

ELECTRONIC DEVELOPMENT OF *PROBLEM BASED LEARNING* LEARNER WORKSHEET BASED ON *LIVEWORKSHEET* SDIT AL- MUTHMAINNAH JAMBI CITY

Bimbi Arini¹

Universitas Islam Negeri Sulthan Thaha Saifuddin Jambi
bimbiariani78@gmail.com

Tika Sari²

Universitas Islam Negeri Sulthan Thaha Saifuddin Jambi
tikasari@uinjambi.ac.id

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Abstract *Lack of variation in the use of supporting teaching materials used in the learning process of Natural and Social Sciences (IPAS), teaching materials available at school are still in the form of printed books, this causes the learning process to be less varied and less interesting, making students bored and bored during the learning process. The purpose of this study was to develop electronic problem-based learning worksheets based on liveworksheet SDIT Al-Muthmainnah Jambi City which is valid and effective. This type of research is development research (research and development) with a development model, namely the ADDIE model. ADDIE consists of five stages, namely: (1) Analyze (analysis), (2) Design (design), (3) Development (development), (4) Implementation (implementation), (5) Evaluation (evaluation). The results of the validity of the E-LKPD product obtained from the material expert validation results are 96% with a very valid category. The results of the analysis of the media expert validation obtained 98% with the category sanagt valid. The results of the analysis of the linguist validation were 80% with the valid category. Educators and students gave a positive response to the E-LKPD product developed with the percentage obtained from the educator's response questionnaire of 96% and students of 90%. This teaching material is effective for students as evidenced by the results of data obtained from the students' response questionnaire after using the E-LKPD product of 94% in the very effective category. From the results of these responses, it can be concluded that the electronic product of problem-based learning student worksheets based on liveworksheet is valid and effective for use in the IPAS learning process.*

Keyword: E-LKPD, Problem Based Learning, IPAS learning

Correspondent Tika Sari | ✉ tikasari@uinjambi.ac.id



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Abstrak Kurangnya variasi penggunaan bahan ajar pendukung yang digunakan dalam proses pembelajaran Ilmu Pengetahuan Alam dan Sosial (IPAS), Bahan ajar yang tersedia di sekolah masih berbentuk buku cetak, hal ini menyebabkan proses pembelajaran kurang bervariasi dan kurang menarik sehingga membuat peserta didik jenuh dan bosan selama proses pembelajaran. Tujuan penelitian ini yaitu untuk mengembangkan elektronik lembar kerja peserta didik *problem-based learning* berbasis *liveworksheet* SDIT Al-Muthmainnah Kota Jambi yang valid dan efektif. Jenis penelitian ini adalah penelitian pengembangan (*research and development*) dengan model pengembangan yaitu model ADDIE. ADDIE terdiri dari lima tahapan yaitu: (1) *Analyze* (analisis), (2) *Design* (desain), (3) *Development* (pengembangan), (4) *Implementation* (implementasi), (5) *Evaluation* (evaluasi). Hasil kevalidan produk E-LKPD diperoleh dari hasil validasi ahli materi yaitu 96% dengan kategori sangat valid. Hasil analisis dari validasi ahli media diperoleh 98% dengan kategori sangat valid. Hasil analisis dari validasi ahli bahasa yaitu 80% dengan kategori valid. Pendidik dan peserta didik memberikan respon positif terhadap produk E-LKPD yang dikembangkan dengan presentase yang diperoleh dari angket respon pendidik yaitu 96% dan peserta didik sebesar 90%. Bahan ajar ini efektif bagi peserta didik dibuktikan dari hasil data yang diperoleh dari angket respon peserta didik setelah menggunakan produk E-LKPD sebesar 94% dengan kategori sangat efektif. Dari hasil tanggapan tersebut dapat disimpulkan bahwa produk elektronik lembar kerja peserta didik *problem based learning* berbasis *liveworksheet* valid dan efektif untuk digunakan dalam proses pembelajaran IPAS.

