

Improvement Of Morphological Adaptation Materials Students' Grade 6 Learning in Primary School Outcome Using Digital Comic PBL Based

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Abstrak

Penelitian ini dilaksanakan karena kurangnya variasi media pembelajaran yang dimiliki oleh guru khususnya pada mata pelajaran IPA sehingga berdampak pada rendahnya hasil belajar IPA siswa (78%). Penelitian ini dilaksanakan untuk mengembangkan media pembelajaran berbasis teknologi yang disesuaikan dengan kebutuhan siswa melalui penerapan model pembelajaran berbasis *PBL*. Tujuan penelitian ini untuk menciptakan media komik digital guna meningkatkan hasil belajar materi adaptasi morfologi siswa kelas VI SD. Penelitian ini menggunakan model pengembangan ADDIE (*Analyze, Design, Development, Implementation, Evaluation*) dengan subjek yang terlibat yaitu 1 ahli materi pelajaran, 1 ahli desain pembelajaran, 1 ahli media pembelajaran dan 9 orang siswa, sementara uji efektivitas menggunakan 18 orang siswa. Metode pengumpulan data digunakan kuesioner, tes dan teknik analisis data yang digunakan analisis deskriptif kuantitatif serta statistik inferensial. Hasil dari penelitian pengembangan ini adalah media komik digital berbasis *PBL* yang layak dan efektif digunakan untuk meningkatkan hasil belajar. Berdasarkan hasil uji validitas dan efektivitas yang dilakukan menunjukkan hasil validitas komik digital menurut subjek uji coba secara berturut-turut sebesar 93%, 93,18%, 95%, 97,5%, dan 95,2% secara keseluruhan memiliki kategori sangat baik sehingga produk yang dikembangkan layak untuk digunakan. Sementara itu hasil perhitungan uji efektifitas yang dilakukan memperoleh hasil t_{hitung} sebesar 15,624. Jika dibandingkan dengan t_{tabel} . Harga t_{hitung} lebih besar daripada harga t_{tabel} sehingga H_0 ditolak dan H_1 diterima. Dengan demikian hasil penelitian ini menunjukkan bahwa media komik digital berbasis *PBL* materi adaptasi morfologi efektif digunakan untuk meningkatkan hasil belajar siswa kelas VI SD.

Kata Kunci: Pengembangan, Media Pembelajaran, Komik Digital.

Abstract

This research was carried out due to the lack of variety of learning media owned by teachers, especially in science subjects so that it had an impact on the low science learning outcomes of students (78%). This research was conducted to develop a technology-based learning media that is tailored to the needs of students through the application of a PBL-based learning model. The purpose of this research is to create digital comic media to improve learning outcomes of morphological adaptation materials for sixth grade elementary school students. This study uses the ADDIE development model (Analyze, Design, Development, Implementation, Evaluation) with the subjects involved, namely 1 subject matter expert, 1 learning design expert, 1 learning media expert and 9 students, while the effectiveness test uses 18 students. Data collection methods used questionnaires, tests and data analysis techniques used quantitative descriptive analysis and inferential statistics. based digital comic media PBL that are feasible and effective to use to improve learning outcomes. Based on the results of the validity and effectiveness tests carried out, the results of the validity of digital comics according to the test subjects are 93%, 93.18%, 95%, 97.5%, and 95.2% overall have a very good category so that the product developed is feasible to use. Meanwhile, the results of the calculation of the effectiveness test carried out obtained the t_{count} of 15.624. When compared with t_{table} . The of t_{count} is greater than the value of t_{table} so that H_0 rejected and H_1 accepted. The results of this study indicate that PBL morphological adaptation material is effectively used to improve the learning outcomes of sixth grade elementary school students.

Keywords: Development, Learning Media, Digital Comic.

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1. INTRODUCTION

Education is a process that makes human beings better over time. The implementation of good education that refers to the national education system so as to be able to create educational harmony in order to create a golden generation of the nation (Reflianto & Syamsuar, 2019; Resal & Rachman, 2022). Education in primary school is the basic

foundation for learners to undergo the next level of education (Abarca, 2021; Rahmawati, 2018). The quality of the next stage of education is strongly influenced by the quality of basic education. In other words, the better the quality of basic education, the better the quality at the next stage of education. Therefore, it is very important if you apply learning that is in accordance with the characteristics of students in order to be able to improve the thinking skills of students to become more critical and innovative and be able to solve the problems they face (Abarca, 2021; Sofyan, 2019). By mastering higher order thinking skills, students are expected to be able to answer the challenges of the 21st century. One of the subject matter that requires students' higher-order thinking skills is science. Science education does not only consist of facts, concepts and theories that are only verbalized but includes real activities or procedures. Science requires students to have critical, real and creative thinking skills in solving everyday problems related to science (N. M. Y. Utami et al., 2019; Wicaksono et al., 2020).

