**Inquiry-based science approach in kindergarten: a systematic review**

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**Abstract**

Inquiry-based learning is a pedagogical approach that empowers learners to actively construct knowledge by engaging in problem-solving, critical thinking, questioning, and hands-on experiences. The inquiry-based approach in science emphasizes learners' active role in creating their understanding of the natural world. This review critically examines the application and impact of inquiry-based science approaches in kindergarten education. Through a thorough analysis of 16 research articles, the study shed light on different aspects of inquiry-based learning, including subject areas, participants, methodologies, types of inquiry-based approaches, theoretical frameworks, and impacts on learning outcomes. Findings show a predominant focus on early years’ science, with kindergarten children being the primary participants. The use of qualitative research methods shows a trend toward a comprehensive understanding of the issue. The study underscore the significance of using inquiry-based learning approach in kindergarten education and offers helpful information for teachers, decision-makers, and researchers. It also emphasizes the need for further empirical studies, particularly those addressing instructional models, challenges faced in the classroom to execute inquiry-based learning, and longitudinal studies to evaluate the long-term impacts of inquiry-based science education on kindergarten children performance.

**Keywords:** inquiry-based, kindergarten, science