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Development of E-LKPD through a Problem-Based Learning Approach for Improving Student Learning Motivation at SMK Negeri 1 Pogalan Trenggalek

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ABSTRACT

Technological developments in the modern era make educators required to develop interactive and innovative learning media. This study aims to produce an E-LKPD product with a Problem-Based Learning (PBL) approach in Public Relations & Protocol Subjects, to determine the feasibility of the product and to determine the difference in the average learning motivation of students in the class before and after using the E-LKPD product. The method used in this study is the modified Borg and Gall model. The results of the validation by experts and small group user trials showed that the E-LKPD with the PBL approach that was developed was declared to be very valid and effective for use in learning. The results of the percentage calculation show that there are differences in learning motivation before and after using the E-LKPD product, where students after using the product experienced a significant increase in learning motivation compared to those before using the E-LKPD product

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1. INTRODUCTION

The use of technological devices in the 21st century is now a basic requirement to support the effectiveness and quality of the educational process. Education in Indonesia itself is growing rapidly day by day. It can be seen from the learning process, the average has used technological devices. This technological advancement can have both good and negative implications, especially in the field of education and the young generation of the country (Churiyah et al.,

2020). The use of technology in the world of education strongly supports the learning process such as the use of learning media, administrative tools, learning resources, and other activities to be able to provide a good learning experience for students (Lestari et al., 2018). The use of technological devices in learning is not a luxury but an essential requirement in learning. Educators must be able to present the contents of learning materials in innovative interactive learning media (Fitra & Maksum, 2021). Therefore, educators are encouraged to develop learning media products that were originally conventional-based to electronic-based (Basuki et al., 2020). Like the Electronic Student Worksheet (Elektronik Lembar Kerja Peserta Didik (E-LKPD) which has utilized electronic media in the learning process.

According to Crisp (2011: 5) in his book entitled "Teacher's Handbook on E-Assessment" states that Electronic Student Worksheets or (Elektronik Lembar Kerja Peserta Didik) E-LKPD are electronic assessments starting from storing, sending assessment tasks, responding to student values or feedback involving the use of digital devices. Santos et al. argued that digital devices offer the possibility of using simulations, managing large amounts of the latest information, and increasing interaction in learning to make students more involved in the evaluation process (Sahidu et al., 2017). In line with Sorensen's opinion that evaluation with an online system makes evaluation more efficient in terms of time, funds, and achievement of evaluation objectives (Sahidu et al., 2017). It can be concluded that learning evaluation such as electronic assessment is better than conventional assessment which still uses paper and stationery in its use. Not only learning evaluation is considered, but the approach of giving the right evaluation questions can also have a significant impact on the achievement of the competency goals of the students.

The right approach to use in 21st-century learning is a problem-based approach or Problem-Based Learning (PBL). Problem-Based Learning is an approach that uses existing problems in the field to think critically and problem-solving skills to gain knowledge and basic concepts from the subject matter in schools (Lidinillah, 2013). Because it is often faced with problems in the field, making the PBL approach is much favored by educators in the modern era to support 21st-century learning.

According to Widiyati et al., (2015) students' problem-solving abilities and ways of thinking experience differences after applying the PBL approach which makes this approach more frequently used. The PBL approach focuses on how to solve problems, while other methods only focus on theory and do not necessarily use problems in the field. In line with Syamsidah & Suryani (2018) that the PBL approach is very suitable for vocational education students who are more required to have stronger expertise and skills because vocational education is oriented towards psychomotor development which demands more practice than just theory.

The results of interviews with the Public Relations & Protocol teacher at Pogalan 1 Public Vocational School, Trenggalek, found that learning evaluations such as the E-LKPD at SMK Negeri 1 Pogalan, Trenggalek, especially in Public Relations & Protocol subjects, class XII OTKP, still use Whatsapp Groups and Google Forms as well as approaches to evaluation questions have not used case studies, and based on the results of interviews with students stated that with the evaluation of essay tests that require students to memorize material only, so this makes students bored because they have to memorize a lot of material. These problems affect students' learning motivation is low.