Learning during the *Covid-19* as it is now has an impact on the world of education, namely changes in the implementation of learning that were originally carried out directly, now carried out through a network commonly called online learning (Darmayanti & Abadi, 2021; Magdalena et al., 2022). So that in this case it is required to be able to receive information from various sources and not only rely on one learning source but also need to utilize learning resources that are able to hone the skills and understanding of students through the visual aspect so that students have the ability to think critically and imagine. With a pandemic like today, teachers must be able to create creative and innovative learning that is in accordance with the circumstances of students (F. T. Utami & Zanah, 2021; Zahwa, 2022). The selection of appropriate media and learning models is expected to be able to support the learning process so that students are able to understand the material presented by the teacher and the objectives of the learning can be achieved.

From the results of observations and interviews conducted with sixth grade teachers at SD Negeri 2 Bungbungan, it was explained that the limited variety of digital learning media owned by teachers in the science learning process so that students lacked media to help them learn independently. to improve student learning outcomes and provide less opportunities for students to hone their critical thinking skills, especially in the content of science lessons.

This shows that there is a gap in the science learning process that is expected in the 21st century with the reality that occurs especially during this pandemic. In the learning process, an innovative, efficient and flexible learning model and media is needed that is adapted to the development of students and current educational conditions so that learning becomes meaningful, especially in the content of science lessons. Election media appropriate learning and learning models can interesting attention student so that the objectives of learning can be achieved effectively. Learning media is a tool to convey messages or information in the form of learning materials so as to foster student interest in learning (Parera, 2021; Zahwa, 2022). The media needed at the moment is digital comic media that can be accessed by teachers and students anywhere and anytime. The form of comics today has begun to vary greatly with the times.

Based on the explanation, the solution given is to develop digital comic learning media based on *problem based learning*. This is evidenced by the existence of research which states that comics learning media are effective for improving student learning outcomes (Kanti et al., 2018; Sari, 2017). In designing digital comics learning media to be able to provide a meaningful learning atmosphere for students. The learning model that can be used is a *problem based learning model*. PBL is a learning approach that uses *real word* as a student learning contest about critical thinking and problem solving skills (Anwar & Jurotun, 2019; Kurniawan et al., 2020). So in this case the use of *problem based learning* can improve students' higher order thinking skills. This is evidenced by research which states that the

application of the *problem based learning* is effectively used to improve student learning outcomes and critical thinking skills (Devi & Bayu, 2020; Prasetyo & Kristin, 2020).

In line with that, this research was conducted by considering the results of previous studies, that digital comic media is feasible to be developed according to expert tests and product trials with very good qualifications. (Alit et al., 2021; Khasanah et al., 2021). However, in previous studies it was only limited to testing the validity of the product, while in this study it was carried out to test the effectiveness of the product. The importance of this research being carried out is -based digital comic learning media *problem-based learning* that is feasible to use through validity testing from experts and research subjects and is effectively used to improve learning outcomes of morphological adaptation materials for sixth grade elementary school students.

2. METHOD

This type of research is development research that is carried out to develop a product that is feasible and effective in solving problems experienced in learning. The procedure used in this research is the ADDIE development model which consists of five systematic steps *analyze, design, development, implementation, evaluation* (Tegeh dkk 2014). The analysis stage is carried out by analyzing the needs in learning, determining KD and learning indicators, analyzing the material. After that, it was continued with the design stage which included data collection steps, writing story scripts, and drawing sketches. The third stage is the development of the steps carried out at this stage including making cover designs and comic content, uploading comics, making product validity questionnaires for media design experts, making product validity questionnaires for material experts, validation from media experts and material experts. The fourth stage is the implementation stage which includes the validation stage from experts and product trials carried out in class VI SD Negeri 2 Bungbungan. The last stage is the evaluation stage, this is carried out by analyzing the media at the implementation stage, whether there are still deficiencies and weaknesses in the product or not and at this stage an analysis is also carried out to determine the effectiveness of the product.

