Development of Problem-Based Learning Based on Google Sites Media in Indonesian Language Subject Class III at SD Muhammadiyah 4 Surabaya

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Abstract

This study aimed to develop Google Sites-based learning media with a valid, practical, and effective Problem-Based Learning (PBL) approach in the Indonesian Language subject for grade III students at SD Muhammadiyah 4 Surabaya. This study uses the ADDIE development model, which includes analysis, design, development, implementation, and evaluation. The media developed includes interactive elements such as videos, quizzes, and educational games to increase students' interest and understanding. The data consisted of validity reviewed based on aspects of presentation, content, and language, practicality based on student responses after the media application, and effectiveness obtained from N-Gain pretest and posttest values. The study showed that PBL-based Google Sites were declared very valid, with an average validity of 95.83%. However, the practicality showed an acquisition of 94% with a quite practical category. Effectiveness showed an average N-Gain value of 0.90, including high category. This media was valid, advantageous, and effective in increasing interest and quality of Indonesian Language learning in grade III.

Keywords : Teacher, Self-Training, Merdeka Mengajar Platform.

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1. Introduction

Education is a difficult part of human life to separate. Basically, education is one of the important needs in the life of every individual (Rahmadana, 2021). Education can be interpreted as a process of improving the quality and potential that exists in humans. In this case, the quality of education can be determined by the learning process (Saputra & Effendi, 2021). At the elementary school level, the implementation of the Independent Curriculum is one of the steps to improve the quality of learning. This curriculum is designed to provide flexibility for teachers in developing project-based and differentiated learning, where students can learn actively, independently, and in accordance with the context of daily life. (Ministry of Education and Culture, 2022; Setiawan, 2023).

Success in education is influenced by the readiness of teachers and students in learning activities. The readiness of students can be seen from their interest in learning (Rohim, 2011). Learning interest, according to Wulandari (2016), is the sense of interest of students in learning activities in the classroom, which can be seen from indicators such as liking, interest, awareness of learning without being asked, active participation, and great attention to learning.

The rapid development of technology has a major impact on various aspects of life, including education (Belawati, 2019). One form of using technology in education is the development of learning media. The use of innovative learning media can increase students' interest in learning because it makes learning activities more interesting (Nugroho & Hendrasmoto, 2021). According to Majid (2012), learning media is a tool used by teachers and students to facilitate the understanding of material so that the learning process becomes more effective and efficient. However, in reality, many students feel bored following the learning process because the media used by teachers tends to be monotonous.

In the Independent Curriculum, teachers are encouraged to use technology as a learning tool to create varied and relevant media. This aims to increase students' interest in learning by presenting a contextual and interesting

learning experience (Ministry of Education and Culture, 2022). Based on the results of interviews with grade III teachers at SD Muhammadiyah 4 Surabaya, it is known that Indonesian learning still focuses on textbooks. This causes students to be less interested in participating in learning and have difficulty understanding the material, so that students' interest in learning becomes low.

As a solution to these problems, the development of technology-based learning media is a strategic step to increase students' interest in learning. One feasible alternative is to create a Google Sites-based learning media that integrates various interactive elements, such as learning videos, quizzes, and educational games. This approach not only provides more engaging material but also encourages learners to learn independently and actively. With a user-friendly design and relevant content, this media can provide a fun and challenging learning experience, so as to be able to overcome the saturation of students in following the learning process.

Previous research has shown that the use of interactive learning media has good effectiveness in supporting learning activities. Dwiqi, et al. (2020) stated that interactive learning media provides positive results in science learning. Harsiwi (2020) also stated that interactive multimedia can motivate students and improve their learning achievement. In contrast to the study, this study combines interactive multimedia with the Google Sites platform to create new innovations in learning media.

Google Sites is an application from Google that is used to create learning websites (Harsanto, 2014). Through Google Sites, teachers can integrate various types of content such as videos, learning materials, and evaluations into a digital platform (Mardin & Nane, 2020). This Google Sites-based learning media will be developed with a Problem-Based Learning (PBL) approach that focuses on problem solving to improve students' critical thinking skills. Furthermore, the learning media developed includes various menus, such as instruction menus, learning objectives, materials, videos, game-shaped evaluations, and learning

tools. With an interactive and fun design, this media is expected to attract students' interest in learning Indonesian.

