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E-LKPD Interactive For Operate Progam *Maple*

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***Abstract*:**
There is no complete guide to operating the maple program that supports learning, so teaching materials are needed that are not only in the form of text and image displays, but are equipped with explanatory videos. This research aims to produce an interactive E- LKPD product for operating the maple program that is feasible and effective. The type of research used is the 4-D development model. This research was conducted at Pringsewu Muhammadiyah University with the subject of Mathematics Education Students in semester 5. The data collection techniques used were validation sheets, student activity sheets, questionnaires and tests. The results of this research show that the interactive E-LKPD for operating the maple program meets the eligibility category criteria, namely ≥ 61% and meets the effectiveness criteria, namely ≥ 61%. The average percentage of feasibility assessments obtained was 92%, student activities obtained an average score of 83%, active students obtained and positive student responses obtained an average score of 81.5% and student learning outcomes obtained an average score of 78.57% were completed. . Based on the feasibility and effectiveness validation results, it can be concluded that the interactive E-LKPD product for operating the maple program meets the criteria for feasibility and effectiveness.

Keywords: maple program, interactive E-LKPD, 4-D development model.

Introduction

Learning using the *Maple program* can train students' skills in understanding learning materials, so that they achieve... completeness in Study in a way fast. Use program *Maple* will make it easier educator in convey learning materials especially which deals with calculations without requiring complicated work steps, manufacturing chart, And picture. *Maple* program that should be able to help students find mathematical solutions easily and quickly without having to get caught up in the difficulties or complexities of mathematical computation.

Test results to semester students 6 that have been complete *Maple program material* The results showed that 15 students were unable to run the *Maple program* without guidance or video tutorials. This condition may be caused by online lectures so that lecturer No know whether student capable operate *Maple* program with the help of other students or watching video tutorials on YouTube when running it and students are lazy to find learning resources so they find it difficult to master the material they are studying. Students want to learn comfortably and can master the *maple program* well. Lack of student awareness in doing assignments given by

lecturers. Lecturer creativity is an important thing in increasing student interest in learning. In the teaching and learning process, without student activity in learning, maximum results will not be achieved. Often found in individuals who are lazy to study if there are no tests or if there are no assignments from the campus.

Seeing this situation, it is necessary to have teaching materials that are needed by students that can be used as a guide in operating the *Maple program* which is presented in the form of E-LKPD (Electronic Participant Worksheets). According to Maifit Hendriani & Joy Ultra The Lord (2022) E-LKPD is a teaching material that can be run using a computer or even a cellphone. and also smartphones that can load videos and other animated content, so that more interesting And more near with participant educate.

Learning program *maple* use E-LKPD Interactive assisted *flip professional pdf* can in progress interactive Because in inside will There is program learning video *Maple* which is interesting and not monotonous, and there will be exercise question Which can done by student as *assessment for learning*. Based on exposure on, so required development material teach in the form of E-LKPD assisted by *Flip PDF* application *Professional* as a means of student learning in optimizing program learning *Maple* . To answer these needs, the aim of this research is to produce E-LKPD Interactive For Operating Program *Maple* Which worthy, practical, And effective.

Research conducted by Ainun, AM, (2019) with the title "Development of *Maple Software -Assisted Teaching Materials* in Calculus I Courses". The results of this study were obtained that (1) The validation results for teaching materials and all research instruments were 4.8, which means that the teaching materials And instrument the is at on category very valid Because is at at interval $4.3 \leq p \leq 5$, (2) Practical, Average of all aspects on the implementation sheet material teach is 1.96 is at on Category implemented all because it is in the range of $1.5 \leq p \leq 2$. In addition, the percentage of student response questionnaires for all aspects was 95.5%, (3) Effective, student learning outcomes showed that out of 38 students, 32 students met the requirements. criteria completeness with percentage 84.21% And 15.78% is at in the incomplete category.

