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Research Article

Knowledge and Practices of Elementary Teachers on Thematic Approach Towards Inclusive Science Education

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ABSTRACT

This study investigated the relationship between the level of knowledge and practice of the thematic approach towards inclusive education among elementary teachers in Iba District, Philippines. A descriptive correlational design was employed, utilizing a survey questionnaire administered to 75 elementary teachers from three selected schools. The findings revealed that the teacher-respondents demonstrated a high level of knowledge and consistently practiced the thematic approach in their teaching strategies, learning activities, instructional materials, and assessment. Furthermore, there is a strong association ($r=0.886$, $p<0.01$) between teachers' knowledge of the thematic approach and their reported use of it in their teaching practices in ensuring inclusive science education. Thus, professional development that enhances teachers' understanding of the thematic approach is recommended, as this is directly associated with improved classroom implementation and more effective inclusive education practices. Additionally, further research could explore the specific impacts of thematic teaching methods on student learning outcomes and inclusivity in diverse classroom settings.

Keywords: *Thematic approach, Science education, Inclusive education*

Introduction

The evolving landscape of education demands innovative approaches that cater to the diverse needs of learners. Traditional subject-based science education is giving way to more holistic and integrated learning experiences, emphasizing the importance of connecting scientific concepts to real-world issues and interdisciplinary applications. This shift has led to a

growing interest in thematic approaches, fostering deeper understanding and enhanced engagement among students across diverse subject disciplines.

Thematic-scientific learning integrates various subjects around a central theme, enhancing students' understanding and engagement in science (Nugrahaningsih et al., 2020; Sahabuddin et al., 2023). This approach fosters

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high-order thinking skills and emphasizes active student engagement and the application of scientific methods, enhancing both understanding and problem-solving skills. Additionally, it encourages students to explore concepts from multiple perspectives, fostering critical thinking and a deeper understanding of the interconnectedness of knowledge. However, the implementation of thematic approaches in education, particularly in elementary schools, faces several significant challenges (Harliani et al., 2023; Wardani et al., 2020; Vhila et al., 2022). Teachers often lack sufficient knowledge of thematic pedagogy, hindering effective implementation. This deficiency can result in inadequate planning, limited use of diverse teaching strategies, and a reliance on traditional, teacher-centered methods.

Simultaneously, the focus on inclusive education, which aims to provide equitable access and opportunities for all learners regardless of their backgrounds, talents, or requirements, has gained significant importance. Inclusive science education seeks to create equitable learning environments that support all learners by integrating diverse perspectives and needs, thereby enhancing engagement and motivation (Roski et al., 2024; Graichen et al., 2024). However, implementing inclusive education faces its own set of challenges, especially in resource-constrained settings. As highlighted by the Global Monitoring Report (2020), large class sizes, insufficient educational support, and inadequate professional teacher networks can impede the effective inclusion of students with disabilities.

Teacher knowledge and practices are crucial for the success of both thematic approaches and inclusive education. Effective implementation requires educators to possess a deep understanding of diverse learners and inclusive pedagogical strategies. Strong content knowledge and pedagogical content knowledge are also essential for effective student learning and assessment (Portwood, 2022). Moreover, limited facilities and resources can hinder teachers' ability to address learning barriers, necessitating adaptations to curriculum and evaluation procedures to support diverse learners (Muega, 2019). This underscores the

critical importance of teacher preparedness for a successful transition to inclusive education.

This study addresses a critical gap in understanding the connection between these two vital approaches, specifically focusing on teachers' knowledge and practices in implementing thematic instruction within inclusive classrooms.

Methods

Research Design

This study employed a descriptive correlational design to investigate the relationship between science teachers' knowledge of thematic instruction and their classroom practices related to its implementation within inclusive education settings. This quantitative approach is well-suited for examining relationships between variables without manipulation. Specifically, this design aimed to describe the levels of teachers' knowledge and practice and then explore the correlation between these two variables. To enhance the validity and richness of the data, a triangulation approach, incorporating classroom observations and interviews supplemented the survey data.

Locale and Participants

The study was conducted in public elementary schools in Zambales, Philippines. It was participated by 75 public school teachers, and 3 school heads assigned in Iba District.

Research Instrument

A survey questionnaire was the primary data collection instrument used to assess science teachers' knowledge and practices related to thematic approaches in inclusive education. The survey measured the teachers' knowledge and practices of thematic instruction across four domains: teaching strategies, learning activities, instructional materials, and assessment. To establish content validity, the initial draft of the survey was reviewed by a panel of experts. Their feedback regarding clarity, consistency, and suitability of the items was incorporated into revisions. A pilot test was conducted to determine the instrument's reliability. Cronbach's alpha was calculated for each of the four domains in both the knowledge and

practice sections. The resulting alpha coefficients for knowledge were: Teaching Strategy (0.909), Learning Activities (0.963), Instructional Materials (0.923), and Assessment (0.950). For practice, the alpha coefficients were: Teaching Strategies (0.938), Learning Activities (0.926), Instructional Materials (0.967), and Assessment (0.924). These high alpha values, indicating excellent to good internal consistency, confirmed the instrument's reliability for data collection.

