study amounted to 18 students. The subjects of this study were students of Class V, with the number of male students as many as 7 students and female students as many as 11 students.

Instrument or information acquisition device in this study using Surveys (Polls), meetings, perceptions, and documentation. Data analysis techniques in this study include 1. Analysis of data on student responsibility (formulation of Problem 1 was analyzed with quantitative descriptive (percentage validator results to assess the feasibility or not). Observation data of social skills and student response questionnaires were analyzed using descriptive statistics with percentages.

This study refers to the design or design of one group pretest-posttest design which is described as the following pattern.

O_1 X O_2

Figure 2. Pola Pretest-Postest

Description :

O_1 : Initial testing to determine the score and level of students ' critical thinking skills prior to treatment

https://doi.org/10.51276/edu.v4i1.346

X : Provision of treatment using LKPD-based *project-based learning*
O_2 : Final testing to determine the score and level of critical thinking skills of students after being given treatment

Pretest activities are given to students in the form of written tests to determine the initial knowledge of students before being given treatment. At the same time, the post-test is carried out to measure learners' ability in learning outcomes after being given treatment.

C. Result and Discussion

Product development in the form of teaching materials based on the Learning Management System "LMS Sifajargoro" follows the ADDIE development model, which has five research stages: analysis stage, design stage, development stage, implementation stage, and evaluation stage. The steps are outlined as follows:

1. Analysis Stage

At this stage, the authors make observations to analyze the needs in Class VI SD Negeri Sudu II Bojonegoro. Observations were made during PKn lesson hours. The analysis includes an analysis of student needs and learning, student background analysis, curriculum analysis used in SD Negeri Sudu II Bojonegoro, and an analysis of the material to be taught. Each of the analyzes obtained during the observation will be elaborated as follows.

a. Analysis of student needs and learning needs

The observation activity was carried out when the Citizenship Education lesson in the sixth grade of SD Sudu II Bojonegoro State Elementary School took place on Tuesday. They have been doing distance learning for 2 years due to the Covid-19 pandemic. Now learning is done face-to-face, even to accelerate and improve learning. In this transition period, it is necessary to have blended learning so that students can learn freely and independently. Distance learning at SD Negeri Sudu II uses the Google Classroom platform. However, learning using Google Classroom is considered less effective by students because the use of Google Classroom must be supported by the use of Google Forms and Google Docs. This makes it difficult for students to access. Therefore, students and teachers need a platform that can help teachers and students with distance learning. The Platform students want a practical and effective platform so that learning can be appropriately organized. In addition, students also want a platform that can package learning into one ranging from the presence, learning videos, modules, practice questions, and forums for discussion. Therefore, we need a platform that can package all learning activities into one, so the researchers chose to develop teaching materials based on Learning Management System (LMS) "Sifajargoro" that can be used by teachers and students in distance learning. So that distance learning becomes effective without utilizing many applications or features that confuse students. The Moodle-based Learning Management System (LMS) Platform is expected to be a viable medium used in distance learning and meet the media's feasibility: valid, practical, and effective.

https://doi.org/10.51276/edu.v4i1.346

b. Student Background Analysis

In the background analysis of students, researchers interviewed the class teacher and head of SD Negeri Sudu II. They said all sixth-grade students of SD Negeri Sudu II who will be the research subject have smartphones or laptops and good intern t. So that the technical need to follow distance learning has been met. The student's knowledge level in SD Negeri Sudu II is classified as middle to lower, so the value obtained by students is different from what is shown. From the value problem, the researcher will also test the effectiveness of the Learning Management System (LMS) - based teaching materials "Sifajargoro" in terms of test scores of sixth-grade students of SD Negeri Sudu II.

c. Curriculum Analysis

The curriculum analysis, namely analyzing the curriculum that occurred in SD Negeri Sudu II in the 2021/2022 school year, using the 2013 curriculum. SD Negeri Sudu II does not use the emergency curriculum the Minister of Education issued during the Covid-19 pandemic. During distance learning, learning resources used in SD Negeri Sudu II are only centered on teachers, especially in PKn subjects. So students only get the material and are then asked to do the problem by the teacher because the Google Classroom platform is less than the maximum utilization in the discussion process. Therefore, researchers assume the necessary platform that can require students to discuss with their friends or teachers so that students are more actively involved in learning and that the implementation of PKn learning can be maximized.

