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# Development of Problem Based Learning (PBL) Teaching Modules To improve students' problem-solving skills In Social Science Subjects in Class V Elementary School. IT Ar-Ridha

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**Abstract**
This study aims to develop a teaching module based on Problem Based Learning (PBL) to improve students' problem-solving skills in IPAS subjects in grade V of SD.it Ar-Ridha. This study used the Research and Development (RnD) method with the ADDIE development model, namely Analyze, Design, Development, Implementation, and Evaluation. The subjects of this study were 25 fifth-grade students and their homeroom teachers. The instruments used included expert validation sheets, practicality questionnaires, and effectiveness tests (pre-test and post-test). Based on the research results, the developed module received an average score of 82.9% from the validators, so the module was categorized as highly valid. The product's practicality test was conducted by teachers and students with an average result of 98.3% and was categorized as very practical. Based on the effectiveness test results using the N-gain score test with a result of 0.8, it was categorized as high. Based on these research results, it can be concluded that the IPAS teaching module based on Problem-Based Learning (PBL) that was developed is valid, practical, and effective for use in the learning process.

**Keywords:** Teaching Module, Problem-Based Learning (PBL), IPAS, Problem Solving Skills

***Abstrak***
*Penelitian ini bertujuan untuk mengembangkan modul ajar berbasis Problem Based Learning (PBL) guna untuk meningkatkan kemampuan pemecahan masalah siswa pada mata pelajaran IPAS di kelas V SD. IT Ar- Ridha. Penelitian ini menggunakan metode Research and Development (RnD) dengan model pengembangan ADDIE yaitu Analyze, Design, Development, Implementation, dan Evaluation. Subjek penelitian ini adalah 25 siswa kelas V dan wali kelas. Instrumen yang digunakan meliputi lembar validasi ahli, angket kepraktisan, dan tes efektivitas (pre-test dan post-test). Berdasarkan hasil penelitian, modul yang dikembangkan mendapatkan skor rata-rata 82,9% dari validator sehingga modul dikategorikan sangat valid. Uji coba kepraktisan produk dilakukan oleh guru dan siswa dengan hasil rata-rata sebesar 98,3% dengan kategori sangat praktis. Berdasarkan hasil uji keefektifan dengan menggunakan uji N-gain score dengan hasil dari N-gain score sebesar 0,8 dikategorikan tinggi. Melalui hasil penelitian ini dapat disimpulkan bahwa modul ajar IPAS berbasis Problem Based Learning (PBL) yang dikembangkan dinyatakan valid, praktis dan efektif untuk digunakan dalam proses pembelajaran.*

***Kata kunci:*** *Modul* Ajar; Problem Based Learning (PBL); IPAS; Kemampuan Pemecahan Masalah

## Introduction

21st century education requires students to have high-level thinking skills, especially critical thinking and problem-solving skills. These skills are the main competencies that must be developed from the elementary school level so that students are able to face real problems in daily life. Learning in elementary school no longer only

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focuses on the mastery of knowledge, but also on the ability of students to disseminate, disseminate, and find solutions to various problems faced. In line with these demands, the Indonesian government implements the Independent Curriculum as an effort to realize student-centered learning. The Merdeka Curriculum emphasizes contextual, flexible learning, and encourages student learning independence. Teachers are given the flexibility to develop teaching tools that are in accordance with the characteristics of students and the conditions of the educational unit, so that learning is expected to be more meaningful and relevant to the real life of students; .(Rahmayanti, 2023)(Kementrian Pendidikan, 2022)(Rahmawati, 2024)

In the Independent Curriculum, the subject of Natural and Social Sciences (IPAS) has an important role in developing scientific thinking skills and solving problems for elementary school students. IPAS is a subject that integrates the concepts of science and social studies in an integrated manner to help students understand natural and social phenomena in the surrounding environment. Through science learning, students are trained to observe, analyze cause-and-effect relationships, and draw logical conclusions, so as to be able to build a more complete and contextual understanding; However, based on the results of initial observations at SDIT Ar-Ridha, social studies learning has not been fully running optimally. The teaching modules used by teachers mostly come from internet sources without adjusting characteristics with students. In addition, teaching materials tend to be less visually appealing, not equipped with problem-solving activities, material summaries, and answer keys that support students' independent learning. This condition causes student involvement in learning to be low and problem-solving skills have not been developed optimally; . (Sagendra, 2022) (Wiayanti, 2023)(Prastowo, 2020)(Rahmawati I. &., 2022)

