Distance Learning Innovations using Learning Management System, Seesaw during the COVID-19 Pandemic

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Abstract. This study aims to analyze distance learning innovation using the Seesaw Learning Management System (LMS) in Covid-19 students affected at Universitas Negeri Jakarta. The method used is descriptive qualitative research method. The study was conducted in March and April 2020 in first, second, and third-year students. The research instrument used in the form of an open instrument that can explain student responses to distance learning that has been implemented. Research data obtained in descriptive form. The analysis technique used is descriptive. The results showed that the development of Seesaw as learning media systems can improve learning outcomes, student enthusiasm, creativity, and student discipline in collecting assignments. Seesaw application is considered quite fun and effective for students. Seesaw allows students to upload assignments and get responses from their lecturers in a fun form. Distance learning in some of the subjects tested requires some variation making it easier for students to learn from home. It takes good cooperation between lecturers and students to create quality distance learning.

Keywords: Distance Learnin; E-Learning; Learning Management System; Student Enthusiasm

1 Introduction

The United Nations of Educational, Scientific, and Cultural Organization (UNESCO) states that nearly 300 million students worldwide are threatened with being denied their rights to education because of the effects of Covid-19. The majority of students throughout the world experience disruption in the learning process because conventional face-to-face learning in class is eliminated [1]–[3]. Learning switches to Distance Learning (PJJ) which is carried out with various media, one of which is the Learning Management System [4]–[6]. Learning Management System (LMS) is a software system that can be used to managing learning with e-learning methods [7]–[9]. The features provided by LMS allow students and teachers to interact like learning in class. Some features that facilitate learning include providing learning material, providing online discussion rooms, enabling connecting student and teacher communication via video conferencing, and managing files and assignments in one LMS application making it easy to administer administrative data and learning using the internet

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[10], [11]. Students can do the learning process not limited by distance and time, so they can keep learning without having to face to face with the instructor.

The LMS used in this study is Seesaw. This application can be opened via a browser and can also be downloaded on a smartphone with URL seesaw.me. The Seesaw application helps students have an exciting learning moment [12], [13]. In this application, the teacher can make interactive learning activities and exchange activities with other teachers. Students can directly enter using their electronic mail account and can enter with the one-time entry method using the code provided by the teacher. Students can also see classmates' assignments, so they can motivate each other. The teacher can give feedback about emoticons and through the comments column [14], [15]. Since the home study policy was decided by the central government on March 16, 2020, the teaching and learning process at home is assisted by online learning applications. There are some of difficulties encountered by teachers when implementing the learning method from home [16]. Learning and teaching from home is a step considered effective in breaking the chain of the spread of the Corona Virus. However, not a few parents and students are bothered with this activity so that applications that are proven to be effective in supporting distance learning are needed [17], [18].

The use of LMS in the distance learning process has an impact on the process of presenting course content and teaching materials used. One of the presentation processes can be done online through the addition of activities in online classes chosen by students. Utilization of Seesaw can be done by making a class that contains learning material, multimedia, assignments, quizzes, and announcements. This application also allows parents to connect with learning so they can support their child's development throughout the year. Growing technology encourages higher education to always update the learning process [19]. The use of LMS in the lecture process is very helpful for lecturers and students, especially in independent quarantine conditions like this. Policies issued by the central government to avoid crowds including face-to-face meetings in class can be transferred to online distance learning [20]. Based on previous research, several similar applications and LMS have been used including Google Classroom, Schoology, Microsoft Teams, Zoom, Webex, and Edmodo [21]–[23]. These applications have their own advantages and disadvantages. Not many studies have shown the features of Seesaw so that it can be used as an LMS that can compete with similar applications. Therefore, this study aims to provide information from students‘ point of view regarding the use of the Seesaw Application in distance learning as a substitute for face-to-face lectures during the Covid-19 pandemic in March and April 2020.

2 Methodology

The research carried out is a research development using the ADDIE model; analyze, design, develop, implement, and evaluate [24]–[27]. The development procedure includes 5 main stages, namely a) analysis of student needs during distance learning; b) designing / designing the development of ideas, analyzing concepts and tasks, doing a description of the material to be included in the LMS; c) carry out product development until validation; d) implementing the concepts that have been made into the Seesaw LMS; and e) conduct an evaluation to determine the effectiveness of e-learning using Seesaw LMS on the understanding of concepts before and after e-learning is applied. The study was conducted in March and April 2020 in first, second, and third-year students of the Family Welfare Education Study Program, Faculty of Engineering, Jakarta State University. There are a several classes tested including Sanitation and Hygiene class, Family and Environmental

Health Sciences, Learning Media Development, Learning Competencies, Crafting, and Introduction to Demographics. The research instrument used in the form of an open instrument that can explain student responses to distance learning that has been implemented.

