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Creating Inclusive Spaces Through Biophilic Classroom Design: A Phenomenological Exploration of Filipino Kindergarten and Special Education Teachers' Experiences in Thailand

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Abstract

This study explores how Filipino kindergarten and special education teachers in Thailand construct inclusive classroom environments through biophilic design. Anchored in phenomenology, the research examines teachers' lived experiences in integrating natural elements such as light, plants, and spatial aesthetics into pedagogical practice. Data were collected through in-depth interviews, classroom observations, and document analysis involving eight co-participants. Using reflexive thematic analysis, five core dimensions emerged: grounding in biophilic inclusivity, adaptive cultural integration, practical resourcefulness and teacher agency, engaged collaboration and community synergy, and responsive flexibility in pedagogy. These dimensions were synthesized into the GAPER Framework, a contextually grounded model of inclusive and aesthetic classroom practice. Findings reveal that biophilic design extends beyond visual enhancement, functioning as a medium for emotional regulation, cultural belonging, and inclusive engagement. Teachers demonstrated resilience and creativity in navigating structural constraints, emphasizing the role of agency and cultural negotiation in shaping learning environments. The study contributes to inclusive education discourse by foregrounding teacher experiences in transnational contexts and proposing a framework adaptable to multicultural educational settings.

Keywords: *biophilic classroom design, inclusive education, Filipino teachers, phenomenology, GAPER Framework, multicultural classrooms*



1. Introduction

Education is increasingly recognized not only as a means of academic development but as a holistic process that fosters equity, inclusion, and overall well-being among learners. Contemporary global frameworks such as the United Nations Sustainable Development Goal 4 (SDG 4) emphasize the need to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all (UNESCO, 2020). This paradigm shift reflects a broader reconceptualization of education, where learning is no longer confined to cognitive achievement but extends to the physical, emotional, and social dimensions of student development (OECD, 2021). Within this evolving perspective, scholarly attention has moved beyond curriculum content toward the broader ecology of learning, particularly the role of the physical and aesthetic environment in shaping educational experiences. Empirical studies have consistently demonstrated that classroom design significantly influences students' engagement, emotional regulation, and academic outcomes, with environmental factors accounting for measurable variations in student performance (Barrett et al., 2015; Cheng et al., 2020). These findings position classroom environments as active contributors to learning rather than passive backdrops.

In response to this shift, biophilic classroom design the integration of natural elements such as light, vegetation, airflow, and organic materials into built environments—has emerged as a promising approach to enhancing learning spaces. Rooted in environmental psychology, biophilic design is grounded in the premise that humans possess an innate affinity for nature, which, when incorporated into learning environments, can positively influence well-being and cognitive functioning (Kellert, 2018; Ryan et al., 2014). Beyond aesthetic enhancement, biophilic elements have been shown to contribute to psychological safety, reduce stress, improve attention, and support sensory regulation, particularly among young and neurodiverse learners (Aminpour, 2024; Kim & Park, 2025). Furthermore, access to natural light, greenery, and nature-inspired spatial configurations has been associated with increased student engagement and emotional stability, reinforcing their role as critical components of inclusive learning environments (Delos Santos, 2022; Lim & Yusoff, 2023). These benefits are particularly salient in inclusive education contexts, where diverse learners require adaptive, flexible, and responsive environments that support their varied cognitive, emotional, and sensory needs (Hernández-Torrano et al., 2020).

In multicultural and transnational contexts, such as Filipino teachers working in Thailand, the role of classroom design becomes even more complex and nuanced. Teachers are not only tasked with facilitating learning but also with navigating cultural differences, institutional expectations, and resource constraints while fostering inclusive environments. Research indicates that educators in cross-cultural settings often engage in continuous identity negotiation, blending their cultural values with those of the host environment to create meaningful and responsive learning spaces (Le Chat, 2021; Arcuino et al., 2022). In such contexts, classroom aesthetics and design serve as cultural mediators, reflecting both the teachers' pedagogical intentions and the sociocultural realities of their students. This dynamic process highlights the importance of teacher agency and contextual adaptability in the creation of inclusive learning environments (Nilsen, 2021; Sanford, 2024). Consequently, teachers' lived experiences provide critical insights into how inclusion and aesthetics intersect in practice, particularly in settings characterized by diversity and complexity.