The test subjects in this study were material experts, design experts, learning media experts and testing students through the stages of individual trials and small group trials. While the subjects of the effectiveness test in this study were 18 grade VI students of SD Negeri 2 Bungbungan. Comments and suggestions obtained at the product trial subject stage are used to improve the product so that the product is suitable for use at the effectiveness test stage. This study uses 2 (two) methods of data collection, namely, the questionnaire method and the test method. The questionnaire method used in the form of a questionnaire to collect data from the review of material experts, learning design experts, media experts, and to find out student responses during individual trials and small group trials. The test method is used when testing the effectiveness. Multiple choice (objective) type test questions, which are used to measure students' knowledge before and after using digital comic learning media. The instruments used in collecting research data are questionnaires and multiple choice (objective) tests. The following is a grid of instruments used in the study.

Table 1. Questionnaire Grid of Content/Learning Material Experts

No	Aspect	Indicator	Number of Items	Many Points
1	Curriculum	1) The suitability of the material with the basic competencies	1	3
		2) The suitability of the material with	2	

No	Aspect	Indicator	Number of Items	Many Points
2	Material	learning indicators		
		3) The suitability of the material with the learning objectives	3	
		1) Material accuracy	4	
		2) Material depth	5.6	
		3) Material attraction	7	
		4) Material truth	8	
		5) The suitability of the material with the characteristics of students	9	9
		6) The material is supported with the right media	10	
3	Grammar	7) The concepts presented can be clearly logical	11	
		8) The material is easy to understand	12	
		1) Appropriate and consistent use of language	13	3
		2) The language used is easy to understand	14	
		3) The language used is in accordance with the characteristics of students	15	
Total				15

(Source: Suartama, 2016)

Table 2. Learning Design Questionnaire Grid

No	Aspect	Indicator	Number of Items	Multiple Items
1	Purpose	1) Suitability of learning objectives	1	3
		2) Relevance of learning objectives with KD and indicators	2,3	
2	Strategy	1) Submission of material provides logical steps	4	7
		2) The material presented uses a learning model	5	
		3) Give examples in the presentation	6	
		4) Provide opportunities for students to learn independently	7	
		5) Learning activities can motivate students	8	
		6) Instructions for use are clear	9	
		7) Instructions for working on questions are clear.	10	
3	Evaluation	1) Give practice questions for understanding the concept	11	1
Total				11

(Source: Suartama, 2016)

Table 3. Learning Media Questionnaire Grid

No	Aspect	Indicator	Number of Items	Many Points
1	Design	1) Text	1	4
		2) Figure	2, 3	
		3) Color	4	
2	Eligibility	1) Media according to student characteristics	5	3
		2) Media according to Indicator	6	
		3) Media fit for purpose	7	
3	Current, Accuracy, Clarity	1) Update of material in media	8	3
		2) Accuracy of material in comics	9	
		3) Clear material	10	
Total				10

(Source: Suartama, 2016)

Table 4. Grid of Individual and Small Group Trial Questionnaires

No	Aspect	Indicator	Number of Items	Multiple Items
1	Display	1) Interesting comics	1	4
		2) Readability of text	2	
		3) Clarity of images	3	
		4) Attractiveness of color	4	
2	Material	1) Accuracy of presentation systematic material	5	3
		2) Clarity of material description	6	
		3) The material is easy to understand	7	
3	Motivation	1) Media gives enthusiasm in learning	8	1
4	Operation	1) Ease of use	9, 10	2
Total				10

(Source: Sudarma, et al, 2015)

The data analysis methods used in this development research are quantitative descriptive analysis methods and inferential statistical analysis methods. These two techniques were used to process the data obtained. Descriptive quantitative data analysis was used to process the qualitative data obtained through a questionnaire in the form of scores. Then the scores obtained through the questionnaire were changed in the form of a percentage of each respondent, by comparing the total number of answers given by respondents with the maximum or ideal score of each questionnaire. The criteria set to give meaning to the score percentage and decision making were developed. The conversion level of achievement used is a scale of 5 with the criteria of 90%-100% having a very good predicate, 75%-89% having a good predicate, 65%-74% sufficient, 55%-64% less and 00-54% having a bad predicate (Tegeh, 2014).

