

Implementation of Inquiry-Based Learning Models to Improve Elementary School Students Exploration Skills

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Abstract

This study was motivated by the fact that students' exploration skills in science learning are still relatively low because learning tends to be teacher-centered. This study aims to improve students' exploration skills through the application of the inquiry learning model in science learning. This study is a classroom action research (CAR) conducted in two cycles, with stages of planning, implementation of actions, observation, and reflection. The research subjects were fifth-grade students at SDN 03 Gedong. Data collection techniques were carried out through observation, tests, and documentation. The data were analyzed using quantitative and qualitative descriptive techniques. The results showed that students' exploration skills increased from 62% in cycle I to 86% in cycle II. In addition, the students' IPAS learning outcomes also increased from 65% in cycle I to 88% in cycle II. Based on these results, it can be concluded that the application of the inquiry learning model can improve the exploration skills and IPAS learning outcomes of elementary school students.

Keywords: *inquiry, exploration, IPAS, classroom action research*

Abstrak

Pendidikan masa sekarang menuntut siswa untuk dapat memiliki kemampuan dalam Penelitian ini dilatar belakangi oleh kemampuan eksplorasi siswa pada pembelajaran IPAS masih tergolong rendah karena pembelajaran cenderung berpusat pada guru. Penelitian ini bertujuan untuk meningkatkan kemampuan eksplorasi siswa melalui penerapan model pembelajaran inkuiri pada pembelajaran IPAS. Penelitian ini merupakan penelitian tindakan kelas (PTK) yang dilaksanakan dalam dua siklus, dengan tahapan perencanaan, pelaksanaan tindakan, observasi, dan refleksi. Subjek penelitian adalah siswa kelas V SDN 03 Gedong. Teknik pengumpulan data dilakukan melalui observasi, tes, dan dokumentasi. Data dianalisis menggunakan teknik deskriptif kuantitatif dan kualitatif. Hasil penelitian menunjukkan bahwa kemampuan eksplorasi siswa mengalami peningkatan dari 62% pada siklus I menjadi 86% pada siklus II. Selain itu, ketuntasan hasil belajar IPAS siswa juga meningkat dari 65% pada siklus I menjadi 88% pada siklus II. Berdasarkan hasil tersebut, dapat disimpulkan bahwa penerapan model pembelajaran inkuiri dapat meningkatkan kemampuan eksplorasi dan hasil belajar IPAS siswa sekolah dasar.

Kata Kunci : inkuiri, eksplorasi, IPAS, penelitian tindakan kelas



INTRODUCTION

Education is a consciously planned process aimed at developing students' potential so that they possess the knowledge, skills, attitudes, and character required to live and participate effectively in society. Law Number 20 of 2003 on the National Education System of Indonesia emphasizes that education functions to develop capabilities and shape the character and civilization of a dignified nation. At the elementary school level, education plays a strategic role as a foundational stage in developing students' thinking skills, scientific attitudes, and character that will support their learning at higher levels.

IPAS (Natural and Social Sciences) learning in elementary schools is designed to help students understand natural and social phenomena that are closely related to their daily lives. IPAS learning is not only oriented toward conceptual mastery but also toward the development of exploration and scientific process skills, such as observing, questioning, collecting information, reasoning, and communicating findings. Susanto (2019) argues that science learning in elementary schools should position students as active subjects who are directly involved in the process of knowledge construction. In line with this view, the OECD (2018) highlights the importance of process-based learning in fostering 21st-century skills, including critical thinking, creativity, and problem-solving.

However, classroom realities indicate that IPAS learning in elementary schools is still predominantly conducted using conventional approaches. Teachers tend to rely heavily on lecturing and textbook-based assignments, while students function mainly as passive recipients of information. This condition has resulted in low levels of student engagement and underdeveloped exploration skills. Initial observations conducted by the researcher revealed that most students were not actively involved in the learning process, were reluctant to ask questions, and showed limited enthusiasm when asked to conduct simple observations or investigations. During discussion activities, only a small number of students participated actively, while the majority waited for direct instructions from the teacher.