Based on the above problems, this study aims to produce a valid, practical and effective Google Sites-based learning media with a PBL approach in the third grade of Indonesian subjects of SD Muhammadiyah 4 Surabaya. This media is expected to be able to increase students' interest in learning, create a fun learning atmosphere, and provide innovative technology-based learning alternatives.

2. Method

This research is an R&D (Research and Development) type research that aims to develop Google Sites-based learning media with a Problem-Based Learning (PBL) approach in Indonesian subjects in grade III SD Muhammadiyah 4 Surabaya. This research adopts the ADDIE development model, which consists of five main stages: Analysis, Design, Development, Implementation, and Evaluation.

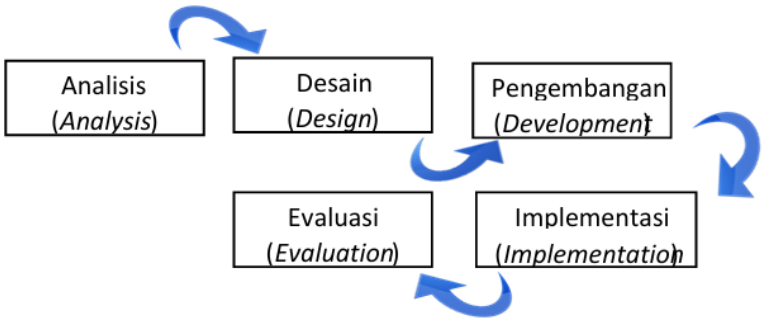


Figure 1. Stages of ADDIE development model (Richard, 2014)

This model was chosen because it can provide systematic guidance in developing effective learning media and in accordance with the learning needs of the classroom. The subject of this study is the third grade students of SD Muhammadiyah 4 Surabaya totaling 28 students, which will be used to test the effectiveness of PBL-based Google Sites learning media in increasing students' interest and understanding in Indonesian subjects.

In the first stage, namely Analysis, the researcher identifies problems that occur in the learning process in grade III C, especially in Indonesian subjects. The researcher analyzes the learning needs of students and the difficulties they face in understanding the material. This analysis also includes interviews with teachers to understand the challenges faced in the learning process as well as the limitations of the use of media in schools. Based on this analysis, the researcher then formulated the goal of developing learning media that is expected to overcome existing problems and attract students to be more active in learning.

The next stage is Design, where the researcher designs Google Sites-based learning media that will be used in Indonesian learning. At this stage, the researcher designs various media components, including material content, site displays, interactive quizzes, learning videos, and other elements relevant to the PBL approach. PBL was chosen because this approach is able to encourage students to think critically and solve problems related to learning materials. This design also takes into account the characteristics of students in class III C, who need an interesting, interactive, and easy-to-understand medium.

Once the design is complete, the Development phase begins. At this stage, the researcher creates and develops learning media according to the design that has been prepared. This media will be integrated with various features on Google Sites, such as text, images, videos, and links that support Indonesian materials. Researchers ensure that the developed media can be easily accessed by learners using various devices, such as computers, laptops, or smartphones. Furthermore, the media that has been developed is validated by media experts and subject matter experts to ensure its quality and suitability. Validation is carried out through filling out a questionnaire by experts to assess the validity of the media. Based on the validation results, the researcher made revisions to improve the media before being tested. This trial aims to determine students' responses to the media and measure its effectiveness in increasing students' interest and understanding of the material taught.

Data acquisition was carried out with the help of research instruments consisting of 3 types of instruments, namely PBL-based Google Sites validity sheets to measure media validity, student response questionnaires used to measure the practicality of PBL-based Google Sites when used in learning activities, and student learning outcomes measured based on pretest and posttest results. The data obtained from this study are quantitative data based on the results of media validation and practicality, as well as qualitative data based on the results of input and suggestions from expert validators. The media validation questionnaire data obtained from expert assessments is based on a likert scale with a score of 1-5. According to Sugiyono (2017), media can be declared valid and suitable for use if they get a score of at least 3.00 or the Quite Valid category on a Likert scale of 5. The criteria and interpretation of scores on the likert scale are found in Table 1 and Table 2.

Table 1. Likert scale validation criteria.

