Development of Mentimeter-Based E-LKPD on Data Presentation Materials in Elementary Schools

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ABSTRACT
Current learning is inseparable from the use of information technology. Teacher skills are needed to create an interactive learning environment that can motivate and improve student learning outcomes. The interactive media that can be used is the Mentimeter-based E-LKPD. The research aims to develop a meter-based E-LKPD on data presentation material in grade V elementary schools. The research methodology for R & D uses the ADDIE model. The research results were validated by experts, namely media experts, linguists, and material experts. The results of the validation by media experts were 82.85%, and the criteria were very applicable, the results of the validation by linguists were 84%, the criteria were applicable, and the results of validation by material experts were 95%, the criteria were very applicable. This shows that the Mentimeter-based E-LKPD is feasible to use without any revisions. The results of the student questionnaire reached a percentage of 90.21% with very good criteria. The learning outcomes obtained an N-Gain score of 73, and the completeness of the learning outcomes obtained was 100%. It can be concluded that the development of Mentimeter-based E-LKPD is feasible to use and can improve student learning outcomes.

Keywords: *E-LKPD, Mentimeter, Elementary School*

1. INTRODUCTION

Mathematics is a learning that is rarely learned by students, for this reason suitable learning models and media are needed so that students can think about wistek verandak can be. There are so many students that it is difficult for them to understand the material in the material in which it is difficult to understand. Nor learning content must be carefully considered in an interesting and meaningful process learned words. In addition, the word student-centered learning is an innovation in learning [1]. The process of learning mathematics subjects leads to increased higher-order thinking skills, such as: critical thinking, problem-solving skills, creative thinking [2];[3];[4];[5] This increase in ability will be realized if the learning process is carried out with an approach that is able to build an interesting and meaningful atmosphere and facilitate students to be actively involved directly in learning activities.[6] Learning media has a very large influence on improving students' learning outcomes. This is because the media plays a role in helping the teacher as a transmitter of messages that are abstract in nature to be more concrete, making it easier for students to understand [7];[8]. However, there are exceptions to this. Teachers' attitudes toward technology and their willingness to use technological tools in the classroom do not always align with their pedagogical beliefs [9]. The existing media did not facilitate students to discover the concepts taught on their own which could stimulate students' creativity [10]. Research mentions several problems in the process of learning mathematics content, namely: 1) the learning process takes place less meaningfully; 2) the teacher dominates the learning process with lectures; 3) the limitations of learning media that are consistent with the characteristics of students and the topic of discussion [11];[12];[13].

Multimodal learning is an option because it is considered in line with current trends and conditions. The added value of multimodal learning is that it sharpens students to learn to read a message and then convey it. It can be said that they learn to understand the process of communication. In addition, they are also directed to think critically in understanding a message that is received. Mentimeter, can be used by teachers if they want to hold

interactions and train cooperation with their students. He can directly find out the reactions of answers from students. The teacher can give questions or statements that must be answered directly [14].

Mentimeter is a very easy-to-use presentation software. Mentimeter can be used as a remote work tool, making presentations fun and interactive. With the meter, presentations, lectures and teaching become more innovative and memorable [15]. Metimeter is very easy, because only with a smartphone, we can access this application. Then, before starting to make presentations using meter media, a person will measure the material to be presented carefully so that it will be interesting and interactive. The teacher must also be smart in selecting the features that will be in accordance with each other while learning will remain happy regardless of what is in it [16].

Mentimeter is a Swedish company based in Stockholm that develops and maintains the application of the same name used to create presentations with real-time feedback. This application was originally initiated by a businessman named Johnny Warstrom in response to a meeting that was not conducive. This app also focuses on online collaboration for the education sector allowing students or community members to answer questions anonymously. With this Mediamentimeter, users can share knowledge and feedback anytime with presentations, brainstorming, meetings, gatherings, conferences or other group activities. [16] mentimeter has features that can increase engagement, impression, and captivate audiences, including: 1. Make beautiful interactive presentations through aanbieding bouer. 2. Collect polls, data, and student opinions using smart devices (slimfoon of tablets) anonymously. 3.13 interactive question types including wordwolke en vasvra. 4.Integrated free game Unsplash en GIF library. 5.filter profanity neem words in various languages. 6. Export the presentation to PDF format [14].

Menimeter media helps active participation of students in learning, it is expected to increase student learning outcomes. Menimeter learning media is visual media and is a software media that functions to channel messages from senders to receivers online [17] Menimeter can be used to ascertain the prior knowledge and expectations of students. At the end of the lesson it can be used to assess students' opinions about their learning and collect questions about the material. The meter can be useful for assignments. learners can be asked to share assignment topic ideas or share their thoughts on sample assignments. Because responses are anonymous, meter creates a safe space for students to ask questions or provide suggestions [18].