Data Analysis

Data analysis involved both descriptive and inferential statistics. Descriptive statistics, including frequency counts, percentages, and weighted means, were used to summarize the data while inferential statistics, employing Pearson's r correlation coefficient, was used to assess the strength and direction of the linear

relationship between teachers' extent of knowledge and level of practices towards thematic approach in teaching science.

Ethical Considerations

Indorsement letter from the Schools Division Office was secured and communication letters to the school principals were distributed prior to the conduct of the study. Throughout the research process, ethical considerations were prioritized in adherence to Data Privacy Act of 2012. Informed consent was obtained from all participants prior to their involvement in the research. Participants were provided with information about the purpose of the study, the data collection procedures, and their right to withdraw from the study at any time. Participants were assured of the confidentiality of their responses and the anonymity of their identities in any reporting of the findings.

Result and Discussion

Level of Knowledge on Thematic Approach towards Inclusive Science Education

Table 1. Level of Knowledge on Thematic Approach towards Inclusive Science Education

Indicators	Mean	Descriptive Equivalent	Rank
Teacher's Teaching Strategy	3.54	Highly Knowledgeable	2.5
Learning Activities	3.54	Highly Knowledgeable	2.5
Instructional Materials	3.59	Highly Knowledgeable	1
Assessment	3.51	Highly Knowledgeable	4
Grand Mean	3.55	Highly Knowledgeable	

The data revealed that teachers demonstrated a high level of knowledge regarding the integration of thematic approaches into inclusive education across all assessed domains: Instructional Materials ($M=3.59$), Teacher's Teaching Strategies ($M=3.54$), Learning Activities ($M=3.54$), and Assessment ($M=3.51$). The overall grand mean of 3.55 indicates that, as a whole, the teacher-respondents were highly knowledgeable in the use of thematic approach in teaching.

Specifically, teachers expressed high confidence in their ability to use technology-based teaching strategies within a thematic framework, recognizing the potential of technology to engage students and support diverse learning needs (Haleem et al., 2022). They also strongly agreed on the importance of flexible themes that accommodate a variety of

activities and learning experiences, acknowledging the positive impact of such flexibility on student outcomes. This emphasis on varied approaches resonates with research findings, which highlight the benefits of diverse and engaging learning experiences that cater to students' developmental levels and needs (Dewi & Rukmini, 2019; Agusdianita et al., 2019).

While all domains were rated as "Highly Knowledgeable," some nuances emerged. Teachers expressed slightly less confidence in ensuring learning activities were natural and integrated rather than fragmented. This suggests a potential area for professional development focused on seamlessly integrating thematic concepts into all aspects of the learning experience, moving away from isolated activities. This concern about fragmented activities contrasts with the broader recognition of the

benefits of thematic learning in creating meaningful connections across subjects. This finding highlights the need to emphasize the holistic nature of thematic instruction, ensuring that activities are not merely grouped under a theme but genuinely contribute to a cohesive learning experience.

Regarding instructional materials, teachers demonstrated a strong understanding of the importance of engaging, applicable, realistic, and interesting resources. This aligns with research emphasizing the role of instructional materials in enhancing learning (Kreps et al., 2024; Anthony & Andala, 2023). Effective instructional materials not only facilitate active learning but also cater to diverse learning needs, thereby fostering a more inclusive educational environment. Teachers also recognized the value of multimedia in connecting diverse subject areas and promoting inclusive learning, further supporting the idea that they are aware of the importance of making learning accessible and engaging. This is also evident during class observations, as highlighted by the principals of the surveyed schools.

In the area of assessment, teachers demonstrated significant knowledge of incorporating

a thematic approach, indicating their comfort with aligning assessments to thematic content. However, they expressed slightly less confidence in integrating diverse subjects within assessments, reflecting earlier findings regarding learning activities. This highlights the need for professional development that provides practical strategies for designing assessments that effectively capture interdisciplinary learning within a thematic framework. Schools are addressing this through coaching and mentoring activities. Furthermore, this finding aligns with the recognized importance of both formative and summative assessments in improving pedagogical practices and instructional outcomes (Smith et al., 2024). The promotion of critical and creative thinking at higher cognitive levels in thematic teaching is also achievable through problem-based learning models (Johnson & Brown, 2023).

The findings showed that the teacher-respondents generally understand thematic teaching in inclusive classrooms, but need more training on how to smoothly combine different subjects and themes within lessons and tests, which is especially important for teaching science in a connected way.