One of the learning models that is considered to be able to overcome these problems is Problem Based Learning (PBL). Problem Based Learning is a learning model that exposes students to real problems as a starting point for learning. Through PBL, students are encouraged to discuss, discuss, and formulate solutions to the given problems. This model has been shown to improve critical thinking and problem-solving skills because students are actively involved in the learning process, while teachers act as facilitators. The application of Problem Based Learning is very relevant in science learning, especially in ecosystem materials. The ecosystem material requires students to understand the relationship between living things, the concept of food chains, and environmental balance. Problem-based learning in this material allows students to understand concepts with environmental problems that are close to daily life, so that learning becomes more meaningful and easy to understand; & . (Jamaludin, 2024) (Misla, 2020) (Mutoharoh, 2024)(Uliyanti, 2024)

Various previous studies have shown that the development of Problem-Based Learning-based teaching modules has a positive impact on the problem-solving ability of elementary school students. Research by Erinda (2023) states that PBL-based science

teaching modules are declared valid, practical, and effective in improving students' problem-solving skills. The results of other studies also show that the use of PBL-based modules or e-modules is able to increase student involvement, critical thinking skills, and learning outcomes of elementary school students. Therefore, the development of a Problem-Based Learning-based IPAS teaching module on the ecosystem material in class V at SDIT Ar-Ridha is considered important to improve students' problem-solving skills.(Setiadi, 2025)

## Method

This research uses the Research and Development method (*RnD)* with ADDIE's development model which consists of five stages, namely Analysis, Design, Development, Implementation, and Evaluation. The R&D method is used to produce educational products in the form of valid, practical, and effective teaching modules through systematic and tested development procedures; . The ADDIE model was chosen because it provides a clear and structured framework in the development of learning tools from needs analysis to evaluation of development outcomes. This research was carried out to develop a product in the form of a Science Teaching Module on Harmony in Ecosystems material in class V SD.IT Ar-Ridha Pantai Cermin. The five stages of ADDIE include: (Sugiyono, 2020)(Borg, 2003)(Branch, 2009)

1. Analysis Stage
   At the analysis stage, the researcher identified learning needs through observing the social science learning process and interviews with grade V teachers in elementary schools. IT Pantai Cermin. The analysis was carried out on student characteristics, learning outcomes, and teaching materials used previously. Hold analysis aims to determine the gap between existing learning conditions and expected learning conditions, so that the products developed are in accordance with the needs of the user. The results of the analysis show that the teaching modules used do not fully support problem-based learning, so the development of Problem-Based Learning modules is needed. (Branch, 2009)
2. Design Stage
   The design stage aims to design the structure and components of the teaching module based on the results of the needs analysis. At this stage, the researcher prepares the learning objectives, the flow of Problem Based Learning, learning materials, student activities, evaluation instruments, and the design of the module's display. The module design is arranged to be in harmony with the competencies of the science subject "Harmony in the Ecosystem" material and the principles of the Merdeka curriculum. The design stage is an important step to ensure that the product developed has a fit between objectives, materials, and learning strategies (Borg, 2003) ; (Branch, 2009).
3. Development Stage
   At the development stage, the design of the teaching module was realized into a real product in the form of a Problrm Based Learning IPAS teaching module. The developed modules are then validated by subject matter experts, linguists, and

media experts to assess the feasibility of the content, language and appearance of the module. Expert validation aims to ensure that the product developed meets quality standards as teaching materials before being implemented in learning (Sugiyono, 2020).

4. Implementation Stage
   The implementation stage is carried out by applying the Problem-Based Learning-based IPAS teaching module in the learning process in class V SD.IT Ar-Ridha Pantai Cermin. The implementation aims to determine the level of practicality of the module based on the response of teachers and students and observe the implementation of learning using the developed modules. This stage is important to see the suitability of the product with real learning conditions in the classroom.(Branch, 2009)
5. Evaluation Stage
   The evaluation stage is carried out to assess the effectiveness of the teaching modules developed on students' problem-solving skills. The evaluation was carried out through the analysis of student learning outcomes using n-gain calculations. The evaluation stage aims to find out the extent to which the teaching module is able to achieve the learning objectives that have been set and become the basis for product improvement to be more optimal; . (Sugiyono, 2020)(Branch, 2009)