The influence of low learning motivation is influenced by the presentation of learning media which is monotonous and less attractive. Conversely, if presented interestingly and innovatively, motivation to learn will increase. Agree with Yuliani H & Winata (2017), in their research explaining that learning media has a significant impact on students' learning motivation. Not only that, the teacher must choose the type of approach that must be applied

when learning so that it can influence the learning motivation of their students. The Problem-Based Learning approach is believed to be able to increase and increase students' learning motivation. This is supported by research from Susanti et al., (2021) that through the PBL approach, students' learning motivation can increase. In line with research from Saguni (2013) that a problem-based approach is more effective than other approaches.

Based on the problems that occur, the solution taken by the researchers is to develop E-LKPD products through the PBL approach to increase students' learning motivation. Similar research was conducted by Rosa et al., (2022) that the E-LKPD made was feasible and practical to use and was able to significantly increase student learning motivation. In line with research from Suharsono & Handayani (2021) that the Life Worksheet-based E-LKPD developed is suitable for use and students' learning motivation has increased.

However, what makes this research different from previous research is that the E-LKPD was conducted using a Problem-Based Learning approach which contained case study questions. This E-LKPD product is also compiled using the Flip PDF Professional application which is packaged as attractively as possible and can make it easier for students to access material and work on evaluation questions. The use of digital devices in the delivery of material and evaluation questions is the right thing to encourage students' learning enthusiasm and motivation (Churiyah et al., 2020).

The purpose of this study is to produce E-LKPD products with a Problem-Based Learning approach in the Public Relations & Protocol subject for class XII OTKP. Second, to find out the feasibility of E-LKPD products with the PBL approach in the Public Relations & Protocol class XII OTKP subject through validation of material experts and assessment experts. Third, to find out the differences in students' learning motivation before and after using the E-LKPD product with the PBL approach in class XII OTKP students at SMK Negeri 1 Pogalan, Trenggalek.

E-LKPD

Electronic Student Worksheets or E-LKPD is an electronic assessments starting from storage, sending assessment assignments, and student value responses or feedback which involves the use of digital devices (Crisp, 2011: 5). Santos et al., argued that digital devices offer the possibility of using simulations, managing large amounts of the latest information and increasing interaction in learning to make students more involved in the evaluation process (Sahidu et al., 2017). In line with Sorensen that evaluation with an online system makes evaluation more efficient in terms of time, funds, and achievement of evaluation objectives (Sahidu et al., 2017).

There are several benefits of using E-LKPD or electronic assessment, namely: (1) it is more flexible so that it can be accessed anytime and anywhere; (2) automatic processing response because it uses a machine; (3) efficient in storage; (4) provide detailed and timely feedback (5) can provide new question styles so that there is interaction in them. (Crisp, 2011: 7)

Problem-Based Learning (PBL)

Problem-Based Learning is an approach that uses existing problems in the field to think critically and problem-solving skills to gain basic knowledge and concepts from the subject matter in schools (Lidinillah, 2013). Because it is often faced with problems in the field, making the PBL approach is much favored by educators in the modern era to support 21st-century learning.

Some of the characteristics of the PBL approach are as follows (1) The PBL approach is centered on posing problems and questions that are relevant to events in the field and avoids

simple answers and generates various kinds of solutions from existing situations; (2) The PBL approach has links that focus on various disciplines. (3) Students are required to analyze and define problems as a form of authentic investigation, design hypotheses, gather information, experiment, and formulate conclusions (Haryanti, 2017).

The benefits of using the Problem-Based Learning approach include (1) encouraging students to solve problems in real-world situations; (2) being able to build knowledge through their learning activities; (3) there is a scientific activity through group work or individually; and (4) students being able to communicate well when presenting their work (Lidinillah, 2013).

