2026 Volume: 02 Issue: 05 www.ijrpa.com ISSN 2456-9995 Research Article

International Journal Research Publication Analysis

Page: 01-03

INQUIRY-BASED LEARNING APPROACH IN TEACHING SCIENCE ON STUDENT'S SKILLS: A NARRATIVE INQUIRY AMONG TEACHERS

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Article Received: 25 March 2026
Article Revised: 15 April 2026
Published on: 05 May 2026

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DOI: https://doi-doi.org/101555/ijrpa.3454

ABSTRACT

This study examined the effectiveness of the inquiry-based learning (IBL) approach in teaching science, focusing on its role in developing students' skills, improving conceptual understanding, and identifying challenges encountered by teachers. Using a qualitative narrative research design, data were gathered from Junior High School science teachers and students in selected municipalities in Cotabato. Findings revealed that IBL promotes higher-order thinking skills, problem-solving abilities, and scientific interest through active engagement, collaboration, and real-world applications. However, challenges such as limited resources, time constraints, student readiness, and teacher preparedness were identified. Teachers addressed these challenges through strategies such as formative assessment, scaffolding, classroom management, and resource optimization. The study concludes that IBL is an effective approach in enhancing both academic and lifelong learning skills, emphasizing the need for adequate support systems to ensure its successful implementation.

INTRODUCTION

Engaging students in science learning fosters curiosity, confidence, and an appreciation for scientific exploration. Inquiry-based learning has been recognized as an effective instructional approach that enhances student performance, self-efficacy, and conceptual understanding while developing essential 21st-century skills such as critical thinking, collaboration, communication, and creativity. Despite its benefits, the implementation of IBL in the Philippines faces several challenges, including lack of resources, insufficient teacher training, and time constraints. There is also limited research on the experiences of Filipino teachers in applying this approach. This study aims to explore how inquiry-based learning

promotes skill development among students, identify challenges faced by teachers, and examine the strategies used to overcome these difficulties. It also seeks to determine the skills students acquire and how these contribute to their understanding of scientific concepts.

METHODS

This study utilized a qualitative narrative research design to explore the experiences of teachers and students regarding the use of inquiry-based learning in science education. The research was conducted in selected municipalities in Cotabato, involving Junior High School science teachers and students as participants. Purposive and criterion-based sampling techniques were used to select informants who met specific qualifications. Data were collected through interviews using structured guides, supported by audio and video recordings, and informed consent was secured prior to participation. The data were transcribed and analyzed using thematic analysis to identify patterns and emerging themes. Ethical considerations such as confidentiality, voluntary participation, and data privacy were strictly observed throughout the research process .

RESULTS

The results revealed that inquiry-based learning effectively promotes higher-order thinking skills, critical thinking, and problem-solving abilities among students. Through questioning, exploration, and hands-on activities, students became active participants in their learning and developed deeper understanding of scientific concepts. Collaborative inquiry and peer learning enhanced communication and teamwork skills, while real-world applications made learning more meaningful and relevant. However, teachers encountered challenges in implementing IBL, including limited resources and laboratory equipment, time constraints in covering the curriculum, varying levels of student readiness, and lack of teacher confidence in facilitating open-ended inquiry. To address these challenges, teachers employed various strategies such as formative assessments, scaffolding techniques, structured inquiry tasks, classroom management practices, and the use of low-cost materials. Additionally, students developed essential skills such as research and analytical abilities, communication and reporting skills, self-directed learning, and increased confidence, which contributed to improved understanding of scientific concepts.

DISCUSSION

The findings highlight the effectiveness of inquiry-based learning as a student-centered approach that fosters deeper engagement and meaningful learning in science education. The development of higher-order thinking and problem-solving skills supports the notion that active learning strategies are more effective than traditional methods. The application of Vygotsky's scaffolding theory emphasizes the importance of guided learning, where teachers gradually reduce support as students become more independent. Despite the benefits of IBL, the identified challenges indicate the need for improved teacher training, adequate resources, and better curriculum alignment to support its implementation. The strategies employed by teachers demonstrate that adaptability and creativity are essential in overcoming instructional barriers. Overall, the study underscores the importance of inquiry-based learning in developing not only academic competencies but also lifelong learning skills, suggesting that its integration into science education should be strengthened and supported.