## Results and Discussion

### Results

1. Analysis Stage
   a. *Front-end* analysis
      This analysis is carried out with the aim of finding out the existing conditions and problems. Through this step, it can be a reference for the importance of developing teaching materials in the form of modules in science subjects. This step was carried out by interviewing the homeroom teacher of class V, namely Mrs. Sri Wahyuni, S.Pd., Gr.
   b. Student Analysis
      Grade V students Sd.it Ar-Ridha are in the age range of 10-11 years, which is the concrete operational stage at this stage students understand concepts through real activities, direct experience and visual examples. Students' problem-solving skills are still relatively low because learning tends to use lecture methods and the questions given are only ordinary questions in books. Therefore the module should contain problem-solving activities such as group discussions to solve existing case studies.
   c. Concept Analysis
      The concepts in the harmony material in the ecosystem are interrelated, starting from the definition of the ecosystem, its constituent components, food chains, food webs and efforts to maintain the balance of the ecosystem. This concept analysis is the basis for the preparation of Problem Based Learning

(PBL)-based teaching modules so that students can understand the cause-and-effect relationship in the ecosystem through observation, investigation, and problem-solving activities.

2. Design Stage

At this stage, a product design is produced. This stage produces a product design that is developed, the product used in this learning is in the form of the Science Teaching Module. The following are the steps taken at the design stage, including:

a. Penyusunan Standard tes (*criterion-test construction*)

The preparation of test standards is carried out by paying attention to basic competencies and indicators of competency achievement. The following is a breakdown of the number of questions that will be used in the module, including:

Table Number of questions used in the teaching module

| Types of Evaluation | Number of Questions |
|---|---|
| Exercise 1 | 4 |
| Exercise 2 | 10 |
| Exercise 3 | 4 |
| Final evaluation of the module | 5 |

b. Media Selection

This research medium is a teaching module which includes LKPD and LKK. The module was chosen because it is easy to use, can increase student learning independence, and has a material scope that is not too wide so that it focuses on harmony materials in the ecosystem. In addition, teaching modules are easy to develop and modify using software such as Microsoft Word and Canva.

c. Format selection

At this stage, the researcher reviews the existing teaching materials and determines the presentation format to be used. The format is designed to support the problem-solving learning process according to the *stages of Problem Based Learning* (PBL), so that learning becomes more effective and easy to use by teachers and students.

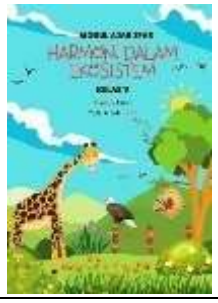
d. Initial *Design*

Through the analysis that has been carried out and the selection of module formats, the initial draft I is obtained, namely the module design. In this step, the parts that are the contents of the module are determined and the content of the module is made. The module is designed using the Canva application with

A4 paper size (21 × 29.7 cm, the font used is Times New Roman with a size of 18 cm for the title and 16 cm for the content, and a spacing between lines of 1.5.

3. Development Stage

At the development stage, a test is carried out which aims to produce a product that is suitable for use. The tests carried out are product effectiveness tests by experts and practical tests on the use of teaching module products by teachers and students. The effectiveness test was assessed from three aspects, namely the content aspect, the language aspect and the design aspect. The content aspect was assessed by Mrs. Diani Syahfitri, M.Pd with a validation score of 65.6% with a valid category and the language aspect was assessed by Mrs. Enda Lovita Pandiangan, M.Pd with a validation result value of 83.3% with a very valid category and the design aspect was assessed by Mrs. Khairat Umami, M.Pd with a validation result value of 100% in the very valid category. The results of product validation are worthy of further testing, but the product that has been designed needs to be revised according to the suggestions that have been given by the validator. The following are the results of the revision of the IPAS teaching module product below:

<table>
<tr><td>Before Revision</td><td>After Revision</td></tr>
<tr><td> 
</td><td> 
</td></tr>
<tr><td colspan="2">Remarks: Add a clear material title and include the class identity on the cover of the teaching module, adding a brighter color contrast to the cover.</td></tr>
<tr><td> 
</td><td>  </td></tr>
<tr><td colspan="2">Remarks: Reduce the font size in the text so that it is not too large and for each title the font size is increased by 2 from the font size in the regular text.</td></tr>
</table>

4. Implementation Stage

   The implementation stage is carried out by carrying out trials of teaching module products that have been revised based on input from validators and supervisors. This trial was carried out in class V Sd.it Ar-Ridha which amounted to 25 students. The implementation activity was carried out on Thursday, October 16, 2025.