E-LKPD is onderrigmateriaal in die vorm van studentewerkkaarte wat elektronies verpak is [19]. E-LKPD which aims to facilitate students in carrying out assignments given by the teacher and makes it easier for teachers to evaluate students. This teaching material in the form of an E-LKPD can create students' interest and interest in learning [20];[10];[21].

Formulation of the problem :

a. What is the feasibility of developing a meter-based E-LKPD in data presentation material in elementary schools?
b. How effective is the development of the meter-based E-LKPD in data presentation material in elementary schools?

2. METHODOLOGY

This research is a Research and Development development research (R&D) with the ADDIE model (analysis, design, development, implementation, evaluation)[22]. The purpose of this research is to develop a product in the form of an online-based fraction material LKPD and test the feasibility of learning media, which this product is used in learning mathematics fraction material for class V SDN Lawang Gintung 1 Bogor City. This test was carried out to obtain data and information whether the LKPD for online-based fraction material mathematics lessons for grade V is appropriate for use in learning activities. The stages and chart images of the 4D model can be seen in Figure 1. The analysis stage is carried out by analyzing needs, analyzing curriculum, analyzing media. Needs analysis is carried out with the aim of knowing the needs of students and teachers during the learning process. Needs analysis was carried out by distributing questionnaires to fifth grade teachers in elementary schools regarding media that is suitable for online learning in elementary schools. In the curriculum analysis, it was carried out by studying the sylabus, IC, KD, and indicators on the topic of fractions for fifth grade elementary school students in the student book. The results of the analysis are used as a reference for developing material in the E-LKPD. Furthermore, media analysis is carried out to collect information on good and useful media criteria, so that it can be used as a reference in research and is useful, and needs analysis is carried out aiming to find out the needs of students and teachers during the learning process. After the analysis is carried out, the next step is the design. This stage aims to design media based on the analysis that has been

carried out before. The process of making an E-LKPD starts with selecting the paper size, designing the design, materials, and questions using the Canva application, then saving it in PDF form, followed by the process of uploading the file to the ministry and editing it into text, video, audio and answer keys from existing questions. The media development stage can be made according to the results of the design and has also been consulted with the supervising lecturer, if the media has been developed, then it can proceed to the assessment stage through an assessment test from media experts, language experts and material experts as well as students' responses to conduct an E review -LKPD that has been developed. The implementation stage results from the development are applied during the learning process to find out how the effect of the effectiveness, attractiveness, and efficiency of learning using the meter-based E-LKPD has been developed. The evaluation stage is the last stage, this stage is carried out objectively to determine the quality of the LKPD media and to find out whether the E-LKPD media that has been developed can significantly affect student learning outcomes. Assessment is done by using pretest and posttest.

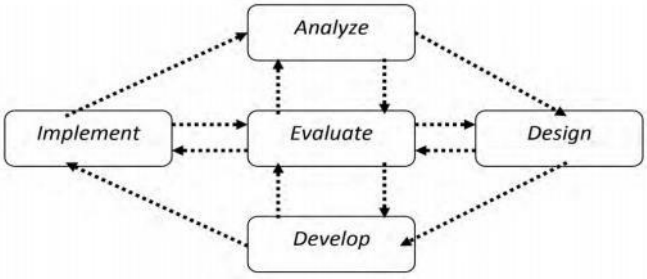


Figure 1. Bagan Model 4D

The subjects in this developmental research were qualified experts in their respective fields, and the experts included 2 material experts, 2 media experts, and 25 students. In addition, the data collection method was conducted using the questionnaire method, which involved providing a list of questions or statements to the respondents. While the instrument used in this study is a rating scale. The developed instruments then go through the validity test phase. The validity test was conducted using the alpha Cronbach formula to determine the degree of validity of the instrument. After collecting data using these instruments, data analysis was conducted using qualitative descriptive analysis techniques and quantitative descriptive analysis techniques. Qualitative data is in the form of suggestions and comments during the expert review stage, then improvements are made from this data by developing the media in accordance with the suggestions and comments that have been given improvements so that it becomes even better. Quantitative data is obtained in the expert review phase in the form of a score on the assessment sheet, then the data is averaged using the mean formula to obtain the validity results of the developed media. After obtaining the average, it is then converted to Scale 5 achievement level with a conversion table.

Excess :

a. Mentimeter media can involve students in presentations and increase student activity.
b. Makes it easy to participate in presentations easily, without installing additional applications or software.
c. Media Mentimeter has a variety of more interesting features, such as images, videos, text, and graphics.
d. Media Mentimeter can be integrated with several presentation applications such as PowerPoint, Google Slides, and Keynote.