d. Analysis Of Learning Materials

From the results of the meeting with Class V teachers in SD Negeri Sudu II, it was agreed that the material used by researchers to assess the practicality and feasibility of the material is freedom of organization. This is because the LMS-based teaching material 'Sifajargoro" is a civic education material about freedom of organization. Children need help understanding this organizational freedom material because the media and learning resources are lacking, and enthusiasm for the material is very lacking, so student learning outcomes still need to be improved. The activities carried out at the development stage are as follows.

1. Product Manufacturing

a. Product Design

Furthermore, researchers began to prepare the features that will be used. Several features are available on the LMS "Sifajargoro" as shown in Figure 3 below.

https://doi.org/10.51276/edu.v4i1.346

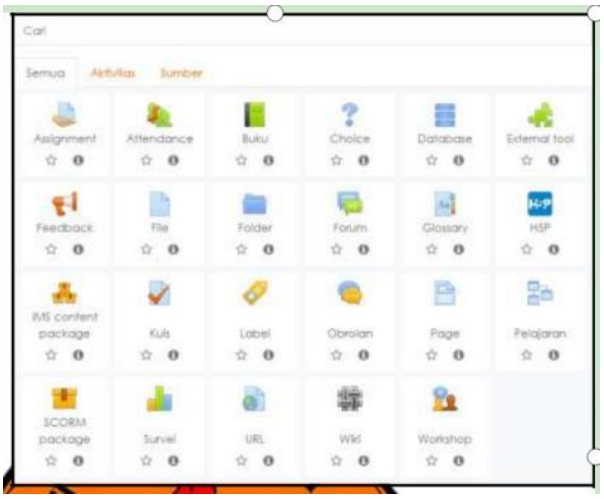

Figure 1. Design LMS "Sifajargoro"

b. Validation

At this stage, the researchers validated LMS-based teaching materials "Sifajargoro", learning tools, and questionnaires to experts to get suggestions, comments, and input from experts for improvement. At this stage, the instrument is validated by material experts and media experts.

1) Media Expert Validation

Validation of media experts there are 2 experts, namely 1 lecturer of Citizenship Education, Mr. Sukma Perdana, and 1 Teacher of Citizenship Education at SD Negeri, Mr. Taufik spoon II, S. Si. Validation is done regarding organizational aspects, attractiveness, and letters and images. The validation instrument for media experts consists of 7 indicators. The type of scale used in the questionnaire is a Likert scale and uses five alternative answers, namely very good, good, enough, less good, and very le s. In the results of the validation assessment, there are some comments and input that will be the material of Revision 1. Media expert comments and feedback related to setting attendance feature, assignment collection date, and feature for learning video display. In addition, the expert also requested that each meeting be given its own space so that students are clear about participating in each meeting. It can be concluded that LMS-based teaching materials" Sifajargoro " are feasible to use with revision.

Table 1. Validation Recapitulation of Learning Management System (LMS) Platform Based on LMS "Sifajargoro" by Media Expert

No	Aspect Assessment	Value		Average
		Member 1	Member 2	
1.	Organization	70%	80%	75%
2.	Attraction	73,333%	66,666%	69,999%
3.	Letters and pictures	70%	100%	85%
	Final Grades	71,111%	82,222%	75,370%

https://doi.org/10.51276/edu.v4i1.346

Categories	Eligible	Eligible	Eligible

2) Material Expert Validation

Validation of material experts there are 2 experts, namely 1 expert from the lecturer of Citizenship Education at Sanata Dharma University, Mr. Febi Sanjaya, M. Sc and 1 as a teacher of Citizenship Education State Elementary School spoon II Mr. Taufik, S. Si. Validation is viewed from several aspects, including organization, independence, adaptability, and ease of use. The validation instrument for material experts consists of 12 indicators. The type of scale used is the same Likert scale as the media expert validation instrument. Comments and input validation results are related to the completeness of the explanation of the material in each module so that it can be concluded that the material is feasible to use with revision.

