High School Students' Perceptions Towards Quiz-Based Smartphone Learning Management System (S-LMS) as Learning Evaluation Media

Egha Alifa Putra[1,*] Elah Nurlaelah[2]

[1] *Mathematics Education, School of Postgraduate Studies, Universitas Pendidikan Indonesia, Jl. Dr. Setiabudi No. 229, Bandung 40154, Indonesia*
[2] *Departement of Mathematics Education, Faculty of Mathematics and Science Education, Universitas Pendidikan Indonesia, Jl. Dr. Setiabudi No. 229, Bandung 40154, Indonesia*
*Corresponding author. Email: eghaalifaputra@upi.edu

ABSTRACT

A smartphone-based evaluation media learning management system (S-LMS) is an application that supports teaching and learning activities and online evaluation. S-LMS media is the development of conventional evaluation media using smartphones and internet networks. The purpose of writing this article was to determine students' perceptions of the smartphone learning management system (S-LMS) based quiz in public high school students at Serang City. Through a qualitative descriptive method by providing questionnaires and interviews with students, the data were analyzed to obtain a description of the students' perceptions. Overall, 85.83% of students are interested in using S-LMS-based evaluations, in accordance with expectations as many as 82.78% of students are able to understand the material discussed because of the discussion in each quiz. In addition to this, students were actively involved in participating in evaluation and learning, as many as 86.94% of students were happy and followed carefully every evaluation activities.

Keywords: *smartphone, learning management system, evaluation media, perceptions, mathematics education.*

1. INTRODUCTION

Education is something that is really needed and needs to be owned by everyone. Education is an effort that is deliberately given by parents, in other words, teachers or educators who are able to create moral responsibility and all their actions [1]. Education always develops the following situations and conditions so that it is not eroded by the times. Currently, technology has developed very rapidly, every line of life has made technology a companion to the progress of something. The use of technology, particularly information technology more effective when applied in education, especially in improving the understanding of basic concepts, in addition to that with the application of technology that is interactive, the students more interested in learning [2].

The development of technologies to be followed by the competence of educators to be able to take advantage of the situation and conditions good. Currently, there are so many technological products, one of which is Smartphones, Smartphones have been used by everyone. Smartphone users in Indonesia are very much dominated by students, this can be seen from the results of [3] who collaborated with Pewresearch Centers in 27 selected countries, the results obtained from this study are that Indonesia is ranked 24th out of 27 countries, with 42 % active smartphone users. In this study, smartphone users were dominated by students aged 15-30 years. Meanwhile, the survey conducted [4] of smartphone users in Indonesia in 2020 was 338.2 million users. The number of active smartphone users is an opportunity for educators, one of these opportunities is to use smartphones as a learning

evaluation medium to support teaching and learning activities.

Currently, the learning evaluation process in schools still uses conventional or manual processes, manual or conventional evaluation is meant by evaluation activities that are still carried out with printed instruments [5]. One of the drawbacks of manual evaluations is that it takes a lot of time to provide scores and feedback from teachers to students. The development of technology is increasingly developing, many solutions are offered to answer the shortcomings of learning evaluation manually, by utilizing wasted time technology to provide scores to students and their feedback, can be used to develop themselves in utilizing learning evaluation media. Conventional learning tends to make learning boring, so that it makes students not creative and developing, this learning style is less liked by students [6]. The need for innovation in the evaluation of student learning outcomes is very important, especially to make learning evaluation not monotonous [7]. One of the evaluation media that can be used is the Smartphone Learning Management System (S-LMS) based evaluation media. The S-LMS evaluation media utilizes the Moodle and appyBuilder application assistance in creating a smartphone version of Moodle and focuses more on the menus needed by students in learning evaluation.

The use of S-LMS-based evaluation media is used because it supports mathematical forms, such as symbols and mathematical forms. By utilizing the S-LMS-based evaluation media, it is hoped that it can help students to be involved in fun evaluation activities, because in the S-LMS Moodle there are many types of evaluations that can be applied that support mathematics subjects. Therefore, the evaluation of mathematics learning can motivate students to do and learn to achieve learning goals.

The method by applying the S-LMS assisted quiz is a new method. As an evaluation of the use of Smartphone Learning Management System (S-LMS) based evaluation media, the writer wants to know the students' perceptions of using the S-LMS-based evaluation application as a quiz on mathematics subjects. Through this article, the author wants to find out whether the use of S-LMS-based evaluation application media is effective enough and provides motivation both in learning and in answering questions on mathematics

2. METHODOLOGY

The method is an organized and well thought out way to achieve what is intended. Meanwhile, this article uses qualitative methods (qualitative research). The qualitative method is a procedure that produces descriptive data in the form of written or spoken words from the observed subject[8].

This article is proposed to determine the perceptions of students in using a smartphone-based evaluation media learning management system (S-LMS). In collecting and expressing the results of students' perceptions obtained, this article was conducted using a descriptive-analytical study approach. Descriptive qualitative is a method based on postpositivism which is used to examine the natural objective conditions in which the researcher is the key instrument[9].