Learning Motivation

Motivation, according to Schunk et al. (2012), is the process of initiating and maintaining activities that direct the process toward the goals to be achieved. Meanwhile, learning motivation is the general driving force for students to initiate learning activities, maintain learning activities, and provide direction in learning activities in order to achieve the desired goals (Martiani & Tetep, 2018). Learning motivation for students can foster enthusiasm for learning and encourage students to engage in learning activities (Arianti, 2018)

Schunk et al., (2012) argue that motivation can influence everything students learn, when they learn, and how they learn. Several factors influence the motivation to learn, namely (1) the urge and need to learn; (2) ambition and will to succeed; (3) hope to achieve future goals; (4) appreciation of learning; (5) activities in learning; (6) learning environment (Fadillah, 2018)

2. METHOD

Development Models

This study uses the Borg and Gall Research and Development model (Sugiyono, 2016: 297). The stages of research and development have been modified and adapted to the needs of researchers. Researchers used 9 stages of development considering the limitations of researchers in the field.

The 9 stages are first, conducting a search for information in schools regarding the potential problems that occur. In the second stage, researchers collect data that will be used as a reference for making E-LKPD products. The third stage, designing the product to be made. In the fourth stage, a validation test is carried out by material experts and assessment experts regarding the products produced. In the fifth stage, after the product validation is carried out, it will be revised according to the criticisms and suggestions from the validator. In the sixth stage, after the product revision has been carried out, it will be tested on 6 students in class XII OTKP 1 with the criteria for each being taken from 2 students having high, medium, and low academic ability. In the seventh stage, after the product has been tested in a small group, it will be revised again according to comments on the questionnaire by the user. The eighth stage, after the revised product is then tested on a large group involving 35 class XII OTKP 2 students who will be given a learning motivation questionnaire to find out the difference in motivation before and after using the E-LKPD product. In the ninth stage, the product that has passed the validity test and small and large group trials becomes the final product so it is ready for use in class. The following is an overview of the stages of research and development of E-LKPD products using the Problem-Based Learning approach.

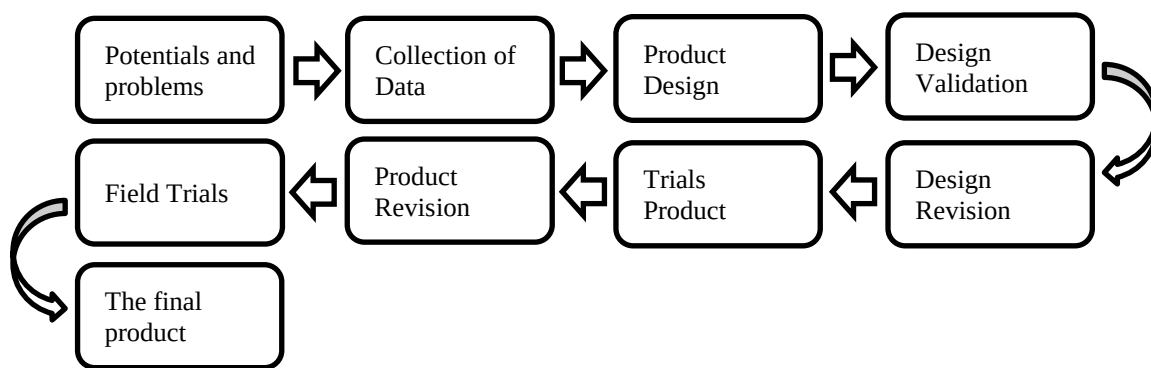


Figure 1. Research and Development Stages

Source: Modified from Sugiyono (2016: 298)

Data Type

The type of data used is qualitative and quantitative data. Qualitative data were obtained from comments, suggestions, and criticisms from validators and small group users to correct errors or deficiencies in the E-LKPD. Meanwhile, quantitative data is obtained from scores based on validator questionnaire assessment instruments and small group trials as well as learning motivation questionnaires before and after using the E-LKPD product.