In addition, the results of observations of student activities obtained that the average student activity using teaching materials assisted by *maple software* was 84.21% where the results of the analysis were in the very good category because the value was in the range of $80 \leq p \leq 100$. So it can be concluded that at the trial stage that has been carried out, the development of teaching materials assisted by *maple software* in the calculus I course for students of the Mathematics Education Department, Faculty of Tarbiyah and Teacher Training, UIN Alauddin Makassar has met the criteria of validity, practicality, and effectiveness . While the difference lies in the type of research where previous research only focused on calculus material in the subject calculus 1 lectures, while researchers now cover broader material, not just calculus, which produces teaching materials in the form of Interactive E-LKPD as a guide to operating the *Maple program*.

Research Methods

This type of research is Research and Development which refers to stage channel from Thiagarajan or *4-D* Which consists of from 4 stages that is *define, design, develop* and *disseminate.* At the *define stage* , namely identifying and analyzing the needs in the process and collecting various related information. product Which will developed. After get problem from *define* stage , then the *design stage is carried out* . At this stage the aim is to design teaching materials that can be used for *maple learning* . Next, the *development* stage aims to produce revised teaching materials based on experts. Expert validation is used to validate learning media and communication, *design,* materials and users. The results of this stage are in the form of revised E-LKPD. After the validity test, product trial, and instrument has revised, stage next is *disseminate* . Stages This aims to disseminate E-LKPD so that it can be utilized by users. The distribution of E-LKPD is carried out on a limited basis to students of Muhammadiyah University of Pringsewu.

After get results validation Which done by validator then analyzed to test the feasibility of the teaching materials by referring to the Evaluation Instrument Media Learning (Chaeruman, 2019) Which state that The media is said to be suitable if the substance of the material is correct and there are no conceptual errors and the average assessment of other aspects, namely learning design, media and communication learning as well as user (Teacher) reach average more from or equal to 3.00 from a scale range of 1-5. The data obtained through validation activities are then calculated using the following percentage formula :

$$P = \frac{f}{N} \times 100\%$$

Information:

P = Percentage

f = frequency that will be searched the percentage

N = Number of frequencies

Then For see criteria eligibility can seen on the following table :

Table 1. Criteria Descriptive Eligibility Material Teach

Interval ***P*** **(%)**	**Interpretation**
81 – 100	Very Worth It
61 – 80	Worthy
41 – 60	Quite Decent
21 – 40	Not feasible
0 – 20	Very No Worthy

Material teach it is said worthy If acquisition percentage eligibility is at on the criteria of feasible and very feasible. In other words, teaching materials are said to be

feasible if the percentage of feasibility is ≥ 61% (Asyhari & Silvia, 2016).The instrument used to test the effectiveness of teaching materials is an activity observation instrument in learning adopted from (Trianto Ibnu Badar Al Tabany, 2017:368-369), a response questionnaire adopted from (Sahriana, PR 2020). The percentage category for the effectiveness of teaching materials can be seen in the following table:

Table 2. Criteria Effectiveness

Interval P (%)	Interpretation
81 – 100	Very Good
61 – 80	Good
41 – 60	Enough
21 – 40	No Good
0 – 20	Very No Good

Teaching materials it is said effective if the percentage of student activity is in the good and very good criteria. In other words, the teaching material is said to be effective If acquisition percentage effectiveness ≥ 61% (Riduwan & Mr. Sunarto, 2012). Then test results Study student it is said finished study it (completeness in a way classical) If in class the there is ≥ 75% student has completed his studies from the KKM value that has been set, namely 70 (Trianto, 2010: 241). Previously test validated moreover formerly by expert material, And The lecturer of Mathematics Education at Muhammadiyah University of Pringsewu then conducted a validity and reliability test to determine whether the test questions were valid and reliable.

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Results and Discussions

The product that will be produced is an interactive E-LKPD to operate the *Maple program* which can be accessed via *the web* . The benefits of E-LKPD can be used as teaching materials for lecturers and can be used as a source of independent learning by students.

The first stage of this research is *define.* At this stage the researcher looks for data beginning through interview to lecturer And observation. Based on the interview results, it was obtained information that there is no complete guide on how to work on math problems using the *maple program* so that students cannot learn independently because there are no adequate teaching materials. students are also provided with *cellphones, laptops, PCs* and campus internet in the form of *wifi* that *supports* access to interactive E-LKPD.