Kata Kunci: E-LKPD, *Problem Based Learning*, pembelajaran IPAS

A. INTRODUCTION

The rapid development of the times in the 21st century can be seen from the use of technology that is increasingly advanced and affects many aspects of human life. These developments have changed the human paradigm in finding and obtaining information more easily. Work that was originally done manually has now changed with machine technology (Kusningsih & Khambali, 2017). This requires humans to think more advanced in all aspects so as not to be left behind. One aspect that cannot be separated from technology is education. According to (Winata et al., 2020) The influence in the field of education has to do with developments in learning, and gives color to the world of education today. Facing the era of digitalization 4.0, every educator should be able to keep up with digital developments by creating teaching materials in the form of E-modules, E-books and E-LPD for their students. LKPD for students.

Not only using, reading, and studying it, but to be able to create a teaching material product that can make it easier for students to learn and understand the subject matter which will affect the effectiveness of the learning process. One of the teaching materials that is still a favorite used in the world of education is student worksheets. Prastowo in (Aini et al., 2019) explains that the Learner Worksheet (LKPD) is a printed teaching material in the form of sheets of paper containing material, summaries, and instructions for implementing learning tasks that must be done by students who refer to the basic competencies that must be achieved.

Based on pre-research observations that at SDIT Al-Muthmainnah Jambi City has implemented an independent curriculum and it is known that the school already has facilities in the form of a computer laboratory. However, teachers have not utilized it properly as a learning medium. From the results of interviews with fifth grade homeroom teachers, researchers found information related to the use of teaching materials. Teachers teach students using textbooks from the Ministry of Education and Culture of the Republic of Indonesia in 2021 and occasionally use projectors in learning. In the book, the worksheets in the learning activities are not problem-based. In fact, the worksheets used so far have not been presented in a varied and innovative manner, especially in IPAS learning. The obstacles of teachers not making teaching materials are because they do not have enough time and teachers do not have the ability to make teaching materials that can be accessed through digital devices.

The IPAS learning process in which it studies topics around natural and social phenomena related to daily life and really needs a study guide to answer phenomena related to the material. This should make the worksheet a guide or systematic steps that students must take independently to find and learn a material concept. The advantages of using LKPD according to (Kosasih, 2021), one of which is in the learning process, is that the time used is more effective so that learning time can be utilized more for the activities themselves. more time is utilized for the activity itself, than previously consumed by the explanation of learning activities.

The presentation of LKPD needs to be innovated by combining LKPD with a learning model that favors students. According to (Ulfa et al., 2023)The purpose of the learning model that favors students is to be able to build their own knowledge in learning activities by applying 21st century skills, namely developing critical thinking skills by looking at the problems that have been presented and then finding solutions to these problems which are of course related to everyday life. One model that supports learning in favor of students is the Problem Based Learning model.

The purpose of the PBL model according to (Indrapangastuti, 2023) is to foster student creativity in solving a problem faced in the real world and to encourage student motivation and critical and creative thinking in learning. In line with what was revealed (Barus et al., 2022) learning with the PBL model can increase interest because the activities in PBL are designed with the aim that students can collaborate to solve the problems faced, as a starting point for developing students' critical thinking skills.

The presentation of LKPD, which is generally still conventional in the form of printed media, is now starting to be innovated with electronic or digital media, known as electronic LKPD (E-LKPD). Teachers must be able to increase student learning activeness. Student learning activeness can be created through the application of interesting learning methods by utilizing technological media (Sari, 2022). Researchers will choose to utilize the Liveworksheet platform which will be used in the development of E-LKPD as supporting teaching materials for students. Other research has been conducted by (Amalia et al., 2022) entitled "Development of Liveworksheet-Based Interactive LKPD to Improve Elementary School Social Studies Learning Outcomes" obtained the results of material expert validators of 91, media experts 90% each with a very valid category.

Another study has also been conducted (Nursyamsiana et al., 2023) entitled "Development of E-LKPD Based on Problem Based Learning for PPKN Learning in Class IV Elementary School". obtained an overall average score by experts of 95% and a student questionnaire of 81.7% for the one-to-one stage 82.2%, small group 83.8% for the field test stage. E-LKPD is very feasible, so it can be used by students as one of the electronic teaching materials in learning the material of obligations and rights towards living things and the environment.