Data Collection Instruments

The instrument used is the first interview. Interviews are used to find out potential and problems as well as all forms of information in the field. The second is the documentation of activities as evidence of having conducted research. The third is the expert validation questionnaire, the small group user questionnaire, and the student learning motivation questionnaire. The questionnaires were measured using a Likert scale.

Data Analysis Technique

The types of data used in this study are qualitative and quantitative data types as well as normality tests and paired tests. Qualitative data was obtained, namely from the results of interviews with the Public Relations & Protocol subject teacher for class XII OTKP SMK Negeri 1 Pogalan, criticism, and suggestions from material experts, assessment experts, and small group users. Meanwhile, the acquisition of quantitative data is from the average percentage value of the validation questionnaire for material experts, assessment experts, small group users, and learning motivation questionnaires before and after using the E-LKPD product.

Data from the motivational questionnaire were used to identify differences in students' learning motivation in using the Public Relations & Protocol E-LKPD product for class XII OTKP SMK Negeri 1 Pogalan. To find out the difference in learning motivation, the average score percentage was calculated before using the Public Relations & Protocol E-LKPD product and after using the Public Relations & Protocol E-LKPD product in the same class. After obtaining the data, then the normality test and paired test were carried out (Darmadi, 2014: 253). The data used is the result of an analysis of the learning motivation questionnaire before and after using the E-LKPD product with the subject of class XII OTKP 2 SMK Negeri 1 Pogalan

3. RESULTS AND DISCUSSION

3.1 Results

The results of this research and development are in the form of E-LKPD products with a Problem-Based Learning approach in increasing student learning motivation where the evaluation questions refer to existing problems in the field. This E-LKPD product is made with the help of the Flip PDF Professional application which is connected to the website www.driv.tw.

The developed E-LKPD consists of a cover page, table of contents, competencies and competency achievement indicators, instructions for use, material summaries, evaluation questions, bibliography, and author profiles. On the cover page, there is a title, the logo of the agency related to product manufacture, and developer information. On the table of contents page, there is a page number to determine the location of the page you want to go to. On the competency page and competency achievement indicators, there is information about competency indicators or basic competencies in learning. The user manual page contains the things that must be done in using the E-LKPD product. The material summary page contains the material structure which is arranged in a concise, concise, clear manner and also contains examples of images and their sources. On the evaluation question page, there are questions on the cognitive domain as well as questions on the psychomotor domain. The cognitive domain questions are in the form of multiple choice questions while the psychomotor test questions are in the form of practicum questions in which the questions use the PBL approach in them. The bibliography page contains references to the developed E-LKPD material. On the last page, the author's profile contains the biographical profile of the author as the developer of the E-LKPD with this PBL approach.

The following is a product link as well as several views of the E-LKPD which can be accessed via Computers/PCs, Laptops, and Smartphones. <https://bit.ly/39VQF9W>.



Figure 2. Cover Page and Table of Content

Source: Processed by Researchers (2022)



Figure 3. Basic Competency and Instructions for Use
Source: Processed by Researchers (2022)

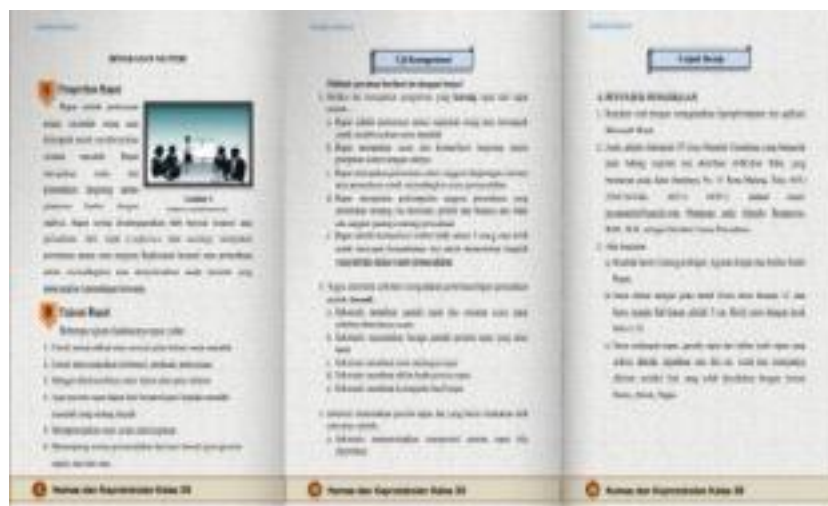


Figure 4. Summary of Material and Evaluation Questions
Source: Processed by Researchers (2022)