Scale Values	Assessment Criteria
5	Very valid
4	Valid
3	Quite valid
2	No more quite valid
1	Invalid

Table 2. Interpretation of the likert scale

Value Scale	Percentage	Assessment Criteria
5	82≤score≤ 100	Very valid
4	63≤ score ≤ 81	Valid
3	44≤ score ≤ 62	Quite valid
2	25≤ score ≤ 43	No more quite valid
1	< 25	Invalid

After the media was declared valid and feasible, a limited trial was carried out on 28 3rd grade elementary school students to obtain data on the practicality of the media. Practicality was obtained from the students' responses after using PBL-based Google Sites media which was measured using a response questionnaire. The calculation of practicality uses the following formula:

$$\% \text{ Student activity} = \frac{\Sigma \text{ siswa menjawab "YA"}}{\Sigma \text{ seluruh pertanyaan}} \text{ x } 100\%$$

The results of the calculation of student responses are then interpreted based on the criteria for assessing practicality according to Riduwan (2013) in Table 3.

Table 3. Practicality Criteria

Average score (%)	Assessment Criteria
88 – 100	Very valid
75 – 87	Valid
62 – 74	Quite valid
49 – 61	No more quite valid
0 – 48	Invalid

PBL-based Google Sites is said to be practical if the average score is ≥ 75%. Effectiveness measurement was carried out with the Normalized Gain Test (N-Gain) to determine the level of understanding of students after receiving treatment. Normalized gain is a score obtained from the results of comparing the actual gain score with the maximum gain score. The actual gain score is the gain score that students get from the test results, while the maximum gain score is the highest gain score that students may get from the test results. The N-Gain score is formulated according to Meltzer (2002), as follows:

$$\text{NGain} = \frac{\text{Skor Posttest} - \text{Skor Pretest}}{\text{Skor Ideal} - \text{Skor Pretest}}$$

The division of the N-Gain acquisition category in the form of percent (%) is found in Table 4.

Table 4. Categories Interpretation of N-Gain Effectiveness

Percentage (%)	Interpretation
< 40	Ineffective
$40 - 54$	Less Effective
$55 - 69$	Quite Effective
$70 - 84$	Effective
> 85	Highly Effective

Table 5. Classification of N-Gain Values

Value N Gain	Category
$g > 0{,}7$	Height
$0{,}5 \leq g \leq 0{,}7$	Quite High
$0{,}3 \leq g \leq 0{,}5$	Medium

Value N Gain	Category
$0{,}15 \leq g \leq 0{,}3$	Low
$g < 0{,}15$	Very Low

3. Result and Discussion

This Google Sites-based learning media was developed with a Problem-Based Learning (PBL) approach that focuses on problem solving to improve students' critical thinking skills. Furthermore, the learning media developed includes various menus, such as instruction menus, learning objectives, materials, videos, game-shaped evaluations, and learning tools. With an interactive and fun design, this media can attract students' interest in learning Indonesian. Students can access PBL-based Google Sites through the following link: https://sites.google.com/view/bahasa-indonesia-kelas-3-pega/halaman-muka

An interactive PBL-based view of Google Sites is shown in Figure 2.



Figure 2. Google Sites Learning Media Section

In addition to the attractive appearance presented, PBL-based Google Sites has several advantages, namely being able to train students to learn independently, explore the menus provided, increase interest in learning with fun activities, learning activities are packaged in the form of interactive games so that they are not easily bored because there is a hidden feature, namely the AR feature to support PBL-based learning. The PBL-based Google Sites product that has been produced is then tested for validity to determine the feasibility of the media,

practicality by looking at the students' response to the use of media, and the effectiveness of the learning outcomes.

In the development of PBL-based Google Sites in Indonesian lessons in order to be applied and have an impact on learning, it is necessary to carry out a series of validity tests by experts. The PBL-based Google Sites validity assessment was conducted by two expert validators. The assessment criteria use an assessment scale of 1-5 with aspects including presentation, content, and language. The data from the validation results is in Table 7.

Table 7. PBL-based Google Sites Validity Results

Aspects	Validity (%)	Criteria
PRESENTATION		
Media Display	98	Highly Valid
Ease of Access	100	Highly Valid
Contents section		
Material Components	91	Highly Valid
Question Components	86	Highly Valid
Relevance of PBL	100	Highly Valid
LANGUAGE		
Language Structure	100	Highly Valid
Average	95,83	Highly Valid

Based on the results of media validation conducted by media experts and material experts, PBL-based Google Sites was declared very valid with an average validity percentage of 95.83%. The highest percentage of validation results was in the aspects of ease of access, relevance of PBL, and language structure, each reaching 100%. The ease of access to media when used by students has a great influence on their interest and enthusiasm for learning. Easily accessible media allows learners to explore content more efficiently, so they can complete learning tasks completely. This is in line with the results of Wahyudi's (2021) research, which shows that easy access to learning media can support learning activities, increase learning interest, and help students achieve learning goals.