Liveworksheet is an application that can convert student worksheets (LKPD) that can be printed into (images, documents and pdf) into interactive online practice sheets because they can play videos, images and audio can be operated via smartphone or laptop (Maghfiroh et al., 2023). Based on the statements above, researchers will conduct research on the development of Electronic Learner Worksheets (E-LKPD) Problem Based Learning Based Liveworksheet at Al-Muthmainnah Integrated Islamic Elementary School, Jambi City.

B. METHOD

This research uses research and development methods or in English terms Research and Development is a research method used to produce certain products, and test the effectiveness of these products (Sudaryono, 2016) In line with (Rachman, 2015) The research and development approach is a research approach to conducting research, developing and testing a product.

The development of E-LKPD Problem Based Learning based on Liveworksheet is designed using the Canva.com application, the development model used refers to the ADDIE development model which consists of five stages, namely: (1) Analyze (analysis), (2) Design (design), (3) Development (development), (4) Implementation (implementation), (5) Evaluation (evaluation). The ADDIE model is an approach that emphasizes an analysis of how each component interacts with each other by coordinating according to the existing phases (Rayanto et al., 2020). This research was conducted in May - July 2024. The subjects of this research are class students, IPAS teachers and 3 PGMI lecturers at UIN STS Jambi.

The data collection techniques used in this study are as follows:

- 1) Validity is measured using the E-LKPD validation sheet instrument, namely the E-LKPD validation questionnaire that has been made by the researcher and given to expert validators to validate the liveworksheet-based problem-based learning E-LKPD designed using the Canva application. The validator team provides an assessment by giving a check mark (✓) and provides suggestions for improvements to E-LKPD products that still need improvement by giving notes on the validation questionnaire sheet;
- 2) Effectiveness is measured by an instrument in the form of a teacher response questionnaire and student response to see the E-LKPD user response after using the liveworksheet-based problem-based learning E-LKPD designed using the Canva application.

The data analysis technique used to process data from the research results of the development of E-LKPD problem based learning based on liveworksheet is by using quantitative and qualitative data. Data analysis in this study is grouped into two, namely, validity data analysis and effectiveness data analysis.

C. RESULT AND DISCUSSION

The results of the E-LKPD development that have been carried out can be explained as follows:

1. Analysis Stage (Analyze)

At this stage, it was carried out on VA class students of SDIT Al-Muthmainnah Jambi City in the 2023/2024 academic year, with IPAS Chapter 5 Topic A subject matter of the human respiratory system. Class VA was used as a research subject consisting of 22 students.

a. Needs analysis

At this stage is the initial way to collect information related to the needs for product development. The method used is by conducting interviews conducted with VA class teachers, researchers get several problems related to the use of teaching materials. Researchers see that teachers are less creative in developing learning resources and teachers are more dominant in learning. In fact, the development of students' abilities in learning is so fast. It is time for students to find their own through a study guide that contains examples of problems that are often mentioned in everyday life and the need for a learning resource that can increase students' interest in learning.

b. Learner analysis

This analysis is carried out to determine the characteristics of students in IPAS learning. Such as cognitive development, socio-emotional development, morals and spirits, learning styles, learning motivation, ethnicity and culture to students' learning interests (Ayuni et al., 2023). In line with what was expressed (Jam, Jamilah., &

Herdiana, 2024) In this case the researcher refers to the advice and instructions provided by experts. Product revisions are needed as a guide to perfect the product being made. The results of the questionnaire of the characteristics of students found that 82% of students had difficulty in accepting IPAS learning and students had an Audio-Visual learning style of 64%. From the results of the questionnaire analysis, the E-LKPD product is a teaching material that adequately supports the characteristics of students.

c. Curriculum analysis

This curriculum analysis is adjusted to the curriculum used by the school, namely the independent curriculum. Learning objectives are structured with an environment-based learning approach, where learners find and use the environment as a source of information and ideas about problems, topics to improve their understanding of the problem.