The instrument in this article is used to determine student responses to online quizzes based on the Smartphone Learning Management System (S-LMS) as a learning evaluation medium. The instruments used in this article were questionnaires and interviews. A questionnaire is a data collection method that is carried out by providing a set of questions or written statements to respondents to respond according to user requests [10]. The questionnaire used is the student response questionnaire used to determine student responses, here is an instrument grid for student responses can be seen in table 1

Table 1. Instrument Grid for Student Perceptions of Online Quizzes

Aspects of	Sub Aspects	Indicators of
Benefits of based Evaluation Media S-LMS	Interest	It was my first time using the S-LMS-based online quiz
		I like the appearance of the S-LMS-based online quiz
		I like to use this online quiz because the evaluation is more varied and less boring
		I like to use this online quiz because I can use this online quiz anywhere and anytime
	Focus	Using this online quiz makes it easier for me to know my abilities

	Understanding	The discussion of questions is easy to understand
		The discussion of questions helps me to relearn how to work on questions
	Feedback	Discussion of questions makes it easier for me to find mistakes in answering questions
Involvement in Learning	Challenges	Learning evaluation media encourages my curiosity
	Motivation	Media evaluating lessons encourage me to learn
		The questions given along with the live score are able to motivate to test math skills
	Involvement Student	This evaluation media makes me happy in evaluating mathematics learning

Source: [11]

The data collection procedures were as follow: 1. Making the question about evaluation media, 2. Giving the question to subject, 3. Asking the subject to fill the questionnaire, 4. Collecting the questionnaire, 5. Interview the student. The data obtained from the questionnaire were analyzed, quantitative data obtained from questionnaire are processed using the following calculations:

$$P = F/N \times 100\%$$

Information:

P=Percentage

F=Frequency of respondent's answer

N=Total of respondent's

The results of student responses will be to Describe the questionnaire data, the questionnaire data uses a Likert scale as a measurement scale. The main principle of the Likert scale is to determine the location of a person's position towards an attitude object, from very negative to very positive, the determination of the location is done by quantifying a person's response to the questions or statements provided [10]. The scale used in this article has 5 indicators: 1 (Strongly Disagree), 2 (Disagree), 3 (Undecided), 4 (Agree), 5 (Strongly Agree). The application of this article was carried out at the State Senior High School in Serang City. The subject is a class XI student in the Natural Sciences (IPA) program.

The interview instrument is a process of question and answer or oral dialogue between the interviewer (interviewer) and the respondent or the person being interviewed with the aim of obtaining the information needed by the researcher [10]. In this article, the use of an interview instrument is to support the results of the questionnaire filled out by students. The interview grid used by researchers to interview students can be seen in the table

Table 2. Grid Interview Instruments for Students' Perceptions of Online Quizzes

Aspects of	Indicators
Response to the Use of Learning Evaluation Media	Opinion using online evaluation based on Smartphone Learning Management System (S- LMS)
	The advantages of learning evaluation based on Smartphone Learning Management System (S-LMS)
	Weaknesses of Smartphone Learning Management System (S-LMS) based learning evaluations
	Student motivation when working on Smartphone Learning Management System (S-LMS) based learning evaluations
Expectations about learning evaluation	Suggestions for evaluation is expected to make it easier for students and provide motivation

3. RESULTS AND DISCUSSION

The product of this article are S-LMS-based evaluation media which can be seen in Figure 1.

Figure 1. Product of S-LMS-Based Evaluation Media

In addition to the evaluation media, the results obtained are students' perceptions after using S-LMS-based learning evaluation as a consideration for manual assessment. The results obtained after students are given the questionnaire by the researcher are shown in table 3

Table 3. The results of student responses to evaluation media

Aspects	Sub Aspects	Percentage
Benefits of S-LMS-based Evaluation Media	Interest	85.83%
	Focus	95.56%
	Understanding	82.78%
	Feedback	85.56%
Involvement in Learning	Challenges	83.38%
	Motivation	82.78%
	Student Involvement	98.89%

Media for evaluation teaching materials based on Smartphone Learning Management System (S-LMS) is an application created using Moodle (Modular Object-Oriented Dynamic Learning Environment) and using the help of Appy Builder as a smartphone base. The S-LMS evaluation media is a new thing that is used by students of as 66.6% of students agree and 33.3% of students strongly agree that the use of S-LMS-based evaluation media is something new for students. After conducting interviews with students, they have used evaluation media with the help of Google Form, but with S-

LMS students are given other forms of working on questions, such as matching, connecting, and other interactive questions. This makes students interested in doing quizzes in a fun way.

Overall student interest in learning evaluation media was 85.83%, student felt comfortable with the aplications, but some student less comfortable with the size of the application on their cellphones because their cellphones were large so it is necessary to adjust the learning evaluation media. The result of interview about less comfortable with the evaluation media can be seen in the following except.