In terms of PBL relevance, this media is considered very good because it supports the identification of problems that are relevant to students and in

accordance with the principles of problem-based learning. This is in line with the purpose of PBL which encourages students to think critically and find solutions to real problems. Then, in the aspect of language structure, the validity reached 100%, indicating that the language used in the media was in accordance with the level of understanding of students. The use of simple, polite, and communicative language supports students' understanding of the material and assignments given. In the aspect of the material component and the question component, respectively obtained a percentage of 91% and 86% with a very valid category. The preparation of material in accordance with basic competencies and curriculum is the main factor in the validity of the material components. Meanwhile, the preparation of questions that are relevant to the cognitive level of students is able to provide appropriate evaluation of learning outcomes. This is in accordance with the opinion of Amir et al. (2021), who stated that good questions can be an evaluation tool to measure the achievement of learning goals while increasing learning motivation. With an average validity of 95.83%, this PBL-based Google Sites media is considered very valid and suitable for use as an Indonesian learning media to improve students' motivation, understanding, and learning outcomes.

The practicality of PBL-based Google Sites media was measured through the distribution of pretest and posttest response questionnaires given to 28 grade 3 elementary school students. The data on the practicality of PBL-based Google Sites media for students is as follows.

Table 8. Results of the Practicality of PBL-Based Google Sites Media

No.	Indicator	Reply	
		Pretest (Before)	Posttest (After)
1.	Sense of Interest	63	95
2.	A Fun Learning Atmosphere	58	95
3.	Technology-Based Learning Innovation	58	94
4.	Practicality and Effectiveness	55	93
	Quantity	234	377
	Presentation	58,5%	94%

Kualifikasi	Less Practical	Very Practical
Improvement	35.5 %	

Berdasarkan Tabel 8, Hasil analisis kepraktisan media Google Sites berbasis Problem-Based Learning (PBL) menunjukkan peningkatan signifikan pada berbagai indikator setelah penggunaan media dalam pembelajaran. Pada indikator rasa tertarik, skor meningkat dari 63 (cukup) menjadi 95 (sangat baik), yang menunjukkan bahwa media ini mampu menarik perhatian peserta didik melalui tampilan yang interaktif dan fitur menarik. Hal ini membuat peserta didik lebih antusias dan termotivasi untuk terlibat dalam proses pembelajaran. Selanjutnya, aspek suasana belajar yang menyenangkan, terjadi peningkatan dari 58 (cukup) menjadi 95 (sangat baik). Media ini menciptakan pengalaman belajar yang lebih interaktif, mendukung kolaborasi, dan memberikan kenyamanan saat digunakan, sehingga suasana pembelajaran menjadi lebih kondusif dan menyenangkan bagi peserta didik.

Pada indikator inovasi pembelajaran berbasis teknologi, skor meningkat dari 58 (cukup) menjadi 94 (sangat baik). Media ini berhasil menghadirkan pengalaman belajar yang relevan dengan perkembangan teknologi, sehingga membantu peserta didik beradaptasi dengan pembelajaran di era digital. Integrasi teknologi dengan metode Problem-Based Learning memberikan kemudahan dan inovasi dalam proses belajar mengajar. Indikator kepraktisan dan keefektifan juga mengalami peningkatan yang signifikan, dari 55 (cukup) menjadi 93 (sangat baik). Media ini dinilai praktis karena dapat diakses dengan mudah kapan saja dan di mana saja, baik secara individu maupun kelompok. Keefektifannya terlihat dari kemampuannya membantu peserta didik memahami materi secara mandiri, sehingga mempermudah pencapaian tujuan pembelajaran.

