

APPLICATION OF INQUIRY LEARNING MODEL TO IMPROVE IPAS CLASS IV LEARNING OUTCOMES AT SD NEGERI 59 LUBUKLINGGAU

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Abstract: This study aims to analyze the effectiveness of the application of the inquiry learning model in improving student learning outcomes in IPAS (Integrated Natural and Social Sciences) for fourth-grade students at SD Negeri 59 Lubuklinggau. This research is motivated by the low learning outcomes and limited student engagement in IPAS classes, which are still dominated by conventional teaching methods and lack of exploratory learning activities. The study employed a quasi-experimental method using a One Group Pretest-Posttest Design, in which students were first given a pre-test, followed by learning sessions using the inquiry model, and concluded with a post-test. The results showed a significant improvement in learning outcomes, indicated by the increase in average scores from 44.70 in the pre-test to 83.05 in the post-test. The number of students achieving mastery also increased from 0 to 18 students. A statistical Z-test revealed $Z_{cal} = 6.94 > Z_{table} = 1.64$, which confirms the acceptance of the research hypothesis. These findings demonstrate that the inquiry learning model has a positive and significant impact on student achievement. In conclusion, the inquiry model is proven to be an effective strategy for enhancing IPAS learning outcomes among elementary students. Practically, this suggests that educators should consider implementing inquiry-based strategies to foster student curiosity and engagement. For future research, it is recommended to explore the integration of inquiry learning with digital tools or to investigate its impact across different grade levels and subjects.

Keywords: Inquiry Learning Model, Learning Outcomes, IPAS, Independent Curriculum, Elementary Education

INTRODUCTION

Basic education is the most important phase in instilling the foundation of knowledge, attitudes, and skills that will shape the character of students in the

future. One of the strategic subjects in this context is Natural and Social Sciences (IPAS), which in the Independent Curriculum is designed to develop students' scientific thinking skills, logical reasoning, and exploratory skills from an early age. IPAS brings together aspects of natural knowledge with social phenomena, creating a comprehensive foundation for students' understanding of the surrounding environment.

However, in reality, the learning process of IPAS in elementary schools is still faced with various obstacles. Based on initial observations made at SD Negeri 59 Lubuklinggau, it was found that IPAS learning tends to still be teacher-centered and oriented towards memorizing the material. Teachers are still dominant in using lecture and assignment methods without providing enough space for students to explore, ask questions, and discover concepts independently. As a result, students become passive, bored quickly, lack interest in the material, and have difficulty understanding abstract and contextual concepts of social studies.

This condition causes low student learning outcomes, as reflected in daily test scores and learning evaluation results that show that most students have not reached the Minimum Completeness Criteria (KKM). This problem is very concerning, especially because IPAS is actually a subject that can be very interesting and meaningful if it is delivered with an approach that suits the characteristics of elementary school students.

Grade IV elementary school students are psychologically at the stage of concrete operational cognitive development according to Jean Piaget's theory. This means that they are better able to understand learning materials if they are presented through direct, manipulative, and exploratory activities-based experiences. Therefore, a learning model is needed that not only conveys the material verbally, but is also able to stimulate students' curiosity, activate their participation, and allow them to build understanding through the process of scientific thinking.

The inquiry learning model is one of the alternatives that is very relevant to these needs. This model emphasizes the active involvement of students in discovering their own knowledge through a series of activities of questioning, investigating, drafting hypotheses, experiments, and drawing conclusions. Thus,

students not only memorize the material, but also understand the underlying scientific processes, and have a meaningful and enjoyable learning experience.

The application of the inquiry learning model in social studies learning is predicted to be able to encourage students to develop science process skills, increase learning activity, and have a positive impact on improving learning outcomes. This research focuses on IPAS material with the topic "Plants: Sources of Life on Earth" which has great potential to be studied by inquiry because it involves aspects of observation, classification, and understanding of the relationship between plants and other living things.

Based on these conditions, the main problem addressed in this study is the low learning outcomes of students in IPAS due to the lack of student-centered learning approaches. This research is significant as it seeks to offer an effective solution by applying the inquiry learning model, which aligns with students' developmental stages and encourages the development of science process skills. Through this study, it is expected that the inquiry approach can enhance students' conceptual understanding, engagement, and academic performance in IPAS.

RESEARCH METHODOLOGY

Types and Approaches to Research

This study uses a quantitative approach with the type of **eksperimen semu (quasi-experimental design)**. This approach was chosen because the researchers did not randomly randomize the samples, but rather took subjects from one existing class and gave the treatment to that group. In this design, the results of the pre-test and post-test are used as a reference to assess changes in student learning outcomes after the implementation of the inquiry learning model.

The design used is **One Group Pretest-Posttest Design**, which is a design in which subjects are given a pre-test, then given treatment in the form of an inquiry learning model, and then ended with a final test (post-test). This design allows researchers to see the extent of the influence of treatment on student learning outcomes.