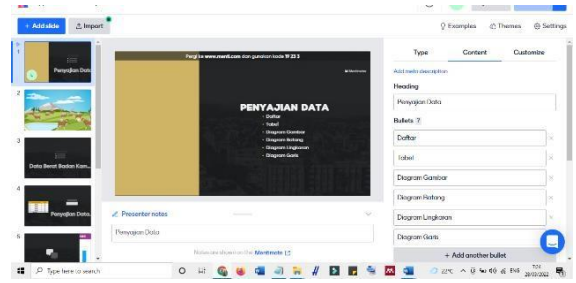
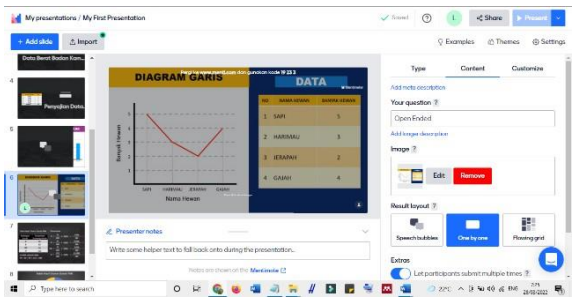
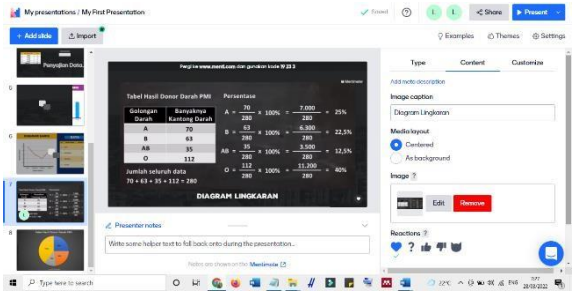
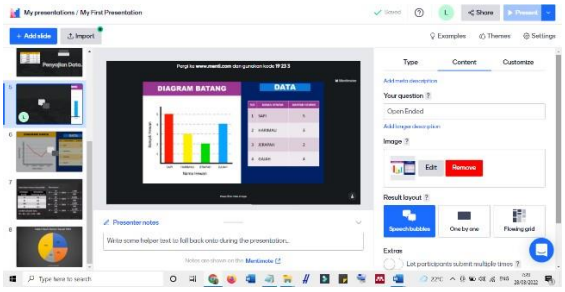
3. RESULTS AND DISCUSSION

a. Analays

1) Analysis of the curriculum which consists of analysis of KI and KD which includes KI and KD of knowledge, skills and attitudes.
2) Analysis of student characteristics is carried out to determine student needs. Based on the results of observations and interviews, students felt bored because the LKPD used was printed.
3) Analysis of the LKPD used in schools aims to determine the strengths and weaknesses of the available

LKPD. Based on the results of the analysis, it was found that the LKPD used was still printed and the LKPD used was only from the publisher

b. Desain

Material	Media Design	Manufacturing and Usage Steps
Mathematics Presentation of data in the form of tables, pictograms, line charts, bar charts, and pie charts.	   	**Ways of making:** 1. Access mentimeter with the address mentimeter.com and register by clicking sign up. If you have a Gmail account, please sign up with a Google account to make it easier, then select the Gmail account to use. 2. Select the destination using the meter and click Get Started 3. Next, select a plan using minutes, whether it's free or paid. If you want free, click continue with free 4. Then it will go to the page to start making the presentation. Just click New Presentation 5. When you click new presentation, a will page opensslide to start making a presentation or survey 6. 6. In this view, you can start filling in the first slide by selecting what types of questions to ask the participants. 7. To use the free meter, we are only limited to making two questions. If you have finished creating questions for slide 1, please click Add Slide to create questions on slide 2 8. If you have completed the two questions that will be given to students or training participants, then the next step is to convey the link with the meter code that we created to the participants so that they can fill out the survey that we will provide. 9. How to click share thena link will appear, just copy the link and share it with students or trainees via the chat column if you are online with online applications such as zoom, google meet or others.

Material	Media Design	Manufacturing and Usage Steps
		How to use : 1. Provide a laptop, cellphone, then click on the meter link that has been shared by the teacher in the WhatsApp group or enter the code. 2. Students and teachers conduct questions and answers on the media meterimeter image.

c. Development

The third stage is the development stage, this stage is carried out after making the initial design of the Liveworksheet-based E-LKPD on theme 1 sub-theme 1. At this stage validation is carried out to experts consisting of two lecturers and one class teacher. This validation was carried out to determine the eligibility of the E-LKPD in terms of content, appearance and discussion. At this stage comments and suggestions from experts are needed to improve the E-LKPD product that is made. The results of the suggestions given are then corrected.