Peningkatan kepraktisan sebesar 35,5% ini membuktikan bahwa media Google Sites berbasis PBL sangat praktis digunakan dalam pembelajaran. Hal ini sejalan dengan Jonassen et al. (2003), yang mana pembelajaran berbasis masalah

yang didukung oleh media teknologi memberikan kemudahan kepada peserta didik untuk mengeksplorasi materi secara mandiri, mengembangkan keterampilan berpikir kritis, dan menyelesaikan masalah yang relevan. Hasil kepraktisan media Google Sites berbasis PBL pada peserta didik dapat dilihat pada diagram berikut.Based on Table 8, the results of the analysis of the practicality of Google Sites media based on Problem-Based Learning (PBL) show a significant increase in various indicators after the use of media in learning. On the interest indicator, the score increased from 63 (adequate) to 95 (excellent), which shows that this medium is able to attract students' attention through interactive displays and interesting features. This makes students more enthusiastic and motivated to be involved in the learning process. Furthermore, the aspect of a pleasant learning atmosphere, there was an increase from 58 (adequate) to 95 (very good). This media creates a more interactive learning experience, supports collaboration, and provides comfort when used, so that the learning atmosphere becomes more conducive and fun for students.

In the technology-based learning innovation indicator, the score increased from 58 (adequate) to 94 (excellent). This media has succeeded in presenting learning experiences that are relevant to technological developments, thereby helping students adapt to learning in the digital era. The integration of technology with the Problem-Based Learning method provides convenience and innovation in the teaching and learning process. The indicators of practicality and effectiveness also improved significantly, from 55 (adequate) to 93 (excellent). This media is considered practical because it can be easily accessed anytime and anywhere, both individually and in groups. Its effectiveness can be seen from its ability to help students understand the material independently, making it easier to achieve learning goals.

This 35.5% increase in practicality proves that PBL-based Google Sites media is very practical to use in learning. This is in line with Jonassen et al. (2003), where problem-based learning supported by technological media makes it easier for students to explore material independently, develop critical thinking skills,

and solve relevant problems. The results of the practicality of PBL-based Google Sites media for students can be seen in the following diagram.

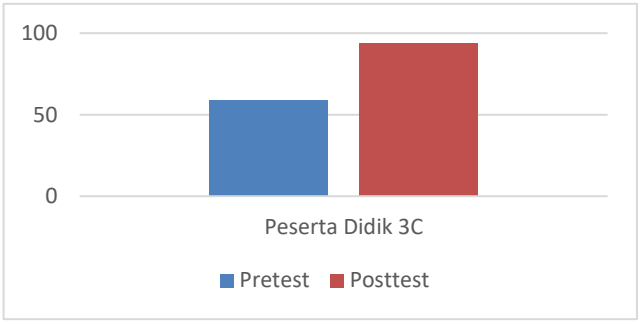


Figure 3. The Practicality of PBL-Based Google Sites Media

PBL-based Google Sites media has proven to be very practical in supporting Indonesian learning at the elementary school level. Improvements on all indicators show that this medium is not only interesting and fun, but also innovative and easy to use. With a high level of practicality, this media can be a relevant and effective learning tool to support the achievement of learning goals, especially in the era of technology-based education.

The effectiveness of PBL-based Google Sites is measured based on the improvement of student learning outcomes obtained from the calculation of pretest and posttest scores after the application of media can be seen in Table 9.

Table 9. Results of Pretest and Posttest Scores of Students

	Value	
	Pretest	Posttest
Average	71	97
Completeness	50%	100%
N-Gain	0,90	
Category	Height	

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Ngain_Score	28	1	1	.91	.090
Ngain_Persen	28	72	100	91.28	8.960
Valid N (listwise)	28				

Based on the results of the pretest and posttest in Table 9. obtained an average pretest score of 71 is included in the medium category with a completeness of 50%. Meanwhile, the posttest score reached an average of 97 with a high category and completeness of up to 100%. The average N-Gain value obtained is 0.90 with the range being in the high category. The increase in score acquisition is due to students' interest in learning Indonesian material through learning activities using $g > 0{,}7$PBL-based Google Sites media . Thus, students become motivated to be able to solve challenges well so as to support the achievement of optimal learning outcomes. Pretest data to find out the initial score of students before the implementation of PBL-based Google Sites media . The results of the calculation on the posttest score showed a significant increase compared to the pretest score. This shows that the application of PBL-based Google Sites media in Indonesian lessons is effective in increasing students' learning motivation which is characterized by improving learning outcomes.

4. Conclusion

The conclusion obtained from this study is that Google Sites media based on Problem Based Learning in Grade 3 Indonesian subjects is stated to be very valid with an average validity of 95.83%, very practical with an average practicality of 94%, and very effective with an average N-Gain value of 0.90. So that Google Sites based on Problem Based Learning can increase students' interest in learning Indonesian which is characterized by an increase in learning outcomes.

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