The development of E-LKPD with the PBL approach has been tested for feasibility by material experts and assessment experts, as well as user trials. The following Table 1 is the result of the expert validation questionnaire assessment and due diligence by the user.

Table 1. Results of Expert Validation Questionnaire Assessment and User Trials

Validator	Validation Results	Criteria
Material Expert	91%	Valid
Assessment Expert	95%	Valid
User Trial	96%	Valid
Average	93%	Valid

Source: Data processed by Researchers (2022)



Figure 5. References and Author Profile

Source: Processed by Researchers (2022)

On these results, it is known that the assessment by material experts obtained a percentage value of 91% which was declared "very valid", and the assessment by the assessment expert obtained a percentage value of 95% which was declared "very valid", and trials by users obtained a percentage value of 96%, declared "very valid". So that it can be concluded that the results of expert validation and due diligence by users obtain an average percentage value of 93% and are declared "very valid". (Abare, 2013)

The next stage is a field experiment with a total of 35 students in class XII OTKP 2 child. This field test is the first motivational questionnaire before using E-LKPD products and dosing final motivational questionnaire after using E-LKPD products Identify differences in student learning motivation of The difference in willingness to learn is the result of data analysis To the before-after (before-after) student motivation survey Use E-LKPD with PBL approach Here are the results: Students' willingness to learn in Table 2.

Table 2. Results of Student Learning Motivation

No.	Description	Total Score	Percentage
1.	Motivation before using E-LKPD (Before)	2783	79,51%
2.	Motivation after using E-LKPD (After)	3046	87,02%
Percentage Difference			7,51%

Source: Data processed by Researchers (2022)

The results show that there are differences in the learning motivation of class XII OTKP 2 students through the provision of a motivational questionnaire before and after using the E-LKPD product with the PBL approach. The difference can be seen from the results of calculating the average percentage of students' initial motivation and final motivation. Assessment of learning motivation is based on (1) encouragement and need to learn; (2) ambition and will to succeed; (3) hope to achieve future goals; (4) appreciation in learning; (5) activities in learning; (6) learning environment (Fadillah, 2018).

The next step is a normality test to ensure that the data are normally distributed and a paired test to measure the comparison of willingness to learn before and after using the product. Below are the normality test results for Table 3.

Table 3. Normality Test

	Shapiro-Wilk		
	Statistic	df	Sig.
Before	.956	35	.178
After	.942	35	.066

Source: Data processed by Researchers (2022)

It can be seen in table 3 above, the researcher used the Shapiro-Wilk data type because the number of research subjects was <50. In the Sig column, it is known that the Before value (before use) is .178 and the After value (after use) is .066, where the value is more than 0.05 which indicates that the two data are normally distributed.

The next step is that the data will be processed with a parametric statistical test, namely using a paired test. The criterion for calculating the paired test is that if the significance value is more than 0.05 then H_0 is accepted and H_a is rejected, whereas if the significance value is less than equal to 0.05 then H_0 is rejected and H_a is accepted. The following results of the paired test in this study can be seen in Table 4 below.

Table 4. Paired Test Results

		Paired Differences						Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t		df
					Lower	Upper			
Pair 1	Before-After	-7.514	6.491	1.097	-9.744	-5.284	-6.848	34	.000

Source: Data processed by Researchers (2022)

It can be seen in table 4 above that it is known that the difference in scores between before (before use) and after (after use) scores where it is known that the t count is -6,848 with a sig. 0.000 or ($p < 0.05$), which means H_0 is rejected and H_a is accepted. So it is concluded that there are significant differences in students' learning motivation before and after using the E-LKPD with the PBL approach.