1) The first change is the addition of LKPD identities such as classes, themes, sub-themes, learning objectives, KD and indicators as well as instructions for using E-LKPD based mentimeter
2) In the listening activity, the background is changed so that each page has the same background.

Linguists provide assessments, comments and suggestions for this mentimeter-based E-LKPD. Aspects assessed include conformity with the rules of language. linguists on mentimeter-based E-LKPD, which can be described as follows.

1) Using language that is not convoluted, it is good in using language
2) Using simple sentences, clear and in accordance with the characteristics of students
3) Presenting clear information, the information presented is clear and understood by students
4) Using language that is easy for students to understand, the language used is very good and easy for students to understand
5) Can make students motivated in learning, E-LKPD is very good for making students motivated in learning
6) Using language with student characteristics, it is already good in using language
7) The accuracy of the use of symbols and punctuation marks is good in the use of symbols and punctuation marks
8) The accuracy of the use of spelling, the use of spelling is good enough
9) Using effective and efficient language is good enough
10) Using good and correct Indonesian, it is enough to use Indonesian properly and correctly.

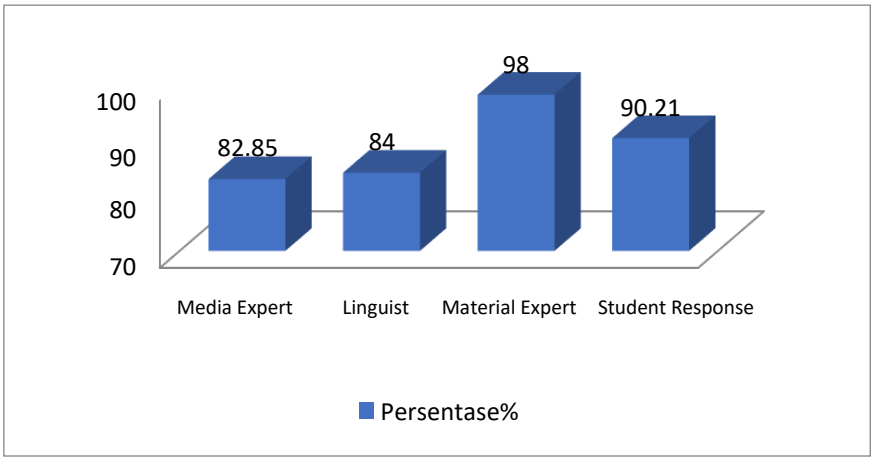
d. Implementation

At the implementation stage, product trials were carried out on students during learning, the learning process was fully carried out in the classroom. The activities carried out during the learning process included preliminary activities, group division and giving a mentimeter-based E-LKPD link to each group. In this activity each group was asked to fill in everything in the mentimeter-based E-LKPD, starting from listening activities students were asked to listen to the learning videos that had been displayed and then students filled in the questions in the E-LKPD.

e. Evaluation

The results of the student questionnaire reached a percentage of 90.21% with very good criteria. it can be

concluded that there is a positive effect of the use of the meter-based E-LKPD on mathematics learning outcomes in class V data presentation material at SDN Lawang Gintung 1 Bogor City achieving pre-test results of 47 and post-test of 88 while the average N-Gain score is 73 , completeness of learning outcomes obtained after carrying out the development of 100%. The results of student answers show that the average percentage of scores given by students is 90.21%. Based on this, it can be concluded that the development of meter-based E-LKPD is feasible, effective and can improve student learning outcomes.



4. CONCLUSION

Based on the explanation above The results of the validation by media experts were 82.85%, and the criteria were very applicable, the results of the validation by linguists were 84%, the criteria were applicable, and the results of validation by material experts were 95%, the criteria were very applicable. This shows that the Mentimeter-based E-LKPD is feasible to use without any revisions. The results of the student questionnaire reached a percentage of 90.21% with very good criteria. The learning outcomes obtained an N-Gain score of 73, and the completeness of the learning outcomes obtained was 100%. It can be concluded that the development of Mentimeter-based E-LKPD is feasible to use and can improve student learning outcomes.

5. AUTHORS' CONTRIBUTIONS

Various research on the development of LKPD on lesson content in elementary schools [24];[25];[26];[27];[28]; much has been done, but the development of LKPD in learning does not lead to mathematics in elementary schools, so researchers are interested in researching LKPD to develop mentimeter-based E-LKPD by taking fractional material in mathematics in grade V. In this study developed E-LKPD based mentimeter which has several advantages, namely: 1) E-LKPD is developed online (website); 2) equipped with video, sound and images that make it easier for students to visualize abstract material, 3) has an attractive appearance; and 4) the value of student work will be given immediately after students complete the practice questions. The purpose of developing this media is to produce validated learning media. Furthermore, it is hoped that the developed media can be applied in every school through validated media and can have a significant impact on improving student learning outcomes..

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