Furthermore, inferential statistical analysis is data processing by applying inferential statistical formulas to test research hypotheses and conclusions drawn from the results of testing these hypotheses (Agung, 2014). Data were collected using *pre-test* and *post-test* to the target group students and then analyzed using correlated t-test to determine the difference between the results of the *pre-test* and *post-test*. Before testing the hypothesis, it is necessary to test the prerequisites, namely the normality test and homogeneity test. The normality test was used to determine the normality of the data distribution using the Saphiro Wilk formula

and the homogeneity test was used to determine the variance in homogeneous groups. The homogeneity test used in this study was Fisher's exact test (F-Test). After testing the prerequisites, then proceed with testing the hypothesis. The analysis technique for testing the hypothesis is a correlated t-test analysis technique using two different treatments for one sample, namely testing differences in learning outcomes before and after using *problem-based learning* for one group.

3. RESULTS AND DISCUSSION

Results

The design of digital comic media development based on problem based learning is adapted to the product development model used, namely the ADDIE development model (Analyze, Design, Development, Implementation, Evaluation). The product development stage consists of five stages.

The first step is to analyze. This analysis phase aims to determine the needs in research on the development of digital comic media based on problem based learning. The stage of analyzing needs in learning is carried out to determine the needs of teachers in learning and find solutions to assist teachers in learning so that there is an increase in the quality of learning. After knowing the problems faced by the teacher, an analysis of KD and learning indicators was carried out so that the design and production of digital comics learning media based on problem based learning that is produced is truly effective for teaching students according to the demands of competence in learning.

Table 5. KD and Indicators

KD	Indicators
3.3 Analyze how living things adapt to the environment.	3.3.1 Determine how living things adapt to the environment. 3.3.2 Analyzing the characteristics of plants related to their habitats 3.3.3 Analyzing the characteristics of animals based on their habitats 3.3.4 Analyzing the purpose of adaptation of plants and animals related to their habitats

After knowing the KD and learning indicators that will be used, a material analysis is carried out which aims to determine the content of digital comics that will be developed to suit the knowledge needs of students with the demands of competence so that at this design stage get a definite flow regarding the contents of this digital comic media. The second stage is the design. At this design stage, data collection is carried out such as morphological adaptation materials that have previously been determined in the analysis stage. After the data or material is collected, it is continued by writing the script. The comic story script is made in detail and at this stage the characters, characters and dialogues of each character in it are also determined. After the story script is complete, it is continued with the process of drawing sketches of things made in a Photoshop to visualize the script that has been made previously. In this sketch, each character is drawn according to the character played. At this stage, conversation bubbles are also drawn for the dialogue of each character in the form of storylines and storyboards.

The third stage is the development stage, which is a step to implement what has been designed at the design stage so as to produce a product. The final result at this stage of development is a product that is ready to be tested. The steps carried out at this stage include making cover designs and comic content using the Adobe Photoshop CS6 application. On the

cover, the title of the comic, the image of the character and the name of the comic writer are made. Then the comic content section contains morphological adaptation material which was developed according to the scripts and sketches that had been previously designed at the designstage. After the comic is finished, the to the web server, namely fliphtml5 so that the uploaded comic can be animated so that it looks like a book. Then after the comic was published, it continued with the stage of making a questionnaire to test the validity of experts, product trials and making pre-test and post-test to test the effectiveness of the developed media. The fourth stage of the digital comic design is the implementationstage. The purpose of this stage is to find out how readers respond to the comics that are made. Comments and suggestions from readers during this procedure is used as a consideration for product improvement so that the product becomes more perfect.

The last stage is the evaluation stage, this is carried out by analyzing the media at the implementation stage, whether there are still deficiencies and weaknesses in the product or not. If there is no improvement again, then the media is feasible to be applied as a learning medium. This evaluation stage is divided into formative and summative evaluation stages. The formative evaluation stage is carried out after the data at the implementation stage are collected. Evaluation by assessing the product based on the results reviews from experts and the results of student responses to the developed product, so that the product can be revised as an improvement. While the summative evaluation stage is carried out to determine the effectiveness of the developed product.

