

Student Involvement in Science Learning through Direct Instruction Model

Cefi Kurniasih¹, Ana Andriani²

¹SD Negeri Gombolharjo 02, Adipala, Cilacap

²Magister Pendidikan Dasar, Universitas Muhammadiyah Purwokerto

ARTICLE INFO

Article history:

DOI:

[10.30595/pssh.v25i.1688](https://doi.org/10.30595/pssh.v25i.1688)

Submitted:

July 22, 2025

Accepted:

August 11, 2025

Published:

August 24, 2025

Keywords:

Student Involvement; Science Learning; Direct Instruction

ABSTRACT

This study aims to analyze student involvement in learning Natural Sciences (IPA) by implementing the Direct Instruction model. The Direct Instruction model emphasizes the delivery of structured and systematic materials. The Direct Instruction model is used to ensure deep understanding. This study was conducted in grade V using qualitative methods. Data collection techniques used interviews, observations, and document analysis to collect data related to student experiences and interactions during the learning process. The results of the study indicate that the application of the Direct Instruction model can increase student involvement in science learning. Active participation is shown in discussions, exercises, and practical activities in learning. Observations also revealed that students felt more motivated and confident in understanding the science concepts taught. In this study, it was found that the Direct Instruction model is not only effective in delivering materials, but also in increasing student involvement, and can have a positive effect on student learning outcomes.

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Corresponding Author:

Cefi Kurniasih

SD Negeri Gombolharjo 02, Adipala, Cilacap

Email: cefi.aira@gmail.com

1. INTRODUCTION

Natural Science learning in elementary schools plays an important role in shaping scientific, logical, and critical thinking in children. Students are invited to understand various natural phenomena and scientific processes that occur around them. Active student involvement in the learning process is prioritized in order to achieve maximum results. In 1960, the Direct Instruction Model was created by Engelmann and his colleagues at the University of Illinois at Urbana-Champaign under the Follow Through Grant Project [1]. The Direct Instruction Model is one of the teaching models that can help students learn basic skills and obtain information that can be taught step by step [2].

The application of the Direct Instruction model is effective in improving the understanding of fourth grade students on energy change material [3]. The Direct Instruction Model can increase student learning motivation in science subjects [4]. Initial observations carried out at Gombolharjo 02 Elementary School, Adipala District, showed that the participation of fifth grade students in science learning was still quite low. Most students tend to be passive, rarely ask questions, and are less active in class discussions. The monotonous learning method with lectures makes the teacher the only source of information and students only as listeners.

Students do not get many opportunities to be actively involved in the learning process. Learning strategies that emphasize student activities need to be improved. The Direct Instruction Model is one alternative that can be considered to make students actively involved in science learning. This learning model focuses on delivering material directly and in a structured manner through clear steps starting from explaining learning

objectives, providing examples, conducting guided exercises, to evaluation. Teachers play an active role in directing the learning process in a systematic way and providing opportunities for students to actively participate at every stage of learning.

2. RESEARCH METHODS

This study uses a qualitative approach with a case study research method. Qualitative research focuses on the meaning and understanding of phenomena in relation to the natural context [5]. This approach was chosen to deeply understand the experiences, interactions, and involvement of students during the science learning process using the Direct Instruction model. This research was conducted at SD Negeri Gombolharjo 02, Adipala District, Cilacap Regency. The research period was carried out for 3 months, namely February-April 2025. The research subjects were part of a representative population, using certain techniques [6].

The subjects of this study were fifth grade students at SD Negeri Gombolharjo 02, Adipala District, Cilacap Regency. The collection technique used observation, interviews, and document analysis such as learning records and student assignment results. Observations were carried out directly to observe student interactions, participation in discussions, exercises, and practical activities in the classroom. Interviews were conducted to explore students' experiences, perceptions, and involvement during the learning process. Document analysis supports data triangulation to ensure the validity of the research results.

3. RESULTS AND DISCUSSIONS

The study was conducted to describe student involvement with the use of the direct instruction model in science learning in class V of Gombolharjo 02 Elementary School, Adipala District, Cilacap Regency. The direct instructions model is very suitable if teachers want students to master certain information or skills [7]. This study uses the direct instructions model with steps according to Bruce and Weil. The steps of the model are orientation, presentation, structured practice, guided practice, and independent practice. Poskitt and Gibbs stated that student involvement in school is the quality and quantity of students' psychological states such as cognitive, emotional and behavioral reactions to the learning process, as well as academic and social activities in class or outside the classroom to achieve good learning outcomes [8].

This study focuses on student involvement in science learning. The Direct Instruction model facilitates student involvement in terms of cognitive, affective, and social aspects. The cognitive aspect can be seen from structured instructions that facilitate concept retention [9]. The affective aspect includes feedback that can build self-confidence [10]. The social aspect can be seen from the arrangement of structured discussions that support inclusive participation [11]. A conducive classroom environment also emerged as a key factor in this case study. Observation results from the implementation of the Direct Instruction model showed an increase in student engagement. Students were seen actively in class discussions, actively participated in practice questions, and showed enthusiasm in practical activities.

Students focused on paying attention to the teacher's explanations that were structured, systematic, and showed a high interest in understanding the material presented. Interviews with students revealed that they felt more confident in mastering and understanding science concepts. They admitted that the delivery of material was coherent and clear. Systematic delivery of material helps students more easily understand material that was previously considered difficult. Students feel more motivated to ask questions and be involved in learning activities. An interview quote with students on the discussion indicator states that

"I dare to express my opinion because there is a scheduled turn to ask questions".

In the activity of working on practice questions, one student said

"Clear instructions from the teacher make it easier for me to work on questions".

Practical activities encourage students to work well with their peers. One student stated that

"Clear explanations and instructions during the practicum made me and my friends understand the properties of light".

The use of the direct instruction model also supports self-confidence in question and answer activities. One student said

"I am more confident in asking the teacher because the teacher asks "Is there anything you want to ask?"".

Positive learning outcomes were obtained from document analysis in the form of student work results and notes. Assignment scores, quizzes, and lab reports showed positive progress after the application of the Direct Instruction model. The application of the Direct Instruction model in science learning in grade V has a positive impact on student engagement. This model provides a clear learning structure, so that students find it easier to follow the learning flow and understand the material. The gradual delivery of information, the provision of concrete examples, and gradual exercises make students feel more prepared and confident. These results are in line with the characteristics of the Direct Instruction model

which emphasizes the provision of explicit instructions and repeated exercises to ensure deep understanding. With higher student engagement, their intrinsic motivation also increases, which ultimately has a positive impact on the achievement of learning outcomes.

4. CONCLUSIONS

Based on the background of the problem and the results of the research conducted in class V, it was concluded that the application of the Direct Instruction model in science learning was able to increase student involvement. This learning model provides a step-by-step and systematic learning structure so that it helps students better understand the material, feel confident, and be motivated to be actively involved in the learning process. Student involvement is seen through discussions, exercises, and practical activities that they follow enthusiastically. Feedback given by the teacher during learning is an important factor in strengthening student participation and understanding of science concepts. Therefore, the Direct Instruction model has proven effective in delivering material, increasing student involvement, and more positive student learning outcomes.

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