2. Design Stage

a. Material Selection

The material used to develop E-LKPD is IPAS Chapter 5 Topic A learning how breathing helps me do daily activities. With the subject matter of the human respiratory system.

b. Initial Design

The preparation of E-LKPD begins with the making of the cover (cover) and content design on the E-LKPD. learning activities on E-LKPD begin with problems commonly found in everyday life with solutions based on problem solving.

c. Creation tools

The software tools used in making E-LKPDs are canva and liveworkheet.

d. Instrument design

The instrument used is a questionnaire distributed to a team of validators to test the validity of the product and a student response questionnaire to test the effectiveness of the E-LKPD product.

3. Development Stage (Development)

The design that has been made at the beginning is then realized in the development process can be seen in the figure 1.



Figure 1. Layout E-LKPD

a. Expert validation process

In determining whether an E-LKPD product can be used or not is by looking at the results of expert validation. Assessments from experts in the form of small notes become input for product improvement before being tested. In line with what was expressed (Panjaitan & Karo-Karo, 2023) In this case the researcher refers to the advice and instructions provided by experts. Product revisions are needed as a guide to perfect the product being made.

Experts who provide assessments on E-LKPD products are material experts, media experts, and linguists. The results of this E-LKPD product development include the following:

1) Material expert validation results

This validation is carried out to determine the level of validity of the material contained in the E-LKPD developed. The process is done by making several revisions to the media. Among them are adding CP and TP to the media, learning activities in E-LKPD are arranged according to the level of validity. learning activities in E-LKPD are arranged in accordance with learning objectives. In the validation conducted by the material expert validator, it was obtained in the aspects of content feasibility, systematization of material preparation, ease of understanding the material, suitability of questions, and suitability of examples, based on the percentage of assessment scores obtained 96% with a very valid category.

2) Media expert validation results

Suggestions for improvement given by media experts include improvements to the front cover by changing the background color, using fonts that are not more than three types. Based on validation from media experts on aspects of E-LKPD attractiveness, design suitability with the developmental age of grade V students, typography, images, colors, and design appearance. The assessment results from media experts received a percentage of 98% with a very valid category.

3) Language expert validation results

The results of language validation that have been carried out by linguist validators are obtained in the aspects of straightforwardness, communicativeness, conformity with language rules obtained a score of 80% with a decent category.

b. Product trial process

Product trials were conducted to see the extent to which the level of student response to the liveworksheet-based problem-based learning E-LKPD obtained in the learning process. data obtained from the questionnaire/questionnaire of student responses that have been distributed. E-LKPD is declared usable if it meets the criteria of 61%-80%. The results that have been obtained from the learner response questionnaire with a percentage value of 90%.

4. Implementation Stage

At the implementation stage, it was carried out in the VA class of SDIT Al-Muthmainnah Jambi City, which amounted to 22 students. This series of studies by looking at student responses. The main purpose of analyzing students' responses to see the extent of the level of students' responses to the E-LKPD problem-based learning based on liveworksheet. Data was obtained from a learner response questionnaire. E-LKPD is declared usable if it meets the criteria of 61%-80%. The results that have been obtained from the student response questionnaire with a percentage value of 94%.

The effectiveness of E-LKPD is assessed based on the good response of students to E-LKPD used during the learning process, if seen from the criteria it can be stated that students give a positive response to E-LKPD problem based learning based on liveworksheet which is 94%. After conducting a limited trial and also the response of students from the research school above has been fulfilled so that an effective E-LPD is obtained.

5. Evaluation Stage

After the product is developed and validated by a team of validators. The next stage is testing on students in VA class students of SDIT Al- Muthmainnah Jambi City. Judging from the trials that have been carried out, researchers have obtained

a good response from students to the products developed, the products developed are interesting so that it can be concluded that the E-LKPD problem-based learning based on liveworksheet has been completed until the final product.

D. CONCLUSION

Based on the results of research on VA class students of SDIT Al-Muthmainnah Jambi City, the following conclusions can be drawn:

1. The validity of the liveworksheet-based problem-based learning E-LKPD is seen from the assessment of material experts, media experts, and linguists. The results of the material expert validation with a score of 96%, media expert validation with a score of 98%, and language expert validation with a score of 80%, so only minor revisions need to be made.
2. The level of effectiveness of E-LKPD problem-based learning based on liveworksheet seen from the questionnaire response of students is very good towards E-LKPD by obtaining a percentage value of students' response of 94%.

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