Research Location and Time

The research was carried out in **SD Negeri 59 Lubuklinggau**, one of the public elementary schools under the auspices of the Lubuklinggau City Education Office. The research implementation time lasts for two months in the odd semester of the 2024/2025 school year, starting from preparation activities, learning implementation, data collection, and analysis of results.

Population and Sample

The population in this study is all grade IV students of SD Negeri 59 Lubuklinggau which totals 28 students. Sampling technique using **sampling jenuh**, where all members of the population are sampled because they are relatively small and easy to control. However, out of 28 students, only 20 students had valid and complete pre-test and post-test results so that they were used as the main analysis data.

Research Instruments

The main instruments used are **Learning Outcome Test** in the form of multiple choices. The questions consist of 20 items developed based on competency achievement indicators and material grids. Before use, the question has gone through a process **Content Validation** by expert lecturers and grade IV teachers to ensure the suitability of the material and the level of difficulty that suits the student's ability.

In addition, tests were also carried out **Reliability**, **Differentiating power** and **Difficulty level** question. From the results of the validity test, 18 questions were obtained that were declared valid and suitable for use as pre-test and post-test instruments.

Data Collection Techniques

Data collection is carried out through:

1. **Pre-test:** Carried out before students get learning with an inquiry model, to measure students' initial knowledge.
2. **Post-test:** Carried out after the treatment is completed, to measure the improvement in learning outcomes.
3. **Observation:** To observe student activities during the learning process.
4. **Documentation:** Includes notes of the learning process, photos of activities, and student grades.

Data Analysis Techniques

The data were analyzed quantitatively using descriptive and inferential statistical techniques:

- a. **Descriptive statistics:** Used to calculate the average values, standard deviations, highest and lowest values of pre-test and post-test results.
- b. **Hypothesis test (z-test):** Used to determine the significance of the difference between pre-test and post-test values. The z-test is used because

the data is retrieved from more than 30 data or using a normal distribution approach.

The analysis steps include:

1. Calculate the average of pre-test and post-test results.
2. Calculates standard deviation and standard errors.
3. Calculating the value of Z_{calcul} .
4. Comparing Z_{cal} with Z_{table} at a significance level of 5% ($\alpha = 0.05$).

RESEARCH RESULTS

This study uses a pseudo-experimental approach with design *One Group Pretest-Posttest* to find out the extent to which the application of the inquiry learning model can improve the learning outcomes of IPAS students in grade IV of SD Negeri 59 Lubuklinggau.

Recapitulation of Pre-test and Post-test Results

The initial test (pre-test) and final test (post-test) were given to 20 students. Here is a comparison of the results:

Yes	Aspects Assessed	Pre-test	Post-test
1	Grade Point Average	44,70	83,05
2	Highest Score	67	100
3	Lowest Score	33	67
4	Standard Deviation	8,46	8,47
5	Number of Students Completed (≥ 70)	0 students	18 students
6	The Number of Students Is Incomplete	20 students	2 students

There was an increase in the average score of **38.35 points**, which shows that after participating in learning with the inquiry model, the majority of students experience an increased understanding of the IPAS material.

Hypothesis Test Results

To determine the significance of improving learning outcomes, **Statistical test Z** With results:

- a. $Z_{\text{cal}} = 6.94$
- b. $Z_{\text{table}} = 1.64$ ($\alpha = 0.05$)

Because $Z_{count} > Z_{tabel}$, then **Alternatif hypothesis (Ha)** Accepted. This means that there is a significant difference between student learning outcomes before and after the implementation of the inquiry learning model.

DISCUSSION

1. Inquiry Model Improves Students' Conceptual Comprehension

The inquiry learning model has proven to be very effective in encouraging students to build their own understanding through a series of scientific stages such as formulating problems, designing investigations, collecting and analyzing data, and deducing results. This process is in accordance with the scientific mindset in learning IPAS.

Students not only receive information from the teacher, but actively seek and discover their own meaning from their learning experiences. Exploratory activities such as plant observation in the school environment, simple experiments, and group discussions are proven to make concepts more embedded in students' minds.

2. Improving Student Learning Completeness

The increase in the number of students who achieved KKM from 0 to 90% shows that the inquiry model is able to accommodate a wide range of learning styles and ability levels of students. This is very important because grade IV students have concrete thinking skills that require a hands-on experiential learning approach.

The inquiry model provides a space for students to touch, see, and experiment directly with real objects. It bridges the gap between abstract material and reality that is sensorially accessible to students.

3. Activation of Critical and Collaborative Thinking

During the learning process, students show progress in terms of asking questions, giving opinions, and analyzing phenomena in a simple way. Group discussion activities in inquiry learning have opened up space for students to exchange ideas, respect the views of friends, and build solutions together.