Table 2. Validation Recapitulation of LMS-Based Teaching Materials "Sifajargoro" by Material Experts

No	Aspect Rating	Member 1	Member 2	Average
1.	Organization	85,71%	85,71%	85,71%
2.	Independence	90%	80%	85%
3.	Adaptive	100%	100%	100%
4.	Ease Of Use	90%	80%	85%
	Final Grades	91,43%	86,43%	88,93%
	Category	Very	Very	Very
		Valid	Valid	Valid

Researchers calculated the average score of the three based on the validation results of LMS-based teaching materials "Sifajargoro" by media experts and material experts and RPP validation. The results of the recapitulation of the validation score can be seen in Table 3.

Table 3. Recapitulation of Eligibility Score

No	Komponen Validation	Scores	Criteria
1.	Learning Management System (LMS) Platform based on LMS "Sifajargoro" by media experts	75,370%	Eligible
2.	Learning Management System (LMS) Platform based on LMS "Sifajargoro" by material experts	88,93%	Very eligible
3.	Learning Implementation Plan	88,33%	Very eligible
	Average	84,21%	Eligible

https://doi.org/10.51276/edu.v4i1.346

3) Validation of The Learning Process Plan

Validation of the learning process plan, there are 2 experts, 1 expert from the lecturer of Citizenship Education Sanata Dharma University, namely: Mr. Dr. Hongki Julie, M. Si., and 1 member as a teacher of Citizenship Education State Elementary School spoon II Mr. Taufik, S. Si. Validation is viewed from several aspects: components of the learning process plan, identification of the contents of the learning process Plan, and language. Comments and input on the validation results provided are related to the need for a more detailed explanation of each learning step so that it can be concluded that the learning process plan is feasible to use with revisions.

c. Revision

LMS-based teaching materials "Sifajargoro" has been validated and subsequently revised following comments and suggestions from experts/validators.

1) Revision of Media Experts

Based on suggestions and input from media experts, the researchers revised the media by improving the setting of the Presence activity. In addition, the researcher also improved the deadline for collecting assignments and the activities that students will use to view videos so that they can access their activities more than 1 time. In addition, researchers have also revised the space for each meeting so that students understand the activities given.

2) Revision of the Learning Implementation Plan

Based on the advice given by experts or validators, researchers revised the learning steps of the core activities. Researchers write more details about the steps of learning in core activities. In addition, researchers also re-examine the division of time in each activity.

Table 4. Recapitulation Validation of Learning Implementation Plan

No	Aspect Rating	Member 1	Member 2	Average
1.	Component learning implementation plan	90%	90%	90%
2.	Identify the content of the learning implementation plan	70%	80%	76%
3.	Language	100%	100%	100%
	Final Grades	86,666%	90%	88,99%
	Category	Very decent	Very decent	Very decent

d. Implementation

LMS-based teaching materials product "Sifajargoro" was completed in the validation, and subsequent revisions entered the implementation phase. At this stage, LMS-based teaching materials, "Sifajargoro" were used to teach in Class VI, totaling 18 students.

https://doi.org/10.51276/edu.v4i1.346

How the researchers tested LMS-based teaching materials "Sifajargoro" by teaching Citizenship Education in Class VI Public Elementary School spoon II every Wednesday.

1) Introductory Stage

The first trial was conducted on Wednesday, May 17, 2022, at 07.30 – 10.30 WIB using google meet. Researchers started the first meeting by introducing what LMS-based teaching material "Sifajargoro" is and how to use them is. Researchers conducted a demo of the use of LMS-based teaching materials "Sifajargoro".