Product trials by test subjects were (1) content/subject material experts, (2) instructional design experts, (3) instructional media experts, (4) individual trials, and (5) small group trials. Product testing activities are carried out to determine the level of feasibility or validity of the developed product. The process of testing this product was assessed using a questionnaire instrument. Product trials by content/subject matter experts are assessed by competent lecturers in the field of Natural Sciences (IPA). Design experts and learning media are assessed by qualified lecturers in the field of Education technology. Individual trials and small group trials use students as test subjects with different science learning outcomes. The following is a summary of the product trial results. Based on the validity test conducted, it is known that the percentage of the results of the validity of the development of digital comics learning media based on problem based learning according to the test subjects are 93%, 93.18%, 95%, 97.5%, and 95.2% respectively. overall have a score percentage with very good qualifications, so the digital comic learning media developed is very suitable for use in learning. At the trial stage of digital comic products, there are comments from experts who are revising the developed digital comic products. Even though the product developed is in the very feasible category, it is necessary to improve the product from expert comments, so that the product developed is more perfect. The comments from experts for improving this product are adding instructions for working on questions on the practice page, adding questions containing examples, adding story lines at the beginning of the story and adding references to images sourced from the internet. based digital comic media problem-based learning using the test method.-based digital comic media development product problem-based learning using the test method, a prerequisite test is first carried out. The following describes the results of data analysis from the prerequisite tests for normality and homogeneity.normality pre-test and post-test.

Table 6. Normality Test Results

No.	Learning Outcomes	T _{arithmetic}	T _{table (α)}	Note
1.	<i>Pre-test</i>	0.944	0.05	Normal
2.	<i>Post-test</i>	0.93	0.05	Normal

Based on the results of pre-test table, it was obtained that 0.944 for $n = 18$ was at $p = 0.1$ and $p = 0.5$. This means that the p value > 0.05 so it can be concluded that the data from the pre-test are normally distributed. Meanwhile, the results of post-test Shapiro Wilks This means that the p value > 0.05 so it can be concluded that the post-test are normally distributed. Then after the normality analysis was carried out, it was continued by conducting a homogeneity test to find out the variance in the group was homogeneous or not significantly different. The results of the calculation of variance showed that the results of the pre-test and post-test were 81.06 and 38.24. Furthermore, calculations were carried out to test the homogeneity of the sample data using Fisher's exact test (F test) with the results obtained of 2.120, so the conclusion was $F_{\text{count}} < F_{\text{table}} (n_1 - 1, n_2 - 1)$ that is, $F_{\text{count}} (2,120) < F_{\text{table}} (2,23)$ so H_0 is accepted which means the sample is homogeneous.

After testing for normality and homogeneity, it is continued with hypothesis testing. Hypothesis testing is done by using the correlation t-test formula, the test criteria is to reject H_0 if $t_{\text{count}} > t_{\text{table}}$ with degrees of freedom (db) $(n_1+n_2)-2$ and $= 5\%$. Based on the results of the t-test obtained $t_{\text{count}} = 15,624$ for $db = 34$ and a significant level of $5\% = 2,042$. This means that $t_{\text{count}} > t_{\text{table}}$, so H_0 is rejected and H_1 is accepted. Based on the test criteria, if H_0 is rejected and H_1 is accepted, it means that there is a significant difference (5%) before and after using problem-based learning-based digital comics learning media. Thus, it can be concluded that problem-based learning effectively used to improve students' science learning outcomes, especially on morphological adaptation material.

Discussion

This research produces a product in the form of digital comics learning media based on problem based learning on the content of science lessons, especially morphological adaptation material for class VI SD. This media was developed based on a review of previous research results that have relevance to this research (Kurniawati & Koeswanti, 2021; Laksmi & Suniasih, 2021; Pinatih & Putra, 2021) as well as the problems faced by teachers that the lack of learning media and the media used previously were less able to create HOTS learning, meaningful and felt less able to improve students' science learning outcomes.

Based digital comic media problem-based learning that was developed, it was carried out through several stages of validity from experts. As for the results of the validity of the content/science material experts on the discussion of morphological adaptations of plants and animals in the developed digital comics, the percentage of the feasibility score was 93% with very good qualifications. Aspects of the assessment of this digital comic material are assessed from the aspects of curriculum, material and grammar. The learning media developed must be in accordance with the material being taught in order to be able to help achieve instructional goals in the learning process (Sukmanasa et al., 2017; Yunia, 2017). The results of the validity of the learning design experts, namely the digital comics that were developed, obtained a feasibility score percentage of 93.18% with very good qualifications. The assessment aspect of this digital comic learning design is assessed from the aspects of objectives, strategies and evaluations. Learning design is very important in learning because an appropriate learning design will support learning in order to create harmony and achieve the learning objectives set by the school (Haris, 2022; Magdalena et al., 2022).