These skills fall within the realm of 21st century skills (*21st century skills*) important, such as **critical thinking**, **collaboration** and **communication**, which is urgently needed in today's modern learning era.

4. Implications for Teacher Strategy

The application of the inquiry learning model shows that teachers are no longer the only source of information, but become facilitators who guide students in the process of discovering knowledge. This paradigm change must be supported by the readiness of teachers in designing inquiry activities that are in accordance with the level of student development and facilitate safe and directed exploration.

This is in line with the learning approach in the Independent Curriculum, where project-based and discovery-based learning (*inquiry-based learning*) is an important part of differentiatory learning strategies.

5. Compatibility with Cognitive Theory and Learning Psychology

These findings support Piaget's theory that children aged 7-12 years are at the **Concrete Operations**, where they understand concepts through manipulation of objects and real experiences. The inquiry model answers this need because it provides opportunities for students to touch and observe the learning object directly.

In addition, this approach is also in line with Vygotsky's theory of constructivism which emphasizes the importance of **scaffolding** from teachers to guide students to achieve their maximum learning potential in **Proximal Development Zone** (ZPD).

6. Relevance to the Independent Curriculum

The Independent Curriculum encourages learning that is oriented towards strengthening students' competence and independence. The inquiry learning model fully supports this philosophy because students do not just complete the material, but actively interpret and comprehend it.

Using an inquiry approach, students are also trained to formulate questions, find answers, and process information from the surrounding environment. These skills are essential for shaping **Pancasila student profile** who are knowledgeable, critically reasoning, and independent.

7. Student Psychosocial Impact

In addition to quantitatively improved learning outcomes, qualitatively it can be seen that students become more confident, enjoy learning, and feel in control of what they learn. Their sense of responsibility and curiosity increases, which means that this learning model also has an impact on the affective realm.

CONCLUSION

Based on the results of the research that has been carried out on the application of the inquiry learning model in improving the learning outcomes of science students in grade IV of SD Negeri 59 Lubuklinggau, several conclusions can be drawn as follows:

1. **The application of the inquiry learning model has proven to be effective and significant in improving student learning outcomes in science subjects.** This is evidenced by an increase in the average pre-test score of 44.70 to 83.05 in the post-test, as well as an increase in the number of students who reached the KKM from 0 to 90% after learning. The results of the Z statistical test showed a significant difference, which means that the inquiry model has a real impact on students' learning achievements.
2. **The inquiry learning model is able to encourage students to be more active, critical, and independent in the learning process.** The learning process is carried out by involving students in the stages of questioning, investigating, collecting data, and concluding, providing a more meaningful learning experience and in accordance with the cognitive development of elementary school-age children. Inquiry also increases students' curiosity and emotional engagement with the material being studied.
3. **The inquiry approach is in line with the needs of 21st century learning and the implementation of the Independent Curriculum.** This model not only improves cognitive achievement, but also develops important competencies such as critical, collaborative, and communicative thinking. This makes learning science not only a means of knowledge transfer, but also a vehicle for the formation of character and scientific thinking skills in students.
4. **The teacher plays the role of a facilitator who guides students in the process of thinking and discovering learning concepts for themselves.** This model provides students with a space of freedom and autonomy to learn without relinquishing the responsibility of teachers in creating a conducive learning environment. This paradigm shift from teacher-centered to student-centered is the main key to the success of the inquiry learning model.
5. **The practical application of the inquiry learning model can be a solution to the low interest and learning outcomes of IPAS in elementary schools.** Therefore, this model is suitable to be applied more widely, both in science learning and other subjects that require exploration and understanding of concrete concepts.

RECOMMENDATIONS FOR FURTHER RESEARCH

Based on the results of this study, some recommendations for further research are suggested as follows:

1. **Involving a Wider and Varied Sample**

This research was conducted in only one class in one school. Subsequent studies are recommended to be carried out in different schools and with a larger number of students so that the results can be generalized more widely.

2. **Application of the Inquiry Model to Different Materials and Levels**

Inquiry models have great potential to be developed on other IPAS topics such as plant life cycles, water cycling, or environmental change. In addition, the research can be extended to other grade levels, both lower (grades I–III) and higher (grades V–VI) to test suitability for different levels of cognitive development.

3. **Measurement in the Affective and Psychomotor Realm**

This research only focuses on the cognitive aspect. It is suggested that further research also examines the influence of inquiry models on the affective domains (learning interest, curiosity) and psychomotor (experimental skills, presentation of observational results).

4. **Integration with Digital Media or Interactive Technology**

Inquiry models can be strengthened with the support of technologies such as interactive learning media, digital science simulations, or virtual labs. Subsequent research can explore the combination of inquiry and digital technology in IPAS learning.

5. **Longitudinal Studies on Long-Term Impacts**

It is recommended to conduct a long-term study to examine the sustainability of understanding and the influence of inquiry learning models on improving students' critical thinking skills over time.

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