2) Stages Of Implementation

Implementation of learning using LMS-based teaching materials "Sifajargoro" conducted four meetings with an explanation of each meeting as follows:

a) The First Meeting

Implementing learning using LMS-based teaching materials "Sifajargoro" began at the second meeting, Wednesday, April 24, 2022. In the second meeting, the researchers taught sub-material on freedom of organization. At the beginning of the lesson, the researcher asked students to enter the meeting 1 course and fill in the presence on the attendance activity. The researcher asked the students to fill in their presence and provided three choices: present, late and absent. After successfully filling the presence, the researchers asked the students to access the learning videos and modules uploaded to the LMS "Sifajargor ". The researcher gave about an hour for students to understand the material in the videos and modules. Researchers invite students to discuss questions and answers related to the material they learn using chat activities.

b) Second Meeting

The second meeting was held on Wednesday, May 3, 2022. In the second meeting, the researchers taught the broad sub-material of jurying using LMS-based teaching materials "Sifajargor ". Researchers asked students to open the LMS "Sifajargoro" and fill the presence for the second meeting.

After successfully filling in the presence of the students began to access the learning videos and modules uploaded by researchers. Next, the students have a discussion. The activity used for discussion has been revised by the researcher and is replaced by using forum activity.

Discussion activities can run smoothly, and most students are active in discussions. The result is that students find are easier to discuss using forum activities. At the end of the lesson, students are asked to do practice questions consisting of multiple-choice and stuffing questions. In the second meeting, students had difficulty uploading answers to the questions, so the researchers revised the activities used. For the multiple choice questions, the author uses a quiz activity, while the researcher uses an assignment activity for the collection of answers to questions. The learning process in the second meeting did not experience technical problems from LMS-based teaching materials "Sifajargoro" so there was no evaluation related to LMS-based teaching materials "Sifajargoro".

https://doi.org/10.51276/edu.v4i1.346

c) Third Meeting

The implementation of PKn learning using LMS-based teaching materials "Sifajargoro" at the third meeting was held outside class hours. Researchers gave students time to access all activities at this third meeting for one week. Researchers opened activities at this third meeting from Sunday, May 14, 2022, to Saturday, May 20, 2022. In this third meeting, the researchers taught the sub-material tangent circle. At the beginning of the lesson, the researcher gave one day, namely Sunday, May 14, 2022, for students to fill their presence in the attendance activity. Furthermore, such as in meetings 1 and 2, researchers upload learning videos and modules on LMS-based teaching materials "Sifajargor". At the end of the lesson, the researchers gave practice questions using quizzes and assignment activities. Researchers use quiz activities to provide questions in the form of multiple choice and assignment activity by researchers to provide questions in the form of stuffing and used for collecting answers to stuffing questions. Only when the deadline to access activities at the third meeting ended were obstacles from LMS-based teaching materials "Sifajargor". The use of LMS-based teaching materials "Sifajargoro" in the third meeting is not evaluated so that it can be reused without revision in the fourth meeting.

d) Fourth Meeting

The implementation of Citizenship Education Learning using LMS-based teaching materials "Sifajargoro" the fourth meeting was held outside class hours. Researchers gave daily replications at this fourth meeting. The fourth meeting was held from Wednesday, May 24, 2022, until Monday, May 29, 2022. At the beginning of the meeting, students were asked to participate in attendance activities. After the students filled out the presence, the students were asked to do the Daily test consisting of 22 questions. Researchers used the quiz activity to provide 20 multiple-choice questions and used the assignment activity to provide 2 descriptive questions.

e) Evaluation Stage

Evaluation phase conducted by researchers there are two types, namely:

- Formative Evaluation

Researchers use formative evaluation to evaluate the implementation of learning in each meeting. It aims to improve the program if there are obstacles to the Learning Management System (LMS) platform at the first meeting.

LMS-based teaching materials "Sifajargoro" can be revised immediately so that the next meeting can be used to the maximum. There are several results from the formative evaluation during the use of LMS-based teaching materials "Sifajargoro" during four meetings, namely.

There is a constraint on chat activity where chat/chat sent by students when discussing late into the chat room. This is certainly very disturbing to the discussion process at meeting 1, so researchers are forced to overcome this obstacle by discussing using the WA groups. After the first meeting ended, researchers revised the constraints on chat activity. Researchers replaced chat activity with forum activity, which was applied at the second meeting to discuss. The result is that discussion using the forum is much easier for students

https://doi.org/10.51276/edu.v4i1.346

to discuss smoothly. Therefore the researcher uses forum activity to discuss from the second meeting onwards. There is a constraint on uploading the answers to the questions in the quiz activity. Students need help uploading answers to questions in jpg or pdf. Due to these constraints, the researchers replaced the activity of collecting questions, which initially used the quiz feature, with the assignment feature.