The next stage is *design* . At this stage, the researcher designs the teaching materials that will be developed according to the needs of students, namely in the form of interactive E-LKPD to operate the *maple program* . The selection of formats is used to select the type of font, selection of materials and combination design Which will used, design beginning material teach selection of E-LKPD manuscript writing from front cover to back cover. preparation of product feasibility and product

effectiveness instruments.

Stage *development* . On stage This researcher do compilation to the material teach E-LKPD, furthermore done validation by expert until produce materials teach Which worthy. Then after stated worthy, so material teach can be used in learning. The following are the results of the assessment scores from the experts:

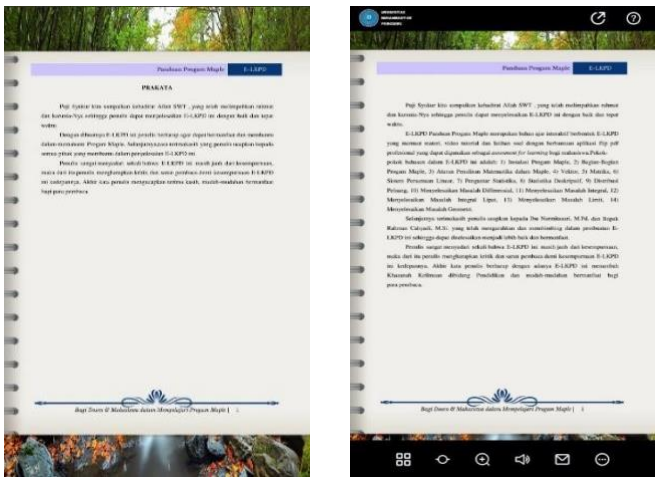
Table 3. Results Validation E-LKPD By Expert

No.	Expert	Average	Percentage	Information
1	Expert Media and Learning Communication	4.5	90%	Display content fix E- LKPD
2	Expert *design* Learning	4.8	96%	-
3	Expert Material	4.6	93%	-
4	User (Lecturer)	4.6	92%	-
	Average	4.6	92%	

Based on Table 3 can be known assessment stage teaching materials by four experts, the results of the analysis of each expert were obtained with an average of 4.5 or 90% for the expert Media And Communication Learning, 4.8 or 96% *design* Learning, 4.6 or 93% for material experts, 4.6 or 92% for users (lecturers). Then, the average of the data analysis results from each expert's assessment sheet was calculated on average and a score of 4.6 or 92% was obtained or in the descriptive criteria of teaching materials it was stated as very feasible.

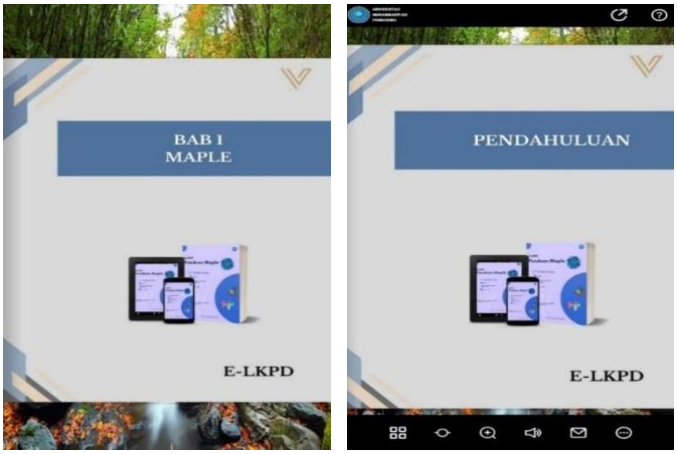
However, in the assessment of teaching materials there is several revisions to the teaching materials, here is a look at the product before and after revision:

1. Repair on say introduction added saying Thank You



Picture 1. Before revision And after revision

2. Repair on *cover* CHAPTER 1 replaced be the introduction



Picture 2. Before revision And after revision

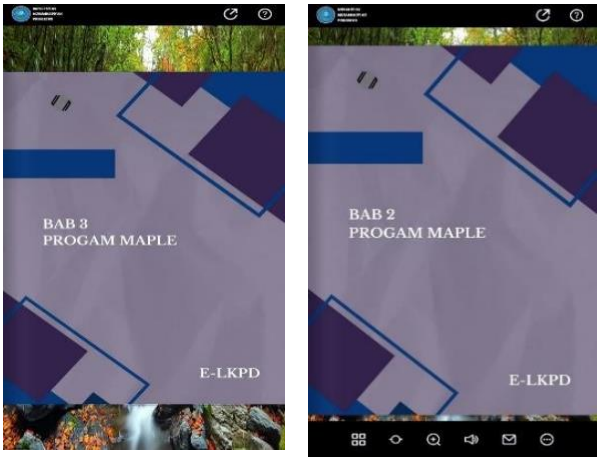
3. Repair on Contents CHAPTER 1 that is No need using *numbering* and it is necessary to add explanations and images related to the *maple program*

Picture 3. Before revision And after revision

4. Repair on *the cover* CHAPTER 2 become CHAPTER 1

Picture 2. Before revision And after revision

5. Repair on *the cover* CHAPTER 3 become CHAPTER 2



Picture 3. Before revision And after revision

6. Repair on *the cover* CHAPTER 4 become CHAPTER 3

Picture 4. Before revision And after revision

After being declared valid and there are no revisions by media and communication experts learning, so obtained product *final* in the form of E-LKPD assisted interactive *flip pdf professional* And material teach ELKPD can accessed wherever and whenever, here is the Interactive E-LKPD link to operate *maple:* https://online.flipbuilder.com/mnafv/ashb/ .

The next stage is to test the effectiveness of the interactive E-LKPD to operate the *maple program.* Based on the student learning activity sheet obtained score average 83% student active in learning and response student obtained score average 81.5% as well as test results Study Students obtained a score of 78.57% completion. The last stage is *disseminate* . Due to the time and cost of research, the distribution of interactive E-LKPD teaching materials to operate the *maple program* will be carried out limitedly to students of Muhammadiyah University of Pringsewu.

Conclusions and Suggestions

Based on the results and discussion, a conclusion was obtained from the feasibility and effectiveness test calculations where the average value obtained from

the four evaluators was 4.6. Which where has achieve the minimum average of the value scale range 1-5. Besides That, based on activity student obtained score average 83% and the student response obtained an average score of 81.5% and student learning outcomes obtained score 78.57% complete. So that can concluded material teach interactive E-LKPD to operate the *maple program* which has been proven to be feasible and effective for use in learning.

References

Ainun, AM, (2019). Development of Maple Software-Assisted Teaching Materials on Eye Studying Calculus I Student Major Mathematics Education. UIN Alauddin Makassar.

Al-Tabani, Trianto Ibn Badr. (2017). Designing Model Learning Innovative, Progressive, and Contextual. Jakarta: Kencana.

Asyhari, A., & Silvia, H. (2016). Development of Learning Media in the Form of Bulletins in the Form of Pocket Books for Integrated Science Learning. Al-Biruni Physics Education Scientific Journal.

Maifit Hendriani, & Meria Ultra Gusteti. (2022). Validity of Electronic LKPD Based on Integrated Problems of Self-Confidence Character Values for Elementary School Mathematics Problem Solving Skills in the Digital Era.

Riduwan & Sunarto. (2012). Introduction to Statistics for Educational, Social, Economic, Communication, and Business Research. Bandung: Alfabeta.

Sahriana, P. R. (2020). Story Of Math: Development Serious Games Learning By Doing Oriented Learning of Time Unit Conversion for Grade 3 Elementary School Students: Doctoral dissertation, Ganesha University of Education.

Trianto. (2010). " *Designing Progressive Innovative Learning Models, Basic Concepts, and Their Implementation in the School Level Curriculum (KTSP)* ". 1st edn. Jakarta: Kencana Prenada Media Group.

Uwes Anise Chaeruman. (2019). Instrument Evaluation of Teaching Materials.