> "I think the media is good, but some pictures does not fit with my phone, but when I look it on my friend's cellphone, it is nice and more suitable."(S2)(Interview, Translate Versions)

These are suggestions for improvements to make the application even better. The application of S-LMS-based learning evaluation media makes students more focused on knowing their ability to understand linear program material, especially the use of images as a support for solving questions, it can be seen that 77.78% of students strongly agree that students find it easier to know their ability to do questions. While students' understanding of the material given as a whole was 82.78% of students understood the material, this was because after the evaluation, students were given a discussion of the questions. Discussion of questions if they do not understand, students get an explanation in class. The result of interview about advantage of evaluation media can be seen in the following except

> "It's the first time I'm using online media evaluation, I could use it anywhere also learning at home easily, if I found a confusing material, I could ask the teacher using the application in live chat." (S1)(Interview, Translate Versions)

In its application, students work on linear program questions and provide feedback. Quizzes given by students during learning are one way to find out students' understanding of linear program material. The teacher in knowing the process of understanding students is very important to know the extent to which students capture the material given. With this evaluation, students can provide feedback by working on the questions given to the

quiz. Meanwhile, the S-LMS evaluation media provides feedback in the form of correct answers and discussion so that students know the errors in answering the questions. This feedback has been received by students as much as 85.56% as a whole.

The concept of learning evaluation media is to obtain learning objectives. The S-LMS-based evaluation media provides various quizzes, and the results of the quiz are transparent so that you can directly see the results of the work on quiz questions. This makes students want to get the best score, so that students feel challenged to work on questions, both combining, matching, and multiple-choice questions. As many as 83.33% of students felt challenged by the given quiz. Because of this, it motivates students to do deeper linear learning, as many as 82.78% of students feel motivated in learning and test their understanding of linear programs. The result of interview about student's feel with the evaluation media can be seen in the following except

"It is more interesting rather than usually I take a test with old way, commonly I have to take a paper and need more time if the paper runs out or I have to ask my friend, also the test is not only multiple choice and essay but also need to match a formula and the answer."
(S11)(Interview, Translate Versions)

With S-LMS based learning evaluation media students can make students involved with learning, this is because the quiz is not only multiple choice questions, but there are matching questions and questions combining definitions and meanings. With the small game in the quiz, it makes students interact with the given evaluation media. This can be seen from the number of students who enjoy evaluating mathematics learning, as many as 98.89% of students are happy to be involved in evaluating mathematics learning.

4. CONCLUSION

Based on the results above, it can be concluded that students' perceptions of evaluation media based on Smartphone Learning Management System (S-LMS) is very good and effective for the evaluation of students, the evaluation media using S-LMS can help and motivate students to solve the problem. Evaluation media based on Smartphone Learning Management System (S-LMS) has a high potential if it used continuously. On the point of that, students are interested with the evaluation media,

based on students perception and questionaire, it is known that 85.83% students agree and strongly agree if the evaluation media can be used as evaluation at school.

REFERENCES

[1] M. Syah, *Psikologi Pendidikan Dengan Pendekatan Baru*. Bandung: PT. Remaja Rosdakarya, 2007.

[2] N. A. Zakaria and F. Khalid, "The Benefits and Constraints of the Use of Information and Communication Technology (ICT) in Teaching Mathematics," *Creat. Educ.*, vol. 07, no. 11, pp. 1537–1544, 2016.

[3] K. Taylor, "Smartphone Ownership is Growing Rapidly Around the World, but Not Always Equally," *Pew Research Center*, 2019. [Online]. Available: https://www.pewresearch.org/global/wp-content/uploads/sites/2/2019/02/Pew-Research-Center_Global-Technology-Use-2018_2019-02-05.pdf.

[4] Detikinet, "Riset: Ada 175,2 Juta Pengguna Internet di Indonesia," 2020. [Online]. Available: https://inet.detik.com/cyberlife/d-4907674/riset-ada-1752-juta-pengguna-internet-di-indonesia.

[5] C. K. Dewi, "Pengembangan Alat Evaluasi Menggunakan Aplikasi Kahoot Pada Pembelajaran Matematika Kelas X," Universitas Islam Negeri Raden Intan Lampung, 2018.

[6] S. A. Licorish, H. E. Owen, B. Daniel, and J. L. George, "Student perception Kahoot," *Res. Pract. Technol. Enhanc. Learn.*, vol. 13, no. 9, pp. 1–24, 2018.

[7] A. D. Yasa, "Pengembangan E-Evaluation Berbasis Aplikasi Hot Potatoes Untuk Siswa Kelas V Sekolah Dasar," *J. Ilm. Sekol. Dasar*, vol. 4, no. 1, p. 26, 2020.

[8] L. J. Moleong, *Metodologi Penelitian Kualitatif Edisi Revisi*. Bandung: PT. Remaja Rosdakarya, 2011.

[9] Sugiyono, *Metode Penelitian Kuantitatif, Kualitatif dan R&D*. Bandung: Alfabeta, 2008.

[10] E. P. Widoyoko, *Teknik Penyusunan Instrumen Penelitian*. Yogyakarta: Pustaka Pelajar, 2012.

[11] M. N. Azizah, "Pengembangan Media Evaluasi Pembelajaran Matematika Berbantu Smartphone Learning Management System (S-LMS) di SMA," Universitas Sultan Ageng Tirtayasa, 2019.