The instruments used were test instruments and questionnaires. The test was conducted to see the ability of students in terms of overall understanding of the concept after being given learning by lecturers through Seesaw [28]. The questionnaire was used to obtain data on the quality of e-learning that was developed based on material and media aspects [29]. The instrument items in the questionnaire were prepared using a Likert scale. The steps to compile the questionnaire are based on the grid and then validate to determine the level of validity. Test questions are used to determine students‘ level of understanding after learning to use e-learning media. Pretest and posttest with the same problem but arranged and given at different times. The data obtained were analyzed using descriptive statistical data analysis techniques through tables, diagrams, mean presentation, and calculation of the percentage of achievement tests in concept understanding. The quantitative descriptive data analysis were then interpreted qualitatively using the ideal rating category criteria through the conversion of a 5-scale score.

3 Results and Discussions

Based on the approach taken is the approach using the ADDIE Model as follows;

3.1 Requirement Analysis Stage

The analysis was carried out through direct observation activities on students of the Family Welfare Education Study Program, Faculty of Engineering, Jakarta State University. Observations made are by interview. The purpose of observation is to determine the needs of appropriate media and to support an effective and affordable learning process that is most loved by students. Subsequent analysis with the study of literature by conducting a theoretical study through books, journals, and other sources of information relating to the development of distance learning using learning management systems.

3.2 Teaching Material Design Stage

Teaching materials desired by researchers aim to foster flexible access for students and are cost-effective and easy to use in the learning process. Researchers design teaching materials in the form of video recordings, so this video can be accessed anytime and anywhere because it uses the concept of synchronization. Learning video recording is done using a screen recorder application called Bandicam. With asynchronous learning videos like this, students are more eager to learn independently and still feel accompanied by lecturers.

3.3 Development Stage

The development carried out is the use of a learning management system named Seesaw in the delivery of teaching materials. Seesaw allows lecturers to display teaching materials, both in the form of photos, documents, videos, links, audio, and notes. The display features of Seesaw can be seen in Fig. 1.

Fig. 1. Features that can be used on Seesaw

Besides, Seesaw is also possible to involve parents in the learning process. This feature is the advantage of Seesaw. Seesaw can be used by parents as a tool to control children's activities. Parents/guardians can enter into seesaw as in Fig. 2.

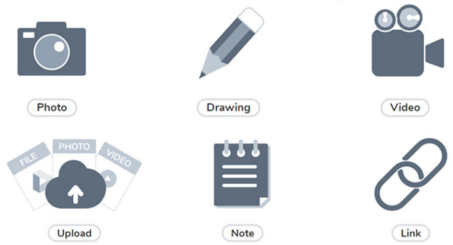

Fig. 2. Login display into Seesaw; as a teacher, student or family member

3.4 Implementation Stage

Researchers use Seesaw to teach several subjects including; Sanitation and Hygiene Courses, Family and Environmental Health Sciences, Development of Learning Media, Learning Competencies, Workshops, and Introduction to Demographics. The class view created in Seesaw is shown in Fig. 3 below:

Fig. 3. Class appearance used as a research sample

Some of the activities that have been given by researchers as supporting courses are by giving exposure to material in the form of PowerPoint slides, video links, and some scientific articles that become lecture material. Activities that have been given can be seen by all class members without having to download it first so that it does not require additional storage on the device used. Seesaw also makes it easier for teachers to see the number of participants who have submitted assignments, who have not received feedback from the instructor, as well as features for viewing students who have not responded to the activities provided by the instructor. The provision of activities can be seen in Fig. 4.

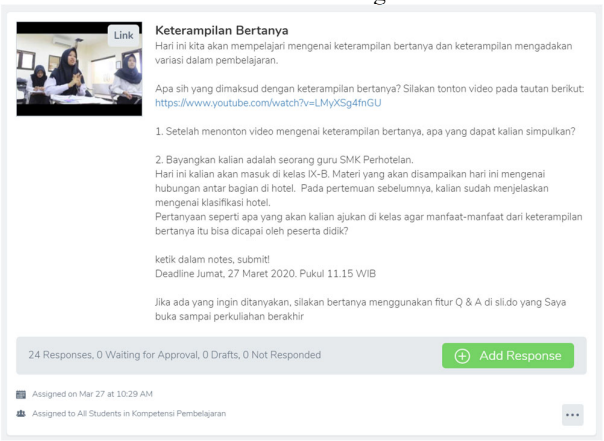

Fig. 4. Display of activities given by the teacher in the form of videos

3.5 Evaluation Stage

The evaluation given by the teacher is in the form of tests and questionnaires. The test was conducted to see the ability of students in terms of overall understanding of the concept after being given learning by lecturers through Seesaw. The questionnaire was used to obtain data on the quality of e-learning that was developed based on material and media aspects.
The results of the evaluation that have been carried out are as follows:

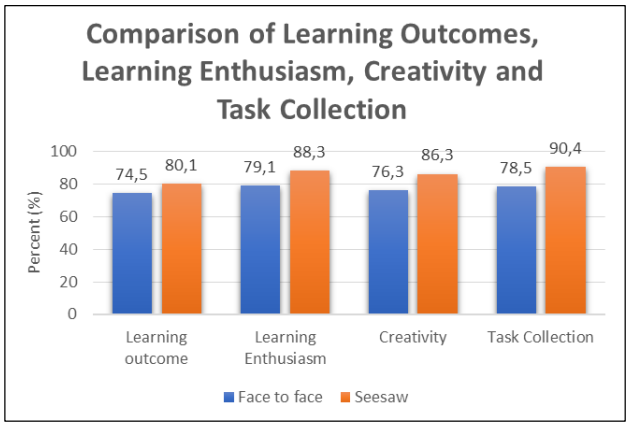

Fig. 5. Comparison of learning outcomes, learning enthusiasm, creativity, and task collection

The test results show that there is an increase in the average learning outcomes of students who use Seesaw LMS compared to regular face-to-face lectures (74.5 to 80.1). This is caused by the varied activities that lead to curiosity in students. Students are challenged to work on various activities given by the teacher and also the results of their assignments are immediately given feedback and can be seen by their classmates. This gives rise to a good competitive spirit for students. Also, students showed a higher enthusiasm in learning, creativity, and innovation in responding to the activities provided by the teacher (70.2 to 88.3). Students can innovate to respond with the form of notes, photos, documents, and videos. The same features are owned by students, such as the features that the teacher has in Figure 1. The interesting thing is, 90.4% of students collected their task on time using Seesaw compared to collecting task during regular face-to-face lectures. The increase is quite high, which is 11.9%. This is caused by the task collection through LMS has a clear deadline and can be seen by classmates. Healthy competition occurs between classmates, so students compete to collect tasks on time. Besides, the teacher can immediately check who has not submitted the assignment by looking at the activity description at the bottom of the assignment, as shown in Figure 4. It appears that 24 students have submitted assignments, 0 students waiting for the teacher's approval, and 0 students who have has not yet submitted an assignment. The results of the research above shows that the development of learning media systems in the form of Seesaw can improve learning outcomes, enthusiasm for learning, creativity, and student discipline in collecting assignments. Similar research was carried out by Maphosa et al. (2020). Learning media systems allow teachers to move face-to-face classes into online distance learning without reducing the value of learning itself [30]–[32].

Learning can still be done by 3456-0 providing material, providing activities or activities in the form of assignments, and providing feedback. Even with Seesaw LMS, students can innovate and be creative with the assignments by choosing the desired response features; photos, documents, videos, links, audio, and notes. LMS is designed to facilitate the implementation of learning. The benefits obtained from this LMS can be used well during the Covid-19 quarantine period so that students still get their rights in learning at home. Education should have been obtained by all levels and groups. But unfortunately, there are still some limitations that require the creativity of educators to make learning more lifelong. One of the shortcomings in the Seesaw LMS is that there are no comments columns on each assignment given by the instructor, so the instructor must explain the information in detail in each assignment, so that the assignment can be done well by students [33], [34]. The teleconference or videocall feature is also still a limitation of this LMS, but this can also be something to be thankful for because the use of the teleconference feature tends to be costly and a good internet signal. With Seesaw LMS, it is hoped that teachers and students can continue to conduct learning as effectively and efficiently as possible. Cost-effective, but easy-to-use LMS can be a distinct advantage for Seesaw LMS. Based on the discussion above, it can be concluded that Seesaw is a learning management system that has a positive impact on teachers and students. This LMS can develop students' creativity to explore their assignments to create an active, innovative, creative, effective, and enjoyable learning. This LMS is also easy to use, and certainly saves cost and storage memory.

4 Conclusion

The results showed that the development of Seesaw as learning media systems can improve learning outcomes, student enthusiasm, creativity, and student discipline in collecting

assignments. Seesaw application is considered quite fun and effective for students. Seesaw allows students to upload assignments and get responses from their lecturers in a fun form. Distance learning in some of the subjects tested requires some variation making it easier for students to learn from home. It takes good cooperation between lecturers and students to create quality distance learning. Teachers also feel excited and get full support so that they increasingly understand the needs of students.

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