- Summative Evaluation

Summative evaluation conducted by researchers to assess the benefits of developing teaching materials based on LMS "Sifajargor ". Researchers conducted a summative evaluation by giving questionnaires to teachers and students to assess the usefulness of LMS-based teaching materials "Sifajargor ". The summative evaluation results obtained from student and teacher questionnaires, namely collecting task descriptions and chat activities, still need to be completed to access. Based on this stage, the following recapitulation data:

Table 5. Data Recapitulation Assessment Results

No	Social Skills Component Score (%)			Total	Average (%)	Criteria
	Task completeness	Activism	Timeliness of task collection			
1	91	83	100	274	91	Very good
2	91	91	100	282	94	Very good
3	83	100	91	274	91	Very good
4	100	100	91	291	97	Very good
5	66	91	100	257	86	Good
6	91	100	100	291	97	Very good
7	83	100	91	274	91	Very good
8	91	91	91	273	91	Very good
9	91	91	100	282	94	Very good
10	75	83	91	249	83	Good
11	91	91	91	273	91	Very good
12	100	100	91	291	97	Very good
13	83	91	100	274	91	Very good
14	58	66	91	215	72	Good
15	91	100	91	282	94	Very good
16	100	91	91	282	94	Very good
17	58	66	91	215	72	Good
18	91	100	91	282	94	Very good
Total	1385	1469	1510		1454	Very good
Average	86, 6	91,8	94,4		90,9	

https://doi.org/10.51276/edu.v4i1.346

Discussion

The research conducted by the researcher is the development of LMS-based teaching materials "Sifajargoro" in Distance Learning Circle material for Class VIII students of Public Elementary School Blade II. Researchers design learning by understanding distance learning, according to Suparman et al (2020), as learning using media that allows interaction between educators and learners. In implementing distance learning, educators and learners can gather in different places to meet in person. Therefore, the researchers developed LMS-based teaching materials "Sifajargoro".

Researchers conducted observations while learning Civics in progress. It is intended that researchers can perform: (1) an analysis of student needs and learning needs, (2) an analysis of student background, (3) an analysis of curriculum, and (4) an analysis of learning materials. In analyzing student needs and learning needs, researchers made observations related to the problems faced by students and their learning needs. Researchers get the problem of the need for a more effective platform used for distance learning in public elementary schools. Therefore, the learning needs are needed a platform that can package learning into one, starting from the presence, learning videos, modules, practice questions, and forums for discussion. Background analysis of students, researchers conducted interviews with PKn teachers and principals of SD Negeri Sudu II that in terms of facilities, all students already have a smartphone or laptop. Then for the level of knowledge of students in public elementary schools, spoon II into the lower middle class so that researchers test the effectiveness of LMS-based teaching materials "Sifajargoro" in terms of test scores.

Analysis of the curriculum, researchers conducted interviews with teachers of Citizenship Education Public Elementary School spoon II and obtained information that the curriculum used is curriculum 2013. In the analysis of learning materials, researchers found that students still need help in the material circle, in particular determining the elements of the circle, arc length, and area of the jurying. Then, the researchers chose the material circle in this study.

Researchers do design/product design, learning design, and learning materials, namely, designing product design. In this product design, researchers prepare several activities that will be used on the LMS "Sifajargoro" such as presence, learning videos, modules, quizzes, discussion features, and task collection points. In learning design, researchers divide the circle chapter into 4 meetings. At the first meeting, the researchers prepared a sub-material about the elements of the circle, the central angle and the circumference angle, and the arc's length. In the second meeting, researchers prepare a broad sub-material jurying. The researchers set up a circle tangent sub-material in the third meeting. In the fourth meeting, the researchers prepared a daily test. After the activity is completed and prepared, researchers develop rules, in this case, the access limit of each activity.

https://doi.org/10.51276/edu.v4i1.346

The activity of researchers in this development stage is to prepare several components of e-learning implementation by the opinion of Fee (in Rusli et al, 2017). These components are:

(1) Manufacture of products, researchers make LMS LMS "Sifajargoro" following design d. According to Prakoso, LMS "Sifajargoro" is a helpful software for creating and conducting internet-based courses/training/education developed by Martin Dougiamas. Therefore, in the use of LMS "Sifajargoro", the device used must be connected to the internet,
(2) Explanation of the features that researchers focus on developing, such as attendance, assignment, file, quiz, label, and chat.
(3) How to log in to LMS-based teaching materials "Sifajargoro", researchers explain how users enter into LMS-based teaching materials "Sifajargor ". Researchers create 3 types of accounts, namely: admin, teacher, and student.
(4) Making instruments, researchers create validation instruments that will be used to measure the validity of the product.
(5) Validation, researchers perform validation to experts to find out suggestions, comments, and input from experts as guidelines for product improvement.
(6) Revision, researchers conduct product revisions by suggestions, comments, and input from validators.

At this stage of implementation, researchers used LMS-based teaching materials "Sifajargoro" for 5 meetings, 1 meeting for introduction, and 4 meetings for the implementation of learning. At the introductory stage, researchers used google meet and introduced themselves to students. Furthermore, researchers introduced LMS "Sifajargoro" to students and explained how to access LMS "Sifajargor ". Researchers also made a video tutorial on accessing LMS LMS "Sifajargoro" for students who have not been able to join google meet.

At the first meeting, researchers began using LMS "Sifajargoro" to implement learning. Researchers found obstacles at the first meeting on the chat activity. Then the researchers also got constraints on uploading the answers to the questions in jpg or pdf. Then the researchers revised the product for further use at the second meeting. Researchers used the LMS "Sifajargoro" in the second to fourth meeting for the learning process and found no significant obstacles.

Researchers conducted 2 evaluations, namely formative and summative evaluation. Formative evaluation is the evaluation obtained after each meeting is completed. Formative evaluation obtained is that there are constraints on the chat activity where the chat/chat sent by the students when discussing late into the chat room, and there are constraints on uploading answers to the questions in the quiz activity. Collecting task descriptions and chat activities in summative evaluation still needs to be explored.

According to Nieeven (in Mustaming et al., 2015) the feasibility of Learning media is based on three aspects: valid, practical, and effective. Therefore, researchers conducted a

https://doi.org/10.51276/edu.v4i1.346

feasibility analysis by conducting validity tests, practice tests, and effectiveness tests so that LMS-based teaching materials "Sifajargoro" feasible as a learning medium.

The use of LMS-based teaching materials, "Sifajargoro" can stimulate the development of cognitive and emotional aspects of students. The teaching materials intended here are digital materials that educators enter into the LMS Sifajargoro system. The form of teaching materials is learning videos, images, graphics, material files, and evaluation questions. By using this media, students can actively choose the pace of learning following the capabilities to possessed. The point of choosing their learning steps is that students can start by looking at learning videos first or material files and evaluations according to what they want and can even repeat them repeatedly. Piaget's theory states that students build their knowledge independently through assimilation, accommodation, and equilibration (Venter et al., 2012). According to Bruner's theory, there are 3 ways of presenting learning experiences: enactive, iconic, and symbolic (Emelyanova & Voronina, 2014). Presenting learning materials in LMS-based "Sifajargoro " in which there is a blend of writing, images, and sound can motivate students to try and interact directly with the media. actively Interactively students obtain feedback from the selected action. Teaching materials in the LMS "Sifajargoro " is new for elementary school students in Bojnego o. Usually, they only use textbooks, learning media, and the surrounding environment. However, through LMS 'Sifajargoro" they are presented with teaching materials in the form of material files, learning videos, and images that support students' understanding that even students have never met them in their surroundings.