More specifically, the actual classroom conditions showed that students were not accustomed to conducting independent exploration. When presented with problems related to natural or social phenomena, students experienced difficulties in formulating questions, identifying relevant information, and drawing conclusions based on observational data. Learning activities were still oriented toward obtaining correct answers as stated in textbooks rather than emphasizing the process of knowledge discovery. Consequently, students' exploration skills—including observing, questioning, experimenting, and reasoning—had not developed optimally. These findings are consistent with studies by Wibowo and Pratiwi (2017) and Lestari et al. (2020), which report that teacher-centered learning leads to passive student behavior and limited development of science process skills in elementary schools. Exploration skills are a crucial component of process skills in IPAS learning. These skills enable students to explore their surrounding environment through direct observation, inquiry, experimentation, and independent concept discovery. Arends (2016) states that exploration skills can develop optimally when students are provided with opportunities to engage directly in investigative activities. Nevertheless, numerous studies have shown that these skills remain underdeveloped among elementary school students. Research by Lestari et al. (2020) indicates that low exploration skills are largely attributable to the limited use of learning models that emphasize inquiry and investigation.

One learning model considered effective in addressing this issue is the inquiry-based learning model. Inquiry-based learning emphasizes critical and analytical thinking processes that guide students to seek and discover answers to problems through systematic investigation. Muhammad and Agustina (2025) state that inquiry-based learning encourages students to actively search for and construct knowledge through scientific processes. This

view is supported by Maryam et al. (2020), who argue that inquiry-based learning provides students with meaningful opportunities to be actively involved in discovering concepts through investigation.

Theoretically, inquiry-based learning is grounded in constructivist learning theory, which emphasizes that knowledge is actively constructed by learners. Bruner (as cited in Trisusanti et al., 2018) asserts that learning becomes more meaningful when students are directly involved in the process of concept discovery. Furthermore, Vygotsky (2017) highlights the importance of social interaction and hands-on experiences in supporting students' cognitive development. Therefore, the implementation of inquiry-based learning in IPAS is expected to enhance students' exploration skills as well as their conceptual understanding.

In addition to improving exploration skills, inquiry-based learning also positively influences students' learning motivation. Learning motivation refers to the internal drive that encourages students to actively and persistently engage in learning activities. Safna and Wulandari (2022) state that learning motivation plays a significant role in determining students' learning success. Empirical studies by Hidayah et al. (2019), Sari and Nugroho (2021), and Putra et al. (2023) demonstrate that inquiry-based learning can increase students' curiosity, self-confidence, and motivation to learn in elementary school contexts. Numerous studies published within the last decade have demonstrated the effectiveness of inquiry-based learning in IPAS and science-related subjects at the elementary level. Research conducted by Kurniawan et al. (2016), Rahmawati and Sudirman (2018), Anwar et al. (2020), Dewi et al. (2021), Prasetyo et al. (2022), and Yuliana et al. (2024) reports improvements in student learning activity, critical thinking skills, science process skills, and learning outcomes following the implementation of inquiry-based learning. Moreover, Hopkins (2008) states that Classroom Action Research (CAR) is a systematic approach undertaken by teachers to improve classroom practice through reflective and cyclical actions.

Based on the observed classroom conditions and the supporting theoretical and empirical literature, it can be concluded that the low level of students' exploration skills in IPAS learning requires immediate improvement through the implementation of an innovative, student-centered learning model. Therefore, this study applies an inquiry-based learning model as a strategic intervention to enhance elementary school students' exploration skills.

Accordingly, the research questions of this study are: (1) How is the inquiry-based learning model implemented in IPAS learning at the elementary school level? and (2) How does the implementation of the inquiry-based learning model improve students' exploration skills in IPAS learning?

The objectives of this study are: (1) to describe the implementation of the inquiry-based learning model in IPAS learning at the elementary school level, and (2) to improve elementary school students' exploration skills through the implementation of inquiry-based learning. This study employs Classroom Action Research conducted in two cycles, each consisting of planning, action implementation, observation, and reflection stages. The findings of this study are expected to contribute to the improvement of IPAS learning quality and to serve as a reference for teachers in implementing innovative and effective learning models.