Despite the growing body of literature on inclusive education and learning environments, there remains a notable gap in research focusing on the phenomenological experiences of teachers implementing biophilic classroom design in transnational and multicultural contexts. Much of the

existing scholarship has concentrated on student outcomes, policy frameworks, or quantitative assessments of environmental factors, often overlooking the perspectives of educators who actively shape and negotiate these environments in their daily practice (Pierre, 2024; Scott, 2024). This gap is particularly evident in Southeast Asian contexts, where cultural diversity and resource variability significantly influence educational practices. Addressing this limitation, the present study examines how Filipino kindergarten and special education teachers in Thailand construct inclusive classroom environments through biophilic design. By foregrounding teachers' lived experiences, this research contributes to a deeper and more contextually grounded understanding of how inclusive and aesthetically responsive learning spaces are conceptualized, enacted, and sustained in real-world educational settings.

2. Methodology

This study employed a phenomenological research design to explore the lived experiences of Filipino kindergarten and special education teachers in Thailand, with particular emphasis on how they construct inclusive classroom environments through biophilic design. Phenomenology was selected as the most appropriate methodological approach because it seeks to uncover the essence of human experiences as perceived and interpreted by individuals within their specific contexts. This design allowed the researcher to move beyond surface-level descriptions and instead capture the meanings, reflections, and interpretations that teachers attach to their everyday practices. By centering participants' narratives, the study foregrounded teachers as reflective agents whose professional decisions are shaped by cultural, institutional, and environmental factors.

The study involved eight co-participants who were purposively selected based on their direct experience in early childhood and special education settings within transnational school contexts in Thailand. The use of purposive sampling ensured that participants possessed rich, relevant, and information-dense experiences related to inclusive education and classroom design. Selection criteria included: (1) Filipino nationality, (2) active teaching experience in kindergarten or special education, and (3) engagement in designing or modifying classroom environments to support diverse learners. This sampling strategy enabled the study to generate nuanced insights grounded in authentic professional practice.

Data were generated through multiple qualitative methods, including semi-structured interviews, classroom observations, and document analysis, to ensure methodological triangulation. Semi-structured interviews served as the primary data source, allowing participants to articulate their lived experiences, personal reflections, and meaning-making processes related to biophilic classroom design, inclusion, and cultural adaptation. The interview protocol was designed to elicit rich, descriptive accounts while allowing flexibility for probing and follow-up questions. Classroom observations were conducted to provide contextual validation of participants' narratives, focusing on physical environment features, use of natural elements, spatial arrangements, and interaction patterns within the classroom. In addition, document analysis of relevant materials such as lesson plans, classroom layouts, and visual artifacts was undertaken to further substantiate the integration of biophilic and inclusive practices.

Data analysis was conducted using reflexive thematic analysis, following the framework of Virginia Braun and Victoria Clarke (2006). This approach involved a recursive and iterative process beginning with data familiarization through repeated reading of transcripts, followed by the generation of initial codes that captured significant patterns across the dataset. These codes were then organized into broader categories and themes, which were continuously reviewed, refined, and defined to ensure coherence and depth of interpretation. The reflexive nature of the analysis acknowledged the

researcher's active role in meaning-making, allowing for a nuanced interpretation of participants' experiences. Through this process, emergent themes were synthesized into a conceptual framework that reflects the dynamic interplay between classroom design, cultural context, and inclusive pedagogy.

To ensure the trustworthiness and rigor of the study, multiple validation strategies were employed. Credibility was established through member checking, wherein participants were given the opportunity to review and verify the accuracy of transcribed data and interpretations. Dependability was ensured through the maintenance of an audit trail documenting the research process, decisions, and analytical procedures. Confirmability was achieved through triangulation of data sources, including interviews, observations, and documents, minimizing researcher bias and enhancing objectivity. Transferability was supported through thick description, providing detailed contextual accounts that enable readers to assess the applicability of findings to similar settings.