The results of the validity of the learning media experts, namely digital comics that were developed, obtained a percentage score of 95% with very good qualifications. Based on the results of the assessment of the criteria contained in the learning media expert test questionnaire. Digital comic media is a technology-based pictorial media that is packaged as attractively as possible containing material, images that help students understand abstract concepts (Astutik et al., 2021; Kanti et al., 2018). Judging from the comments and suggestions given by learning media experts, it shows that there is a need for a revision in

terms of opening so that it is clarified with the storyline and in the pictures provided in the comics include references. The results of individual trials involving three students who have high, medium and low science learning achievement categories. From the results of the questionnaire obtained a percentage score of 97.5% with very good qualifications. The results of student comments regarding the developed digital comic media received a positive response. Digital comics developed are able to attract students' interest in reading so that students easily understand the material presented. In line with this, the use of instructional media in the teaching and learning process is known to be able to increase students' interest, motivation and learning outcomes. In addition, the use of comics has a psychological effect on students, thus students are expected to be able to receive and absorb messages easily and well. material presented (Halawa, 2021; Mujahadah et al., 2021). The results of the small group trial involved 9 students who had high, medium and low science learning achievement categories. From the results of the questionnaire obtained a percentage score of 95.2% with very good qualifications. The results of student comments regarding the developed digital comic media received a positive response. The digital comics developed are able to attract students' interest in reading so that students easily understand the material presented besides the language used in the comics is easily understood by students. In line with this, the learning process by using effective media is known to be able to turn on the learning atmosphere in accordance with the learning objectives. In addition, the use of learning media can reduce the boredom of students in learning by motivating them by utilizing the media (Citrohn & Svensson, 2020; Febriyandani & Kowiyah, 2021).

After the validity test stage, the product effectiveness test stage was then carried out to determine the level of effectiveness of using problem-based learning to improve learning outcomes which were analyzed using t-test for correlated samples. The effectiveness of developing digital comics media using the test method was measured from the results of the pre-test and post-test given to 18 grade VI students of SD Negeri 2 Bungbungan. ' mean pre-test averages ' post-test were 81.7. After doing the calculation manually, the result of t_{count} 15,624. Then the value of t_{count} compared with the price of t_{table} with $db = n_1 + n_2 - 2 = 18 + 18 - 2 = 34$. The t_{table} for db 34 with a significance level of 5% ($\alpha = 0.05$) is 2.042. Thus, the value of t_{count} is greater than the value of t_{table} so that H_0 rejected and H_1 accepted. This means, there is a significant difference (5%) before and after using problem-based learning-based digital comics learning media. Thus, it can be concluded that problem-based learning in science lesson content, especially morphological adaptation materials, can improve the learning outcomes of odd semester sixth graders at SD Negeri 2 Bungbungan. Therefore, it can be interpreted that using digital comic media based on problem based learning can improve the science learning outcomes of sixth grade elementary school students.

The results of this study are in line with research conducted by (Laksmi & Suniasih, 2021) which states that the development of e-comic learning media based on problem based learning of water cycle material on science content is feasible for use in learning. The difference between this study and previous research is that research on the development of digital comic media based on problem-based learning in science lesson content for morphological adaptation material for class VI SD Negeri 2 Bungbungan has a novelty from previous research, namely in this research it was carried out to test the effectiveness of the product developed while in previous research was only limited to validity tests, besides that the material and samples used were different from previous studies.

4. CONCLUSION

This research resulted in a product in the form of a digital comic based on problem based learning on the content of science lessons using morphological adaptation materials.

Based on the results and discussion presented, it can be concluded that the digital comic learning media developed using the ADDIE model is very feasible to be used in the learning process. Then the results of the product effectiveness test on improving learning outcomes which were analyzed using inferential statistical analysis techniques (t-test) showed that problem-based learning in science lesson content, especially morphological adaptation materials, could improve the learning outcomes of sixth grade students in odd semesters at SD Negeri 2 Bungungan.

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