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## Practitioners' understanding of integrating basic science into lessons in the early childhood development playroom

Early Childhood Development serves as a crucial foundation for lifelong learning, with basic science education playing a key role in fostering curiosity, critical thinking, and problem-solving skills of young children. However, many practitioners look like face challenges in integrating science concepts into playroom activities. Understanding how practitioners apply basic science in these settings is essential for improving early science education. This study aims to explore practitioners' understanding of integrating basic science into lessons in the early childhood development playroom. A qualitative research approach will be adopted, using an exploratory case study design to gain in-depth insights into practitioners' understanding and pedagogical approaches. Data will be gathered through semi-structured interviews, classroom observations, and document analysis. Interviews will provide insights into practitioners' perspectives, while observations captured real-time teaching practices. Lesson plans and activity guides will be analysed to assess curriculum alignment with science learning objectives. The study will be conducted in eight selected Early Childhood Development centers. Four from urban and four from rural settings to capture diverse teaching contexts. The population included qualified Early Childhood Development practitioners. This study grounded in Vygotsky's sociocultural theory were also used to examine how children acquire scientific knowledge through play and social interaction. The expected finding assume that while practitioners recognise the importance of science education, many lack formal training in early science instruction. Play-based strategies such as storytelling, sensory exploration, and nature-based activities will be used. Despite a willingness to integrate science into playroom lessons, gaps in training and resources hinder effective implementation. The study will conclude that addressing these gaps can improve science learning outcomes in Early Childhood Development settings. The study will recommend that encouraging knowledge-sharing among practitioners to exchange best practices in early science education is crucial to improve basic science literacy and inquiry-based learning from an early age.

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