Level of Practices on Thematic Approach towards Inclusive Science Education

Table 2. Level of Knowledge on Thematic Approach towards Inclusive Science Education

Indicators	Mean	Descriptive Equivalent	Rank
Teacher's Teaching Strategy	3.65	Always Practiced	1.5
Learning Activities	3.62	Always Practiced	3
Instructional Materials	3.65	Always Practiced	1.5
Assessment	3.57	Always Practiced	4
Grand Mean	3.62	Always Practiced	

The data indicated that teachers consistently practiced integrating thematic approaches into inclusive education across all domains: Instructional Materials ($M=3.65$), Teacher's Teaching Strategies ($M=3.65$), Learning Activities ($M=3.62$), and Assessment ($M=3.57$), with a grand mean of 3.62 signifying consistent practice.

The participants were utilizing the thematic approach in their classroom discussions. It was noted that during implementation, the teacher-respondents prioritized orienting students to lesson goals and required skills,

recognizing its positive impact on setting clear expectations and maintaining student focus (Kreps et al., 2024). Teachers also consistently used age-appropriate activities such as games, drama, and music to engage children actively, facilitating attention, emotion, and behavior regulation (Portwood, 2022).

Regarding instructional materials, teachers consistently selected resources aligned with multiple intelligences and connected to other subject areas, recognizing the importance of accessible and engaging materials (Ali et al., 2020). It was observed that the overall practice

of using diverse and appropriate resources was consistently high, indicating inclusivity in the classes.

In assessment practices, teachers consistently employed peer assessment, recognizing its formative value and potential benefits for student learning (Double et al., 2020). Although integrating diverse subjects within assess-

ments received slightly lower scores, the overall practice of using thematic approaches in assessment was consistently observed. This suggests that while teachers are implementing thematic instruction in their classrooms, further support may be needed to fully integrate interdisciplinary connections across all aspects of teaching and assessment.

Significant Relationship between the Level of Knowledge and Level of Practices on Thematic Approach towards Inclusive Education of the Teacher-Respondents

Table 3. Pearson R between the Level of Knowledge and Level of Practices on Thematic Approach towards Inclusive Education of the Teacher-Respondents

Correlation	0.886
Sig. (2-tailed)	0.00
N	75
Interpretation	Very High Positive Correlation Significant

There is a very high positive correlation between teachers' knowledge and their practice of thematic approaches in inclusive education ($r = 0.886$; $p < 0.01$). This strong correlation suggests that higher levels of knowledge are associated with higher levels of practice, and vice versa. This finding is supported by the high mean scores observed for both knowledge and practice of respondents on thematic approach in promoting inclusive science education.

As one teacher-respondent articulated, the thematic approach connects various subject areas under a common topic (Hu, 2024), which contributes to both their understanding and implementation of inclusive thematic strategies. It was revealed that teachers are constantly practicing the approach, and its effectiveness is evident in the assessment results of the learners in their classes.

Furthermore, a school head noted that teachers are facilitating students' progressive development of scientific and literacy skills and encouraging knowledge construction through thematic learning. This is reinforced by ongoing professional development, including training and mentoring programs where experienced educators share their expertise during their School Learning Action Cells (SLACs) and in-service trainings. This commitment to continuous improvement was observed across all surveyed schools, demonstrating the Department of Education's (DepEd) active promotion

of thematic approaches and inclusive education to enhance educational quality. This emphasis aligns with the principle that thematic learning strategies should consider student diversity (Tampubolon et al., 2023; Mardhatillah et al., 2019) and the broader goals of inclusive education, which strive to create welcoming learning environments where every student feels valued, respected, and actively engaged.

Conclusion

This study focused into elementary teachers' understanding and implementation of thematic instruction in science, within inclusive classrooms in the Philippines. The findings reveal a generally strong understanding of thematic principles across key pedagogical areas: teaching strategies, learning activities, instructional materials, and assessment. Teachers demonstrated not only sound knowledge of these principles but also consistently reported their practical application in classroom settings. Notably, a highly significant relationship between the level of knowledge and the level of practice in the use of a thematic approach toward inclusive education was revealed indicating that enhanced understanding directly translates to more effective implementation of thematic approach, and vice versa.

Based on these findings, the study offers several recommendations designed to support educators and enhance learning experiences

for all students. Schools are encouraged to maintain and build upon existing effective practices by providing ongoing professional learning opportunities, especially to newly hired teachers. These should prioritize practical strategies, such as seamlessly integrating themes across diverse subjects and designing assessments that reflect this integrated approach. Facilitating collaborative exchanges between surveyed and unsurveyed schools within the division is also recommended, as peer learning and resource sharing can be powerful tools for professional growth. Individual teachers are encouraged to engage in reflective practice, seek feedback from colleagues and students, and explore innovative methods for making interdisciplinary connections.

Future research should explore the impact of thematic instruction on student learning outcomes in greater depth. Also, expanding the sample size and diversity of participants in future studies would enhance the generalizability of the findings and provide a more comprehensive understanding of the role of thematic approaches in promoting inclusive science education in diverse educational contexts.

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