The development of LMS-based teaching materials will certainly increase motivation and impact student learning outcomes. This statement is undoubtedly by some previous research (Al-Sharhan et al., 2020; Ashrafi et al., 2020; Emelyanova & Voronina, 2014; Fahrudin & Maryam, 2022; Raza et al., 2021; Sumardi et al., 2021; Venter et al., 2012; Wati et al., 2021; Yana & Adam, 2019; Yulfianti & Dewi, 2021). For example, Yulfianti & Dewi (2021) concluded that Learning Management System (LMS) based on google classroom and interest in learning together affect the economic learning outcomes of students of State High School 3 Sidoarjo East Ja a. Further also, as featured by Yana & Adam (2019), using LMS media can improve learning outcomes compared to conventional. Learning using quipper School-assisted LMS improves student learning outcomes (Fahrudin & Maryam, 2022).

Based on the findings of research results plus theoretical and literary studies, researchers concluded that the development of LMS-based teaching materials" Sifajargoro " is practical and feasible to be used to improve learning outcomes. The gap found during this research process is that the school where the research was conducted needed to coordinate with the parents, so when the students returned to school, they forgot a lot. In the future, it is expected to be more active in coordinating with parents of students at home so that students continue to do so during school.

D. Conclusion

Based on the implementation of research and from the results of data analysis

https://doi.org/10.51276/edu.v4i1.346

regarding the development of LMS-based teaching materials "Sifajargoro" in Distance Learning Circle material for Grade VI students of Public Elementary School Blade II, it can be concluded as follows:

1. LMS-based teaching materials development process "Sifajargoro"

The development process uses the ADDIE development model, which consists of 5 stages, namely: (a) Analysis stage: analyzing student needs and learning needs is needed a platform that can package learning into one starting from the presence, learning videos, modules, practice questions and forums for discussion. Conduct background analysis of students, namely the availability of smartphone/laptop facilities for all students and lower intermediate knowledge levels. It is conducting curriculum analysis, namely curriculum 2013. Analyze learning materials that matter to freedom of organization. (b) Design phase, namely designing product design by preparing several activities used in LMS "Sifajargoro" such as presence, learning videos, modules, quizzes, discussion features, and task collection points. (c) The development phase, which began to make products based on LMS teaching materials "Sifajargor ". (d) The implementation phase uses LMS-based teaching materials "Sifajargoro" on citizenship education learning in as many as 4 meetings. (e)evaluation phase, namely, formative evaluation.

2. Feasibility of LMS-based teaching materials "Sifajargoro"

Feasibility in terms of materials and features of LMS-based teaching materials, "Sifajargoro" is said to be worth using. This is obtained from the validation of LMS-based teaching materials "Sifajargoro " by media experts, which obtained a score of 81.111% in the feasible category. Researchers ' validation of the LMS-based teaching materials platform Sifajargoro obtained an average score of 89.76% in the very feasible. Validation of the learning implementation plan obtained an average score of 89.99% in the very effective category. LMS-based teaching material "Sifajargoro" is said to be effectively used. This is obtained from the percentage of students who completed reached 90%. LMS-based teaching material "Sifajargoro" is said to be effectively used. This is obtained from the percentage of the average overall questionnaire score of 73.97% included in the effective criteria.

References

Al-Sharhan, S., Al-Hunaiyyan, A., Alhajri, R., & Al-Huwail, N. (2020). Utilization of Learning Management System (LMS) Among Instructors and Students. *Lecture Notes in Electrical Engineering, 619*, 15-23. https://doi.org/10.1007/978-981-15-1289-6_2

Ashrafi, A., Zareravasan, A., Rabiee Savoji, S., & Amani, M. (2020). Exploring Factors Influencing Students' Continuance Intention to Use the Learning Management System (LMS): A Multi-Perspective Framework. *Interactive Learning* Environments, 30(8), 1475-1497. https://doi.org/10.1080/10494820.2020.1734028

Cahyadi, R. A. H. (2019). Pengembangan Bahan Ajar Berbasis ADDIE Model. *Halaqa: Islamic Education Journal*, *3*(1), 35-42. https://doi.org/10.21070/halaqa.v3i1.2124

https://doi.org/10.51276/edu.v4i1.346

Emelyanova, N., & Voronina, E. (2014). Introducing A Learning Management System at A Russian University: Students' and Teachers ' Perceptions. *International Review of Research in Open and Distance Learning, 15*(1), 272-289. https://doi.org/10.19173/IRRODL.V15I1.1701

Fahrudin, A., & Maryam, E. (2022). Pengembangan Learning Management System (LMS) Berbantukan Quipper dan Implementasinya Terhadap Kemandirian Serta Hasil Belajar Fisika Siswa SMAN 1 Musi Rawas. In *Prosiding Seminar Nasional Inovasi Pendidikan*, 231–241.