METHOD

This study utilised the classroom action research (CAR) method, which was conducted in two cycles, with stages of planning, implementation of actions, observation, and reflection. The research subjects were 17 fifth-grade elementary school students. This

study focused on the application of the inquiry learning model in science and mathematics learning to improve students' exploration skills.

The research data consisted of qualitative and quantitative data sourced from student activities during learning and learning evaluation results. Data collection techniques were carried out through observation, tests, and documentation using tools such as observation sheets on exploration skills and learning activities, science learning outcome tests, and documentation of activities. The data were analysed using quantitative and qualitative descriptive analysis, namely calculating the percentage increase in exploration skills and learning completeness, as well as interpreting the observation results as material for reflection and improvement in the next cycle.

RESULTS AND DISCUSSION

This classroom action research was conducted in two cycles by applying the inquiry learning model to IPAS learning. The results showed an increase in students' exploration skills and learning outcomes in each cycle. This improvement was obtained through observations of students' exploration skills and IPAS learning outcome tests.

Data collection in this study was conducted using several techniques, namely observation, testing, and documentation. The observation technique was used to observe students' exploratory skills and learning activities using an observation sheet designed based on exploratory skill indicators. The testing technique was used to measure students' learning outcomes in the IPAS subject after the implementation of the intervention. Meanwhile, documentation was used to supplement the research data in the form of activity photos, field notes, and other supporting documents.

The research instruments used included: (1) an observation sheet for students' exploratory skills, (2) an observation sheet for teacher and student activities, (3) learning outcome test questions, and (4) documentation of learning activities. The instruments were designed in accordance with the principles of validity and reliability to ensure the data obtained was trustworthy, as stated by Sugiyono.

In cycle I, students' exploration skills were at 62%, which was considered good. Although students had begun to engage in learning activities, such as observing and gathering information, some students were still not active in asking questions and drawing conclusions. The IPAS learning test results in cycle I showed that the level of student learning mastery reached 65%, which meant that not all students had achieved the specified mastery criteria.

After making improvements to the learning process in cycle II based on the results of the reflection in cycle I, there was an increase in students' exploration skills. The observation results showed that students' exploration skills increased to 86%. Students were seen to be more active in carrying out exploration activities, such as observing phenomena, asking questions, gathering information, and expressing opinions and drawing conclusions. In addition, the mastery of students' IPAS learning outcomes also increased to 88%, thus meeting the research success indicators.

Table 1. Recapitulation of Improvements in Exploration Skills and Learning Completion

No	Aspects Assessed	Cycle I	Cycle II	Description
1	Student Exploration Skills	62%	86%	Improved
2	Completion of IPAS Learning Outcomes	65% (11 students completed, 6 did not complete)	88% (15 students completed, 2 did not complete)	Improved

The increase in students' exploration skills from 62% in cycle I to 86% in cycle II shows that the application of the inquiry learning model can increase students' active involvement in IPAS learning. The inquiry learning model provides opportunities for students to learn through a process of discovery, so that students do not only receive information from teachers but are directly involved in the learning process. This is in line with Sanjaya's (2016) opinion, which states that inquiry-based learning emphasises students' active involvement in critical and analytical thinking processes.

In addition, the increase in IPAS learning outcomes from 65% in cycle I to 88% in cycle II shows that good exploration skills have a positive effect on students' understanding of concepts. Through exploration activities, students gain more meaningful learning experiences, making it easier for them to understand IPAS material. This finding is in line with Bruner's theory (in Dahar, 2011), which states that learning will be more effective if students actively discover the concepts they are learning themselves.

Thus, the results of this study reinforce the finding that the application of the inquiry learning model in IPAS learning can significantly improve the exploration skills and learning outcomes of primary school students.

CONCLUSION

Based on the results of classroom action research (CAR) conducted in two cycles through the application of the inquiry learning model in IPAS learning, it can be concluded that the inquiry learning model is able to improve the exploration skills of primary school students. This is demonstrated by an increase in students' exploration skills from 62% in cycle I to 86% in cycle II.

In addition, the application of the inquiry learning model also improved students' science learning outcomes. The percentage of learning completeness increased from 65% in cycle I to 88% in cycle II. Thus, the implementation of the inquiry learning model is effective in improving the exploration skills and science learning outcomes of primary school students.

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