Ethical considerations were strictly observed throughout the research process. Participants were informed of the purpose, scope, and voluntary nature of the study prior to data collection. Informed consent was obtained, ensuring that participants fully understood their rights, including the right to withdraw at any stage without penalty. Confidentiality and anonymity were maintained through the use of pseudonyms and secure handling of all data. All collected information was stored in protected files accessible only to the researcher, ensuring data privacy and integrity. These ethical safeguards upheld the dignity, rights, and welfare of all participants, aligning with established standards for qualitative research.

3. Results

Results and Discussion: Emergent Themes of the GAPER Framework

The analysis of participants' narratives using reflexive thematic analysis revealed five major themes that collectively form the framework. These themes capture the lived experiences of Filipino kindergarten and special education teachers in Thailand as they construct inclusive classroom environments through biophilic design.

Theme 1: Grounding in Biophilic Inclusivity

This theme reflects how teachers intentionally incorporate natural elements such as plants, natural lighting, ventilation, and organic materials to create calming, inclusive, and emotionally supportive classroom environments. Participants emphasized that these elements function not merely as aesthetic enhancements but as regulatory tools that support learners' emotional stability, focus, and sense of belonging, particularly for children with special educational needs.

Participant Responses

One participant shared:

"When I added plants and allowed more natural light in the classroom, I noticed that my students became calmer. Even those with behavioral challenges were more relaxed and focused."

Another teacher explained:

"The classroom feels more 'alive' with natural elements. It creates a safe space where children feel comfortable expressing themselves."

These findings align with environmental psychology research, which posits that exposure to natural elements enhances cognitive functioning, reduces stress, and improves emotional regulation (Barrett et al., 2015; Kellert, 2018). The results also support studies indicating that biophilic design is particularly beneficial for neurodiverse learners, as it promotes sensory balance and psychological safety (Aminpour, 2024). Within inclusive education, such environments contribute to equitable participation by addressing both emotional and sensory needs of learners (Hernández-Torrano et al., 2020).

Theme 2: Adaptive Cultural Integration

This theme highlights how teachers navigate and integrate Filipino cultural values such as *pakikipagkapwa* (shared identity) and care, with Thai cultural norms of harmony and respect. Through this process, teachers create “third culture” classrooms where multiple identities coexist, and inclusion is practiced through culturally responsive design and interaction.

Participant Responses

A participant noted:

“I bring Filipino warmth and care into the classroom, but I also adapt to Thai culture. It becomes a mix where students feel respected no matter where they come from.”

Another teacher stated:

“It’s not purely Filipino or Thai, it becomes something new. The classroom becomes a shared space of understanding.”

This finding reflects principles of culturally responsive pedagogy, which emphasize the importance of integrating learners’ cultural identities into teaching practices (Gay, 2010; Ladson-Billings, 1995). It also aligns with sociocultural theory, which views learning as shaped by cultural interactions and social contexts (Vygotsky, 1978). In transnational settings, teachers act as cultural mediators, negotiating identities to create inclusive learning environments (Le Chat, 2021; Arcuino et al., 2022). The emergence of “third culture spaces” further supports literature on hybrid learning environments in multicultural education contexts (Sanford, 2024).

Theme 3: Practical Resourcefulness and Teacher Agency

This theme underscores teachers’ creativity and agency in designing inclusive classrooms despite resource limitations. Participants demonstrated the use of low-cost, recycled, and locally available materials to implement biophilic and inclusive design principles, reflecting resilience and innovation.

Participant Responses

One teacher explained:

“We don’t always have resources, so I use recycled materials and natural objects. It’s simple, but it works for the students.”

Another shared:

“Even without budget, we find ways. It’s about being creative and making the environment meaningful.”

These findings highlight the critical role of teacher agency in shaping inclusive environments, particularly in resource-constrained contexts (Nilsen, 2021). The results also support research

indicating that teachers' beliefs and adaptive strategies significantly influence classroom design and inclusivity (Hernandez, 2023). Moreover, the use of low-cost and sustainable materials aligns with studies on biophilic design in developing contexts, where resourcefulness is essential for implementation (Delos Santos, 2022). This reinforces the idea that inclusion is not solely dependent on resources but on teachers' capacity for innovation and problem-solving (Lariosa et al., 2022).