3.2 Discussion

The development of technology in the 21st century requires educators to be able to present the contents of learning materials in innovative interactive learning media, especially in Vocational High Schools (SMK) to create and increase the learning motivation of their students (Yuliani H & Winata, 2017) (Fitra & Maksum, 2021). Based on these problems, the researchers developed an E-LKPD product with a Problem-Based Learning (PBL) approach with the help of the Flip PDF Professional application in the Public Relations & Protocol subject for class XII OTKP at SMK Negeri 1 Pogalan, Trenggalek, to increase students' learning motivation. The E-LKPD product contains material on preparation for holding meetings and evaluation questions based on case studies that discuss current problems in the field.

Similar research has been conducted by Rosa et al., (2022) that the E-LKPD produced is feasible and practical and can significantly increase student learning motivation, and research from Suharsono & Handayani (2021) that the E-LKPD based on Live worksheets produced feasible to be used and the learning motivation of students has increased. The difference between this research and previous research is that the E-LKPD is carried out using a Problem-

Based Learning approach which contains case study questions. This E-LKPD product is also compiled using the Flip PDF Professional application which is packaged as attractively as possible and can make it easier for students to access material and work on evaluation questions.

The E-LKPD product developed was categorized as very valid and very feasible by material experts, assessment experts, and user trials according to the results of the feasibility and validity tests (Akbar, 2013). The feasibility test by material experts is measured through material content, language, and contextual assessment. While the feasibility test by media experts is measured through the feasibility of the contents of the E-LKPD using the PBL and graphical approach. Small group users stated that the E-LKPD product with the PBL approach was very valid as measured by the usefulness, presentation, and interactiveness of the media. The results of the analysis calculation explain that the learning motivation of class XII OTKP 2 students has proven to increase after using the E-LKPD product with the PBL approach.

Increasing motivation to learn is supported by providing appropriate and effective approach models in the learning process. The PBL approach is proven to increase the learning motivation of students (Saguni, 2013) (Susanti et al., 2021). Because the PBL approach uses actual problems in the field so that students can hone their thinking skills to solve problems (Lidinillah, 2013). Not only that, by providing learning media that are appropriate and following what students need, they can also increase their learning motivation (Churiyah et al., 2020). E-LKPD with the help of the Flip PDF Professional application connected to the website www.driv.tw is proven to be able to increase students' learning motivation. Flip PDF Professional offers attractive features and makes it easier for users to access material and work on questions (Khairinal et al., 2021). Educators at Vocational High Schools are required to always create learning innovations that can prepare graduates who are ready to work and have skills that are in line with industry needs to contribute to improving human resources in the future (Churiyah et al., 2022). Proven to increase student motivation by providing PBL approach models and learning media that have been given according to the objectives carried out by researchers in this study.

4. CONCLUSION

The conclusion from this research and development is that it is the first to produce a product in the form of an E-LKPD with a Problem-Based Learning approach to increasing students' learning motivation which can be accessed via Computers/PCs, Laptops, and Smartphones. The results of the validation test by experts show a very valid value while the test results on small group users show that the value is very effective and feasible for use in learning. Third, based on field trials there are differences in learning motivation before and after using the E-LKPD product. The results of the average percentage analysis show that the results of learning motivation after using the E-LKPD product increased by 7.51% compared to before using the E-LKPD product. So that it can be said that the E-LKPD with the Problem-Based Learning approach in the Public Relations & Protocol subject can increase student learning motivation. Suggestions from this research and development, the E-LKPD products are limited to KD 3.14 and KD 4.14 only showing examples in the form of pictures, so that for further research and development it is hoped that they can compile work examples in the form of videos that can be accessed through the E-LKPD

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