5. Evaluation Stage

   The evaluation stage is carried out to find out the results and quality of the products that have been developed based on the trials that have been carried out. Evaluation is the final stage in the ADDIE model development process. At this stage, the researcher distributed a questionnaire and provided training in the form of LKPD to all students of class V twice a test. Through the results of the evaluation, it can be known the level of feasibility and effectiveness of the teaching modules developed in supporting learning activities.

## Discussion

The results of the study show that the teaching module is based on *Problem Based Learning* (PBL) developed has a very high level of validity and practicality. Expert assessment of the content, language, and appearance aspects of the module shows that the modules have been in accordance with the characteristics of IPAS learning in primary schools. This finding is in line with the opinion that good teaching materials must meet the criteria of content, language, and presentation feasibility in order to be used optimally in learning. In addition, teaching modules that are arranged systematically and contextually will make it easier for students to understand the material and support independent learning.(Prastowo, 2020)(Rahmawati I. &., 2022)

The practicality of the modules obtained from the responses of teachers and students shows that the modules are easy to understand, easy to use, and able to increase student involvement in the learning process. This is in accordance with the characteristics of the PBL model which places students as the center of learning through meaningful problem-solving activities. The results of this study are also in line with the findings that PBL-based science modules are considered practical and easy to apply by teachers and elementary school students. The effectiveness of the teaching module is increased from the improvement of students' problem-solving skills as shown through a high N-gain value. This improvement shows that the PBL stages applied in the module, such as problem orientation, data collection, group discussion, and solution development, are able to facilitate students in developing high-level thinking skills. It is effective in improving problem-solving skills because students learn through the process of thinking reflexively and analytically to real problems.(Mutoharoh, 2024)

The provision of contextual problems in the module has also been proven to help students in analyzing problems, thinking, and finding solutions independently. This is in line with research that states that the application of PBL to science learning in elementary schools can improve students' ability to understand concepts and solve problems through

contextual learning activities. The research also found that PBL-based science learning is able to improve students' critical thinking skills because students are actively involved in the demanding learning process and decision-making. The findings of this study are further strengthened by the results of previous research which stated that PBL-based teaching modules are not only valid and practical, but also effective in improving the problem-solving skills of elementary school students. Research shows that PBL-based open IPAS modules are able to significantly improve students' problem-solving skills. Similar results were also found by those who stated that the use of PBL-based e-modules in social studies learning can increase student involvement and critical thinking skills in a sustainable manner. (Misla, 2020) (Uliyanti, 2024)(Erinda, 2023)(Setiadi, 2025)

Thus, the results of this study confirm that the use of *Problem-Based Learning-based* teaching modules contributes significantly to improving the quality of IPAS learning in elementary schools. The modules developed not only meet valid and practical criteria, but are also effective as learning tools in developing students' problem-solving skills. These findings support the application of the PBL model as a learning approach that is relevant to the demands of the Independent Curriculum and the learning needs of the 21st century.

## Limitations

This study has several limitations that need to be considered, such as the module trial was conducted in one school with a relatively small number of participants, so the results of the study cannot be generalized in a broader context. In addition, the module effectiveness test is only focused on the material "Harmony in the Ecosystem", so it does not describe the performance of the module when applied to other IPAS materials. This study has also not made a comparison with alternative learning models, so the effectiveness of PBL-based modules cannot be seen from a comparative point of view.

## Conclusion

Based on the results of the research and development that has been carried out, as well as data analysis through expert assessments and research subjects, a product was produced in the form of a Problem *Based Learning (PBL) based IPAS teaching module* with the ADDIE model. This research was carried out at SD IT Ar-Ridha on 25 students in class V. Based on the criteria of validity, practicality, and effectiveness, the teaching modules developed obtained excellent results. In terms of validity, expert assessments showed a percentage of 65.6% for subject matter experts (valid category), 83.3% for linguists (very valid category), and 100% for design experts (very valid category), so that an average validity score of 82.9% was obtained with a very valid category. In the practicality aspect, the teacher's assessment of the material, appearance, and usability aspects obtained a percentage of 100% each, while the student assessment reached 93%, so that the overall level of practicality of the module reached 98.3% with the category of very practical. Furthermore, the effectiveness of the teaching module is seen from the

results of the students' pre-test and post-test which were analyzed using the N-Gain score and produced an average score of 0.8 with a high category. Thus, the PBL-based IPAS teaching module developed is declared valid, practical, and effective to be used in IPAS learning in grade V students of SDD IT Ar-Ridha

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