Mustaming, A., Cholik, M., & Nurlaela, L. (2015). Pengembangan perangkat pembelajaran memperbaiki unit kopling dan komponen-komponen sistem pengoperasiannya dengan model discovery learning untuk meningkatkan hasil belajar siswa kelas XI Otomotif SMK Negeri 2 Tarakan. *Pendidikan Vokasi: Teori Dan Praktek*, *3*(01).

Nari, N., Akmay, Y., & Sasmita, D. (2019). Penerapan Permainan Puzzle untuk Meningkatkan Kemampuan Membilang. *Jurnal Pembangunan Pendidikan: Fondasi dan Aplikasi*, *7*(1), 44-52. https://doi.org/10.21831/jppfa.v7i1.26499

Raza, S. A., Qazi, W., Khan, K. A., & Salam, J. (2021). Social Isolation and Acceptance of the Learning Management System (LMS) in the Time of COVID-19 Pandemic: an Expansion of the UTAUT Model. *Journal of Educational Computing Research, 59*(2), 183-208. https://doi.org/10.1177/0735633120960421

Rusli, M., Hermawan, D., Supuwiningsih, N. N., & Bali, S. T. I. K. O. M. (2017). *Multimedia pembelajaran yang inovatif: Prinsip dasar dan model pengembangan*. Yogyakarta: Penerbit Andi.

Sumardi, D., Syria, N., & Musadad, A. A. (2021). Website-Based Learning Management System (LMS) as a Tool for Learning in the Covid-19 Pandemic Period for Junior High Schools. *Journal of Education Technology, 5*(3), 346. https://doi.org/10.23887/jet.v5i3.38371

Suparman, T., Prawiyogi, A. G., & Susanti, R. E. (2020). Pengaruh Media Gambar Terhadap Hasil Belajar IPA Pada Siswa Sekolah Dasar. *Jurnal Basicedu*, *4*(2), 250-256. https://doi.org/10.31004/basicedu.v4i2.332

Suttrisno, S. (2021). Analisis Dampak Pembelajaran Daring terhadap Motivasi Belajar Siswa Madrasah Ibtidaiyah. *Jurnal Riset Madrasah Ibtidaiyah*, *1*(1), 1-10. https://doi.org/10.32665/jurmia.v1i1.190

Venter, P., van Rensburg, M. J., & Davis, A. (2012). Drivers of Learning Management System Use in A South African Open and Distance Learning Institution. *Australasian Journal of Educational Technology, 28*(2), 183-198. https://doi.org/10.14742/AJET.868

Wati, D. S., Siahaan, S. M., & Wiyono, K. (2021). Efektivitas Learning Management System Chamilo Materi Gerak Harmonik Sederhana Terhadap Hasil Belajar Peserta Didik.

https://doi.org/10.51276/edu.v4i1.346

LENSA (Lentera Sains): Jurnal Pendidikan IPA, *11*(2), 100-109. https://doi.org/10.24929/lensa.v11i2.166

Yana, D., & Adam, A. (2019). Efektivitas Penggunaan Platform Lms Sebagai Media Pembelajaran Berbasis Blended Learning Terhadap Hasil Belajar Mahasiswa. *Jurnal dimensi*, *8*(1), 1-12. https://doi.org/10.33373/dms.v8i1.1816

Yulfianti, S. Y., & Dewi, R. M. (2021). Efek Learning Management System Berbasis Google Classroom dan Minat Belajar Terhadap Hasil Belajar Ekonomi Siswa. *Jurnal Kependidikan: Jurnal Hasil Penelitian dan Kajian Kepustakaan di Bidang Pendidikan, Pengajaran dan Pembelajaran*, *7*(2), 491-502. https://doi.org/10.33394/jk.v7i2.3717