Theme 4: Engaged Collaboration and Community Synergy

This theme emphasizes the importance of collaboration among teachers, parents, and school communities in sustaining inclusive classroom environments. Participants highlighted that inclusive design is not an individual effort but a shared responsibility supported by collective engagement.

Participant Responses

A participant stated:

"We work together-teachers, parents, even students. Everyone contributes to making the classroom inclusive."

Another shared:

"Collaboration makes it easier. When the community is involved, the classroom becomes more meaningful."

These findings are consistent with research emphasizing collaborative practices as foundational to inclusive education (Debasu & Yitayew, 2024). Studies have shown that partnerships among stakeholders enhance the effectiveness and sustainability of inclusive practices (Finkelstein et al., 2021). Additionally, community involvement strengthens students' sense of belonging and engagement, which are critical components of inclusive learning environments (Molina Roldán et al., 2021). The theme also reflects the importance of shared responsibility in fostering equitable educational spaces (OECD, 2021).

Theme 5: Responsive Flexibility in Pedagogy

This theme captures teachers' continuous adaptation of classroom environments and instructional strategies based on students' diverse needs, cultural backgrounds, and sensory responses. Flexibility was identified as essential in maintaining inclusive and responsive learning environments.

Participant Responses

One teacher explained:

"Every class is different, so I adjust the setup depending on the students. What works for one group may not work for another."

Another noted:

"I observe my students closely. If something doesn't work, I change it immediately to support them better."

This finding aligns with inclusive pedagogy, which emphasizes differentiated instruction and responsiveness to learner diversity (Finkelstein et al., 2021). It also supports literature on adaptive teaching, where flexibility is essential for addressing varied learning needs and promoting engagement (Shutaleva et al., 2023). Furthermore, culturally responsive teaching requires

continuous adjustment of practices to align with students' cultural and contextual realities (Gay, 2010). The emphasis on responsiveness reflects the dynamic nature of inclusive education, where teaching practices evolve based on ongoing observation and reflection.

4. Synthesis of Findings (GAPER Framework)

Collectively, these themes illustrate that inclusive classroom environments are not static but are continuously constructed through the interaction of **biophilic design, cultural adaptation, teacher agency, collaboration, and pedagogical flexibility**. The GAPER Framework encapsulates this dynamic process, positioning teachers as central agents in creating meaningful, inclusive, and responsive learning spaces in multicultural contexts.

5. Discussion

The findings affirm that biophilic classroom design is not merely aesthetic but deeply pedagogical. Natural elements function as tools for emotional regulation, engagement, and inclusion, aligning with environmental psychology principles. The integration of biophilic design supports inclusive education by creating spaces that accommodate diverse sensory and emotional needs.

The emergence of the GAPER Framework highlights the importance of teacher agency and contextual adaptation. Rather than relying on standardized models, teachers construct inclusive environments through reflective practice and cultural negotiation. This aligns with sociocultural and culturally responsive pedagogical perspectives, emphasizing the role of context in shaping educational practices.

Furthermore, the study underscores the significance of transnational teaching experiences. Filipino teachers in Thailand navigate complex cultural and institutional landscapes, resulting in innovative and adaptive practices. Their experiences contribute to a more nuanced understanding of inclusive education in multicultural contexts.

However, structural challenges such as limited resources and institutional constraints remain barriers. These findings call for stronger policy support, professional development, and resource allocation to sustain inclusive and biophilic classroom practices.

6. Conclusion

This study demonstrates that inclusive classroom environments are actively constructed through the intersection of biophilic design, teacher agency, and cultural adaptation. Filipino teachers in Thailand exemplify how inclusive education can be realized through creative, context-sensitive practices.

The GAPER Framework offers a practical and adaptable model for designing inclusive and aesthetically engaging classrooms. It emphasizes that inclusion is not solely a policy directive but a lived, negotiated process shaped by teachers' experiences and decisions.

Ultimately, the study advocates for a reimagining of classroom environments as dynamic, culturally responsive spaces that support holistic student development.

7. Implications

The findings have significant implications for educational practice, policy, and research. For educators, the study highlights the importance of integrating natural and aesthetic elements into classroom design to support inclusion. For policymakers, it underscores the need for supportive

frameworks and resources to enable such practices. For researchers, it opens avenues for further exploration of biophilic design in diverse educational contexts.

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